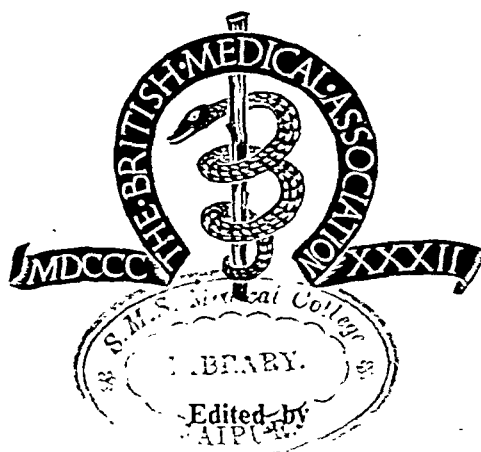


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KEY TO DATES AND PAGES

THE following table, giving a key to the dates of issue and the page numbers of the BRITISH MEDICAL JOURNAL and SUPPLEMENT in the first volume for 1938, may prove convenient to readers in search of a reference.

Serial No.	Date of Issue	Journal Pages	Supplement Pages
4017 ..	Jan. 1 ..	1 - 54 ..	1 - 12
4018 ..	" 8 ..	55 - 104 ..	13 - 24
4019 ..	" 15 ..	105 - 156 ..	25 - 36
4020 ..	" 22 ..	157 - 214 ..	37 - 56
4021 ..	" 29 ..	215 - 264 ..	57 - 68
4022 ..	Feb. 5 ..	265 - 320 ..	69 - 80
4023 ..	" 12 ..	321 - 370 ..	81 - 92
4024 ..	" 19 ..	371 - 432 ..	93 - 104
4025 ..	" 26 ..	433 - 498 ..	105 - 116
4026 ..	Mar. 5 ..	499 - 550 ..	117 - 128
4027 ..	" 12 ..	551 - 604 ..	129 - 140
4028 ..	" 19 ..	605 - 660 ..	141 - 152
4029 ..	" 26 ..	661 - 712 ..	153 - 164
4030 ..	April 2 ..	713 - 764 ..	165 - 176
4031 ..	" 9 ..	765 - 828 ..	177 - 188
4032 ..	" 16 ..	829 - 880 ..	189 - 208
4033 ..	" 23 ..	881 - 934 ..	209 - 252
4034 ..	" 30 ..	935 - 988 ..	253 - 288
4035 ..	May 7 ..	989 - 1036 ..	289 - 300
4036 ..	" 14 ..	1037 - 1084 ..	301 - 312
4037 ..	" 21 ..	1085 - 1142 ..	313 - 332
4038 ..	" 28 ..	1143 - 1192 ..	333 - 344
4039 ..	June 4 ..	1193 - 1248 ..	345 - 356
4040 ..	" 11 ..	1249 - 1292 ..	357 - 368
4041 ..	" 18 ..	1293 - 1348 ..	369 - 388
4042 ..	" 25 ..	1349 - 1406 ..	389 - 400

INDEX TO VOLUME I, FOR 1938

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate headings—for example, Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Child and Infant; Goitre, and Thyroid. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Annotations," "Correspondence," "Leading Articles," "Obituary," "Reviews," etc. Original Articles are indicated by the letter (O).

A

- ALICE-Anderson, Sir Maxine, obituary notice of, 1.
 ALB, W. N.: See *Synopsis of work*, 112.
 ALB, John Jacob: Elected Foreign Member of Royal Society, 1166.—Obituary notice of, 1166.
 ALBERTOWSKI, R. G.: Pathology of adolescent scoliosis, 215 (O).—Leading article on, 216a.—Trauma and progressive muscular atrophy, 559.
 ALBRITTON, Alexander, review of his book, 731.
 ALCOHOL: Analysis of 250 cases of (R. G. Cooke), 1043 (O).
 —law relating to, discussion on, 108.—Correspondence on, 541.
 —associated with brain filament cysts and *B. volutans* infection (R. Butterfield), 173.
 ALLEGRA, Adolfo: Influence of alcohol, tobacco, and physical therapy, 569.
 ALLEN, A. and ALLEN, R. (J. McNellie, Eds.):—
 ALVAREZ, acute epidural (W. R. D. Mitchell), 1149 (O).
 —retrolental and quincy (R. Scott Stevenson), 1123.
 ART, A. A.: 1937 Year Book of Pediatrics, 575.
 ALEXANDER, Italian army in, 805.—Health of refugees (Parliamentary Notes), 577.
 ARMED Forces of Medicine: New President, 656.
 ARTERIO-SCLEROSIS:—
 Status of Hypertensive untreated, 456.—Optic atrophy, 641.—Control of sera and vaccines by, 642.—Link to, 1223.—Hereditary factor in high blood pressure, 1219.
 ACADEMY OF MEDICINE IN IRELAND, ROYAL:—
 Hygiene and diet, 635.
 —Meeting of, 129.—Tomography, 668.—Buzzle branch block, 655.—Cataracts and conjunctival diphtheria, 1172.—Braun-Paul pulsatron in treatment of respiratory paralysis, 1206.
 Section of Pathology.—Meetings of, 556, 914.
 Section of Surgery.—Surgery and dental clinic, 959.
 ACADEMY, International, of Postgraduate Medicine, 1120.—Address of, 1252.
 ACCIDENTS, prevention of: Congress of National Safety First Association, 1221.
 —road, and ill-health, 1216.
 —road, No. of, at crossings where traffic lights operate, 577.
 ACETYLCHOLINE, clinical aspects of transmission of effects of nervous impulses by (Francis R. Frazer), 1249 (O), 1257 (O), 1249 (O).—Leading article on, 1170.—Correspondence on, 1233.
 —altered effect on immobilized joints (A. M. Harvey), 825 (O).
 —action of, 129.
 ACID-BASE equilibrium, 556, 648, 657, 1232.—Annotation on, 537.
 ACHROMYCETES caprae, human infection with (A. G. Gibson and others), 612 (O).
 ACTINOMYCETOSIS, review of book on, 1096.
 ADAMS, F. L.: Maternal Care, revt., 353.
 ADAM, C. (and R. ACLE): Severe Epiglottitis and its treatment, 1121.
 ADAMS, W. C.:—
 Psychiatric Prev., 124.
 —Adams, W., called to the Bar, 219.
 ADDICTION, prevention and control of, 155.
 ADLER, Alfred, and psychological medicine: relation of sexes, 20.—His contribution to general medicine, 475.
 ADOLESCENT, review of book on, 1211.
 ADONIS, East: Tuberculosis in Tanzania, 1107.—
 —Malaria and mental health in Kenya, 1573.
 —South: Nutrition of natives (Parliamentary note), 547.—Typhoid fever on the Witwatersrand, 1109.—Annual report of health department, 1221.—
 —Appointment of Secretary for Public Health, 1273.
 AFRICA, South, Medical Journal, issues devoted to, 1245b, 23.
 AGITA, Euterpe: Pasteurization of milk, 754.
 AGRANULOCYTOSIS, review of book on, 1097.
 AIR FORCE: See Services.

AIR HAND UTICATIONS

- Appliances in, 478
 Government officers and, 1153
Hot Pool, No. 2, 1015
 Hospitals and, 161, 202, 760, 924, 1031, 1282, 1400
 In Northern Ireland, 1122
 Model universities, 1127
 Municipal work in representative of, 1112, 1011
 Organization of medical services, 910—Antisocial in, 1011
 Sanitation in municipal, 1601
 Sanitary regulations, 957
 AITKEN, R. Value of atropine and hyoscine, 537
 — R. S. Mineral salts in therapy, 531
 ALABASTER, George, H. : Contra-reactions and tests, 410, 529
 ALFLEY, A. : Having antithesis, 857
 ALPERT, I. : General factors in rheumatism, 525
 ALPERT, and Leitch, 436
 ALPERT, and Leitch, 436
 — Infection, intra-uterine, for relief of pain (Clemence Ottley), 510 (0)
 — — — for the toxic leucoplasia, 560
 — — — No. of changes of drunk while in charge of car, 825
 — — — Infection, and physical efficiency, 850
 Allotment, review of book on, 176
 Allerton, Squadron Leader Ronald Eberhard, of honorary notice of, 491
 ALEXANDER, F. : Death from warping, 1348
 — John : *Cystic Therapy of Pulmonary Tuberculosis*, 1212
 — Mineral content of brain, 457
 Allingham, and Bryant, both of (H. Gordon Thompson), 7 (0)—Correspondence on, 201
 — tract, review of book on, 176
 ALLEN, F. J. : Operation to restore opposition of thumb, 1365
 — F. M. B. : Distal polio in child, recovery
 Allergy, drug (leading article), 269—Correspondence, on, 454, 591
 — experimental, 1226
 — review of book on, 451
 ALLISON, P. R. : Healing of empyema cavities, with special reference to aspiration and air replacement at all operation, 272 (0)
 — — — Spread of tuberculous infection, 866
 ALLOTT, E. N. : Mineral salts in therapy, 532
 ALPERT, treatment of, 104, 1247
 ALSTED, Stanley : *Painless Textbook of Pharmacology and Therapeutics*, second edition, rev., 1314
 Altmeyer, Hans, death of, 926
 Altmeyer, Hans, death, 1331
 — Instruction, elementary, 1192
 Amersbach : Its aetiology and treatment (T. N. MacIntosh), 717 (0)
American Heart Journal : Change of editor, 537, 1317
 American medicine, review of book on, 266
 Ammanford colliery, investigation at (parliamentary order), 82
 ANON. : Health of coal miners, 476
 Anaemia, hypochromic, in infancy, 554
 Anaemia and tropical diseases, 554
 Anaesthesia, work, for insertion of radium to epithelioma of lip (Phyllis F. L. Daplyn), 512
 — distal ether, 1026, 1127, 1175, 1237—Drip feed for
 — — — nasal endotracheal, tumour of vocal cord following (Michael Cohen), 283—Correspondence on, 1127
 — — — for (ophthalmic operations, discussion on, 1015
 — risks of explosion in (leading article), 456
 — spinal, changes in blood pressure and respiration following (H. L. Lewis and E. G. M. Palmer), 1292 (0)
 — — — Why "post-anesthetic" pulmonary complications? (G. K. Osborn), 573 (0)—Correspondence on, 457, 1127
 Anaesthetic, new local (leading article), 825
 Anaesthesia at 6
 Analysis, quail
 — Diet: 1265
 Anaphylaxis, review of book on, 125

Anatomy, review of book on, 124, 285, 306, 732

- ANDERSON, C. S. : Bacteriological carcinoma, 57
 — J. Barents et al.: Vladimir B. defficiency, 414
 — Robert-God. John, of literary notes of, 1241
 — Hallett : Time for railway, 420, 595
 Andrews, Charles Horace, of literary notes of, 515
 Ankers, advertisements, of railway notes, disc-
 cussed in, 1011
 — secondary, of left common iliac artery (D. P.
 Rankin), 1051
 Archives of : — clinical study (Geoffrey Scott) and
 R. Bailey Smith, 55 (40)
 Arteriospasm and head injuries, 213
 Arterio, Henry, of literary notes of, 499
 Arterio, review of, 1010, 753
 Arterio : Influence of unusual pupils in uncer-
 tained patients (H. K. Scott and G. A. Gernack),
 122 (10) — correspondence on, 875
Annals of Medical History, vol. 9, No. 5, 85; No. 6,
 247 — vol. 10, No. 2, 968
- Annotations.**
- Accidents, road, and ill-health, 1216
 Aircraft regulations, 1974, 957
 Air, review of, 491 in animal subjects, 1220
 Antivivipar, flying, 877
 Apple collection, under 6-8, 879
 Arachnoiditis, of toxicologic, 160
Archives of Disease in Childhood, 742
 Army, regular, medical officers for, 684
 Artificial lighting and work of weavers, 180
 Asthma research, progress in, 78
 Atmosphere, heating, 742
 Bee system for arthritis, 858
 Birthday honours, 1224
 Blackboards, yellow, 291
 Blindness, international survey of, 1164
 — prevention of, 789
 B.M.A. building and Royal Academy, 1167
 Brain, mineral content of, 457
 Bruckman, Laura, 345
 Calcium deficiency, 81
 Cancer, electrostatic detection of, 1272
 — of lung, 682
 — spontaneous recovery from, 555
Cancer in London, 1054
 Carcinoma, dental research into, 595
 Carcinoma, dental, 595
 Carcinoma, dental, 595
 Chemotherapy and cancer, 1216
 — in virus disease, 791
 Contact lenses, 1215
 Cooperation between physician, surgeon, and
 dentist, 25
 Cornwall, hospitals of, 621
 Certain arteries, action of, 151
 — occlusion, temporary, effects of, 139
 Culture, cosmetic, and medicine, 228
 Deaths, confidential certification of, 860
 "Dental benefit," 1274
 Dentistry, 1274
 D. P. Rankin, 1051
 D. P. Rankin, 1051
 Dissected sclerotic, treatment of, 1271
Dr. A. Cook's Book, 1220
 Drug, narcotic, traffic, in Egypt, 1319
 — in Egypt, 1319
- 629
- Androgen factors in breast tumours, 524
 Enzyme chemistry, 555
 Ephedrine, 729
 Epidemiological survey, weekly, 24
 Examinations, 1217
 Eye-strain, industrial, 458
 Factory, bumper, 458
 Freud in England, 1273
 Garden cities, idea of, 1111
 Gas-protective clothing, muscular work in, 1011

INDEX

Annotations (continued):
Gonorrhoea, live

- Annotations (continued):**
- Gonorrhoea, live vaccines for, 1374
 - Gout, what is it? 787
 - Hæmatomyelia, spontaneous, 956
 - Hastings Lecture, 742
 - Health in industry, 937
 - Heart, trauma of, 457
 - Hedjaz pilgrimage, 238
 - Hip, dashboard dislocation of, 903
 - Honours list, 80
 - Horner, Lord, portrait of, 1113
 - Hormones, administration of, 396
 - Hospitals, British, in China, 1322
 - for civilian casualties in air raids, 182
 - maternity, planning of, 955
 - Housing and planning, 1373
 - Hypertension, paroxysmal, 1050
 - Hyperthyroidism, urinary iodine in, 526
 - Icterus gravis neonatorum, ætiology of, 1271
 - Income tax : Everyday problems of, 1271
 - Indexes, half-yearly, 131, 240
 - Indigestion and patent medicines, 700
 - Industrial welfare the world over, 344
 - Infectious diseases, control of, 343
 - Influenza virus vaccines, 291
 - Infection risks, 935
 - Instruments, scientific, exhibition of, 129
 - Insulin treatment of schizophrenia, 1214
 - Intelligence and family size, 904
 - Irish dishes, 182
 - Journal of Neurology and Psychiatry*, 131
 - Lecture, Horsley Memorial, 1322
 - Lister medal, 1166
 - Lysozyme and bowel, 1111
 - McFadyen, Sir John : Festschrift, 1012
 - Machine and worker, 700
 - Malaria control in Hong Kong, 1273
 - in Malaya, 458
 - Mayo Clinic, physicians of, 630
 - Measles, prophylaxis of, 129
 - Medical history, course in, 1163
 - Medicine and native health in Kenya, 1373
 - Ménière's disease, 1059
 - Midwifery service, 859
 - Milk, food poisoning from, 850
 - skimmed, for school children, 682
 - Moles on face, significance of, 1164
 - Mutilation, self-painless, 905
 - Neutrons for radiotherapy, 292
 - New York health records, 181
 - Noch, Bernard, Festschrift, 1321
 - Oncocerciasis, 1372
 - Oestrin, effect of, on basal metabolic rate, 1273
 - Osteoarthritis, neurological factor in, 683
 - Ovulation, time of, 344
 - Paget Memorial Lecture, 1166
 - Patella, excision of, 397
 - Pharmacological research, 525
 - Pharmacopœia, international, 393
 - Pharmacopœial experts, commission of, 1273
 - Pituitary, variations in functional activity of, 1110
 - Plague, epidemiology of, 460
 - Pneumonia epidemic, 1057
 - lipoid, 1112
 - Poisoning, industrial, 78
 - narcotic, 1217
 - Poliomyelitis, anterior, treatment of, 178
 - in New Zealand, 1936-7, 526
 - in Victoria, 1109
 - Post-mortem results, tabulation of, 740
 - Prematurity, standard for, 1011
 - Prisoner, subnormal, 1165
 - Prostitutes, rehabilitation of, 684
 - "Q" fever, 292
 - Radium Institute and Mount Vernon Hospital, 1319
 - metabolism, 1372
 - Rancidity in edible fats, 1215
 - Refection, phenomenon of, 741
 - Research, scholarships and grants for, 130
 - Rheumatic diseases, chronic, survey of, 397
 - heart disease and vagus nerve, 956
 - Rickets, unusual factors in, 523
 - Sanatorium treatment, results of, 345
 - Shoe : does the shoe fit ? 290
 - Silicosis, workmen's compensation for, 131
 - Smoking and longevity, 791
 - Society, Heterden, and its medal, 1375
 - Sodium, conversazione, 1166
 - Sodium lactate for diabetic coma, 683
 - Span of life, 739
 - Sterilization, temporary by x rays, 1012
 - Sudan, medical work in, 632
 - Suicide in America, 80
 - Swedenborg, Emanuel, 239
 - Tetanus from cancer cure, 1013
 - Thorotrast, is it safe ? 901
 - Trachoma, ætiology of, 1111
 - Tonsillotomy, premedication for, 1057
 - Trudeau Foundation, 26
 - Tuberculosis, human, of bovine origin, 901
 - pioneer in, 180
 - pulmonary, chemotherapy in, 741
 - Tuberculous tracheobronchitis, 239
 - Urinary antiseptics, 459
 - Vertebral nerve, 1112
 - Vitamin A deficiency, diagnosis of, 247
 - B deficiency, problems of, 620
 - K, 1079
- INDEX:**
- Annotations (continued) :**
- Water biology, 1059
 - Whooping-cough, prophylaxis against, 459
 - Williams, Dawson, memorial, 1321
 - Wu Lien-Teh Dr.(G. L. Tuck), retirement of, 399
 - Anoraxemia, effects of, in animal subjects, 1320
 - Anthrax outbreaks in Angus (parliamentary note), 1258
 - Anthropology, review of book on, 848
 - Antiscipsis, binary, 459
 - Antiseptics, Ivalone, 857
 - use and abuse of, 92, 141, 200, 357, 757, 1218
 - Ashwell-Davies, T.: " Gonococcus Antitoxin " for gonorrhea, 701, 1069
 - Anxiety state treated by hypnosis, 497
 - Aorta, early occurrence of high blood pressure in coarctation of (E. Joan Rooke), 561 (O)—Correspondence on, 650, 703
 - rupture of, 44
 - Appendectomy, incision for, 860, 1024
 - Appendicitis, acute, ætiology of (A. M. Spencer), 227 (O)—Correspondence on, 307, 358, 360, 488, 489, 646, 816
 - perforative (D. D. Campbell), 1102
 - death from in America, 155
 - review of book on, 122
 - in Tristan da Cunha, 646
 - Appendix, inflamed, herniation of, 827
 - Matheson), 845
 - unusual tuberculous (D. J. Harris and Emrys Williams), 277
 - Approved societies, variation in benefits of (parliamentary note), 655
 - Arachniditis, opto-chiasmatic, 179
 - Archibald, E. W., hon. doctorate of Paris conferred on, 103
 - Archives de Disease in Childhood*, 742
 - de Médecine des Enfants, fortieth year of publication, 212
 - Archivo di Anthropologia Criminalis*: New editor, 496
 - Argentina: Undulant fever and psittacosis notified, 1292
 - Aristotle, biological works of, 783
 - Allott, Ada Hart : Adolescent, rev, 1314
 - Armstrong, J. V.: Treatment of cerebrospinal fever, 1334
 - ARMSTRONG-JONES, Sir Robert: Corporal punishment, 924—New divorce law, 1021, 1177
 - Army, Services
 - Arnold, Benedict, the fighting druggist, 580
 - ARNOLD: Susceptibility to common cold, 573
 - ARNOTT, W. Melville (and J. J. Mason Brown): Treatment of obliterative vascular disease by intermittent venous occlusion, 616 (O)
 - Arrau, Joseph, death of, 926
 - Arteries, coronary, action of, 181
 - Arthritis, bee venom for, 838
 - rheumatoid, hydrotherapy for, 308, 604
 - Asclepias, treatment of, 370, 550
 - Ascrobic acid in bronchial asthma (H. B. Hunt), 726 (O)—Correspondence on, 879
 - tion of (G. W. T. H. Fleming and T. E. Burrows), 333 (O)—Correspondence on, 542, 593
 - Ashforth, Thomas Longmore, obituary notice of, 1249
 - ASHLEY-MONTAGU, M. P.: Coming into Being among Australian Aborigines, rev, 733
 - ASUMAN, Richard (and R. Hull): Extent of Electrocupuncture, rev, 1104
 - ASHMORE, S. A. (and A. W. McKenny Wright): Coal-tar naphtha for destruction of bed-bugs application in dwelling-houses and tenements, 164 (O)—Leading article on, 177—Correspondence on, 543
 - Ashworth, Joseph Harold, obituary notice of, 99
 - Aspiration: freak deaths, 494
 - Aspirin poisoning (L. Bidder), 1365
 - sensitivity to, and asthma, 455, 593
 - Assam : Annual public health report, 479
 - Association, American, of Anatomists, fiftieth anniversary, 1191
 - Heart : Transatlantic broadcast on rheumatic disease, 1016
 - Approved Societies: Annual conference 1932
 - British, for Advancement of Science: Annual meeting, Cambridge, 671, 1254, 1262
 - Empire Leprosy Relief: Annual general meeting, 971
 - Health Resorts: Conference, 691
 - ASSOCIATION, BRITISH MEDICAL City Division.—Nasal stenosis in childhood, 615 aspects, 1045
 - Diphtheria Branch.—Modern treatment of diphtheria medicine and use of zinc paste in throat, 11—Trauma of heart, 487
 - Title of Elie Cartan.—Diets for mental patients with special reference to amount of fat, 457
 - Lincoln Diphtheria Committee Report on the medical diet and treatment, 1114
 - Nord-Glinck, April of current, 441
 - Southeyk Diet—a summary, 1314
 - FRENCH 441
 - Abundant Food.—Intermittent, polyphasic feeding associated diabetes, 707
 - Spain : Dietetic Commission report on the medical position, 1274

Annotations (continued):
Water biology, 1059
Whooping, 1059

- [illegible]

- [illegible]

- BROOK, J. F.: Mineral salts in therapy, 532
— R. C.: Diagnosis and treatment of lung abscess, 804—Extrapleural pneumothorax, 966
— Raymond S.: Study of miners' nystagmus, 443 (O)—Miners' nystagmus, 592
BROMLEY, J. F.: Radiotherapy of non-malignant
under and on, 1179
BROOKS, Henry S.: *Textbook of Surgical Nursing*, rev., 951
BROOKFIELD, R. W.: Pruritus vulvae, 584—Anterior polymyositis, 695
Brooks, Harlow, review of book on, 1007
BROSTER, L. R. (and others): *Adrenal Cortex and Intersexuality*, 1056—Correction, 1142—Correspondence on, 1336
Brown, Lieut.-Col. William Hamilton, obituary notice of, 153
BROWN, A. Forbes: Changing ground of surgery, 1300
— A. P.: Disclalmer, 1406
— F. R.: Raw or pasteurized milk, 648, 754
— George Burrows, obituary notice of, 99
— J. J. Mason (and W. Melville ARNOTT): Treatment of obliterative vascular disease by intermittent venous occlusion, 616 (O)
— Lawason, death of, 151
— William, resigns position of prospective candidate for Parliament, 1035
BROWN, F. J.: Planning of maternity hospitals, 1125
BROWNING, C. H.: Use and abuse of antiseptics, 200
BROWNING, David: *Cause of Cancer*, rev., 1268
BRUCE, G. R.: Place of health resort in surgery, 692
Brucella abortus infection, sulphonamide-P in, 145
— treated by sulphanilamide, 483, 594
BRUCE, H.: Congenital local gigantism, 943
BRYAN, C. W. Gordon: Causes and treatment of flatulence, 581
— Frank: Appreciation of Dr. A. E. Hodder, 426
— William A.: *Administrative Psychiatry*, rev., 123
BRYDNE, J. M.: Medical aspects of decline of population, 472
BUCHAN, G. F.: Health and cleanliness, 915
— J. J.: Public health services and industrial hygiene, 38
Buchanan, George Gray, obituary notice of, 1289
BUCHSTEIN, H. F.: Drug allergy, 289
BUCKLEY, C. W.: Gout and rheumatism, 793
— E. A.: Treatment of anterior polymyositis, 1130
Buckmaster, George Alfred, obituary notice of, 48, 99—Appreciation of, 650
Budget (leading article), 954—Parliamentary notes on, 984, 1031, 1080
Buenos Aires Hospital in, 496—National Institute of, d, 826
Bug: bed-bug
Bugs, coal-tar application in dwelling-houses and tenements (J. A. Ashmore and A. W. McKenny Hughes), 160 (O)—Leading article on, 177—Correspondence on, 543
— destruction of, 932
Buildings for health (leading article), 572
BULLER, Dame Georgina: Rehabilitation after injuries, 370
Bulletin Médical, issue devoted to paediatrics, 53
— de l'Office International d'Hygiène Publique: October issue, 53—November issue, 185—December issue, 431—February issue, 603, 826—March issue, 1035—April issue, 1246
BULLOWA, J. G. M.: *Management of Pneumonias*, rev., 452
BURACK, E.: Toxic action of cod-liver oil, 736
BURGER: Tuberculous tracheobronchitis, 239
BURKE, E. T. (and others): "Gonococcal anti-toxin" in treatment of gonorrhoea, 605 (O)—Annotation on, 629—Correspondence on, 701, 755, 811, 872, 1027, 1036, 1069, 1126, 1180, 1334
BURKITT, D. P.: Saccular aneurysm of left common iliac artery, 1051
BURN, J. H.: *Radiotherapy*, rev., 20
BURNELL-JONE: *Diagnosis of pulmonary tuberculosis*, 1234
BURNETT: "Q" fever, 293
— F. M. (E. V. KEOGH and D. LUSH): *Immunological Reactions of Filterable Viruses*, rev., 1159
BURNFORD, Julius: Food poisoning, 618 (O)
BURNHAM, F. E.: Hydrotherapy for rheumatoid arthritis, 808
Burns, caustic, in rabbits, 171
— and scalds, treatment of (Philip H. Mitchell), 27—Correspondence on, 93, 202, 811
BURNS, E. L.: Carcinogenesis after oestrogen injections, 1299
— Robert, pathology of, 988
BURN: Bio-electric detection of cancer, 1272
BURRELL, L. S. T.: Asthma problem, 194
BURNOWS, Harold: *Surgical Instruments and Appliances*, ninth edition, rev., 21
— H. Jackson: Warning against excision of patella for recurrent dislocation, 418
— T. E. (and G. W. T. H. FLEMING): Possible discrepancy in estimation of ascorbic acid in urine, 333 (O)—Correspondence on, 542, 593
BURT, Barnes: Jaundice in relation to rheumatism, 800
— Cyril: *Subnormal Mind*, second edition, rev., 339
BURT-WHITE, H.: Unusual complications of labour 888 (O)
Bus workers, inquiry into health of, 408
BUTLER, A. M.: Unusual factors in rickets, 525
— E. C. B.: Sulphanilamide in streptococcal infections, 352
— Guy: *Athletics and Training*, rev., 1314
— Harold Branson, obituary notice of, 93
— Isabella: Pruritus vulvae, 584
— safe, 648, 753
BUTLER, G. A. H.: Sulphanilamide in streptococcal infections, 352
BUTXON, St. J. D.: Scapulo-humeral peri-arthritis, 589
BUZZARD, Sir Farquhar: Rheumatism and hydrology, 745
BYAM, Col. W.: Horticulture at health resort, 602
Byford, Henry Turman, death of, 1393
BYRNE, J. Grandson: *Physiology of Middle Ear*, rev., 699
Caapl, 287
CADE, André (Paul SANY and Jean HEITZ): *Tuberculose du Tube Digestif*, rev., 516
Caecum, solitary diverticulitis of, 475, 646
Caesarean section, uterine rupture following (G. E. B. Rickards), 1359 (O)
Calcipot—preparation of calcium salts, 75
Calcium mandelate, 234
— and phosphorus deficiencies in poor human dietary (W. E. Gaunt, J. T. Irving, and W. Thomson), 770 (O)—Correspondence on, 977
— shortage of in "poorer-class" diet (Katharine H. Coward, Elsie W. Kassner, and Letitia W. Waller), 59 (O)—Note on, 81—Correspondence on, 202, 255
Calcutt, review of book on, 1268
Calculus, urinary, brief review of 426 consecutive cases of (H. P. Winsbury-White), 1204 (O)
Calcutta, typhoid fever in, 252
Caledonia, health of boys on training ship (parliamentary note), 822
CALLOW, R. K.: Significance of sex hormone excretion, 411
Calmette, A. *et al.*, 680
Cam, Walte 203
Cambridge
CAMPBELL, *ve appendi-*
citis, 1102
— H. Gordon, appointed to chair of dentistry at St. Andrews, 586
— J. Argyll: Cancer of lung, 755—Concerning administration, 1260 (O)
— *Urology*, rev., 233
— in Army, 747
— red pains arising from muscle, 694
CAMPS, F. E.: Throat carriers in midwifery, 418
Canada: Co-ordinating medical research, 799
Cancer, bio-electric detection of, 1272
— bronchogenic, discussion on, 87
— Campaign, British Empire: Meeting of Grand Council, 905—Annual meeting of Yorkshire Council of, 1173
— of cervix uteri: grouping of clinical stages, 1004
— (note), 1031
— (ele), 1317
— Institute of *Belgrade*, 603
— irradiation of surgery for? 1231, 1333
— and lipoids, 42
— of lung, 682, 755
— origin of (W. Cramer), 829 (O)—Leading article on, 855—Correspondence on, 973, 1024, 1069, 1128, 1129, 1181, 1394
— of palate (John R. Nuttall), 830 (O)—Correspondence on, 974
— periodicity of recurrences in, 41
— personal account of after-effects of modern treatment of (Percy Furnivall), 450—Correspondence on, 538, 588, 643, 699, 757, 870, 917, 918
— (W. E. Gye), 804
— 810, 871, 973, 1024, 1069, 1128, 1181
— review of books on, 72, 268
— and smoking, 1247, 1405
— spontaneous disappearance of (Digby Chamberlain), 508 (O)—Annotation on, 525
— of thymus gland (R. G. Prosser Evans), 775 (O)
— and vitamin A deficiency: geographical distribution, 421, 1390
— of vulva, radium treatment of, 1121
Cancerous patients, wound healing in, 1130, 1333
Cannabis indica: Pharmacology of, 1053—Active principle of, 1233
Cant, Frederick Vaudrey, obituary notice of, 151
CANTILLON, Charles J.: Treatment of Mooren's ulcer with liver extract, 71
CAPON, Norman B.: Tuberculosis in infants, 359
CAPPS, F. C. W.: Treatment of otitis externa, 953
Carbamido-*choline*, 1293
Carbolic, use and abuse of, 702
Carbomucil, 287
Carbuncles, treatment of (John Hosford), 400—Correspondence on, 484, 594, 612, 1234
Carcinoma. See Cancer.
Cardiazol convulsion therapy in schizophrenia, 102
— in infancy (Gwen K. and Terence Lee), 665
— remission in chronic schizophrenia following spontaneous epileptiform seizure (Wm. H. Shepley), 1364
— treatment of schizophrenia, auricular fibrillation in, 978
Careers for girls, pamphlet on, 454
Carles, dental, research into, 393
CARLETON, H. M. (and L. H. LEACH): *Histological Technique*, second edition, 951
CARLIS, Esther: Safe milk, 806
CARLISLE, Surg. Capt. Geoffrey, obituary notice of, 153
CARPENTIER, G.: Anti-scarlatinal serum in acute rheumatism, 237
Carriers, throat, in midwifery practice, 253, 361, 413
CARRIS, Lewis H.: Social worker and blindness prevention, 189
CARROLL, Denis: Scientific treatment of delinquency, 1329
CARR-SAUNDERS, A. M.: Medical aspects of decline of population, 470
— of Electro-
management of
Sick Infant and Child, fifth edition, rev., 1105
Cartilage, internal semilunar, unusual case of rupture of (Hugh G. Watson), 284
CASTELLANI OF KISIMATO, Count: *Disclalmer*, 660
— Italian army in Abyssinia, 805
CASTEX, Mariano R. (and E. S. MAZZEI): *Nuevos Estudios sobre los Neumotorax Espontaneos*, rev., 624
Castration and injections of sexual hormones, changes in liver of rats after (Kathleen Hall and Vladimir Koronchewsky), 438 (O)
Cataract extraction during narcoas, 207
CATEL, Werner: *Normale und Pathologische Physiologie der Bewegungsorgane im Gesamten Verdauungskanal. Zweiter Teil, Klinik, Pharmakologie*, rev., 176
Catering, review of book on, 1101
— *note*, 636
CAUSSE, R. (and J. A. RAMADIER): *Traumatismes de l'Orde*, rev., 840
CAWSTON, F. Gordon: Infection from fresh-water molluscs, 823—Tree condition, 1051
CAWTHORNE, *et al.*: Vitamin D for psoriasis, 532
CEDER, E. T.: Vitamin D for psoriasis, 532
Cellulitis and erysipelas (John Hosford), 316—Correspondence on, 483
Cerebrospinal fluid (H. Houston Merritt and Frank Fremont-Smith), 25
Cervicitis, chronic, treatment of, 863
Cervix, cauterization of, 361, 484
— pregnancy and parturition after amputation of, 1350
Chalk and typhoid, 693
CHAMBERLAIN, Digby: Spontaneous disappearance of carcinoma, 508—Annotation on, 525
CHAMBERS, G. (J. E. BOWEN and W. R. JOHNSTON): Foreign bodies in intestinal tract, 514
— James, obituary notice of, 1342
CHAMPEY: Action of coronary arteries, 181
Chancre, treatment of, with sulphanilamide (R. C. L. Batchelor and R. Lees), 1190 (O)
CHANDLER, F. G.: Lung abscess, 804
Chapman, Frederick Ernest, obituary notice of, 1134
Charities Register and Digest, Annual, 43rd edition, 178
Charlatanism, annual meeting of International committee of campaign against, 1194
CHARLEY, Gilbert W.: Twelfth century case of miscarriage, 1247
CHAYASSE, C. G. H.: "Emergency lag," 495
— F. Bernard: Primitive sight and human squint, 301
Chemical monopolies, Germany's (parliamentary note), 1242
— *Hundred Years of (A. Findlay)*, 1105
— on, 175, 334, 354, 1006, 709
— ant for research on, 1139
— mechanism of new (leading article), 522—Correction, 712—Correspondence on, 810
— of virus diseases, 701, 875, 924—(C. L. Oakley), 895
CHISTERNAN, C. C.: *Poradentis venerea*, 555
Chetwood, Thomas, obituary notice of, 1279
CHIARI, H.: *Die Pathologische Anatomie des alten Rheumatismus*, rev., 1105
CUTICK, Harriett: Vitamin B, deficiency, 411
Chicken-pox, severe case of, with some unusual features (J. B. Tilley and J. F. Warin), 1267—Correspondence on, 1332
Child guidance, lecture on, 356
— handicapped, school life and after for, 1919
— welfare in Bombay, 251
Childbirth. See Labour.
China: Medical aid in (parliamentary notes), 411
— 1031—Distress in, appeal, 979—Drug trade increase, 1137—Emergency health services in, 1222
— Chengtu Eye, Ear, Nose and Throat Society organized, 1228—Report of Director of Medical and Sanitary Services, Hong Kong, 1271
— British hospitals in, 1322, 1374
Chinese Medical Journal, April issue on history of Chinese medicine, 1191

- [illegible]

Correspondence (continued):

- Correspondence (continued):**
 Polyomyelitis anterior, treatment of, 232, 1130, 1230
 Population question, 591
 Procaine, unusual reactions to, 1236
 — hormone treatment of, 94
 — fesslon, 1235, 1391
 Psychoneuroses, treatment of, 42, 93, 144, 257
 Pupils, unequal, in unconvicted prisoners, 873
 Radio-active pads, 252
 Radiologist's range of service, 310, 363, 422, 489
 Radiotherapy, results of, 810
 Refection, phenomenon of, 1070
 Rehabilitation centres for injured workmen, 202, 256, 305
 Rhinitis, atrophic, 1236, 1341
 Rickets, causation of, 94
 Saline, continuous intravenous, 421
 Sarcoid, multiple benign, and tuberculous ulceration, 872, 1285
 Schick relapse after diphtheria, 305
 Schizophrenia, auricular fibrillation in cardioid treatment of, 978
 — Insulin for, 1026, 1069, 1126
 Secret remedies, advertisements of, 1337
 Shoulders, recurrent dislocation of, 703
 Sinusitis inquiry in South Wales: disclaimer, 305
 Sinusitis, nasal, in childhood, 1027, 1132, 1180, 1285, 1393
 Smol
 Sodii
 875
 Sounds, classification of adventitious, 702, 752, 870, 917, 973
 Spinal cord, recovery in, 307, 417, 488
 Stenosis, infantile pyloric, 486, 538, 646, 702
 Stercolith, danger of, 358
 Sterilization of hypodermic syringes, 1070, 1178, 1237, 1286
 — temporary, by x rays, 362, 419, 484
 Stuttering, partial glossectomy as cure of, 97
 Sulphanilamide and aperients, 1392
 — in meningitis, 1335
 — and pentothal sodium, 1068
 — therapy, control of, 923, 975
 Sulphonamide, first mention of, 976
 — for prophylaxis in midwifery, 757
 — treatment of, 1390
 514
 301
 Thyrotoxicosis, 1120, 1114
 Tonosilectomy, 1390
 Trauma and progressive muscular atrophy, 359, 486, 813
 Trichiniasis in Britain, spurious record of, 255
 Tuberculin in diagnosis, 1131, 1233, 1389
 — dosage of, 921, 1020
 Tuberculo-protein, 1071
 Tuberculosis, bovine, in Britain, 353
 — in Cyprus, 575
 — in infants, 359
 — pulmonary, early diagnosis of, 145, 544
 Ulcer, chronic gastric, cause of, 647
 Unusual cases, two, 422
 Urine, ascorbic acid in, 542, 593
 Veins, varicose, treatment of, 575
 Venepuncture, easy method of, 45
 Venereal diseases: anti-venereal measures, 1389
 Vitamin B deficiency, problems of, 756
 Warts, plantar, treatment of, 649, 703, 814
 Weil's disease, 817
 West London Hospital Medical School, 147
 — Post-Graduate College, 46
 Whooping-cough treated by ether, 919
 Women in medicine, opportunities for, 96
 Wound healing in carcinomatous patients, 1333
 Wright, William, 650
 X-ray film developing box, 650, 705
 — negatives, who owns them, 47, 92, 205
 X rays, effect on hereditary mutation, 642
 Corrigenda, 214, 498, 550, 604, 660, 712, 764, 1142, 1248, 1406
 Cortico-pneural disease, case of, 15
 Corzra. See Cold
 Cosmetics, review of book on, 20
 COSTA-STARCIO, G. B.: Maggot treatment of osteomyelitis, 447
 COSTANZI, Carlo: Eruptive or Exanthematous Mediterranean Fever, rev., 784
 OSTE, Florent: Gout, 709
 OSTIL, L. (and A. SAENZ): Diagnostic Bacteriologie de la Tuberculose, rev., 124
 OTTER, Robert: Finger-prints of twins, 1142, 1340
 — Mosquito bites, 1405
 Otton, Frederic Jay, death of, 1078
 oughing in public, 362
 ouncil, Asthma Research: Annual report, 78
 — Central, for Care of Cripples: Handbook on Welfare of Cripples, 197
 — Children's Minimum Luncheon, 660, 807—
 Conference on child nutrition, 1223
 — Egyptian Maritime and Quarantine Sanitary: Report, 238

Annual report for 1936, 23, 106, 673
Anti-gas training at L.C.C. hospitals, 639
Appropriation of institutions, 337
Blindness prevention, 141
Consultant and specialist services, 570
Hospital expenditure, 971
Hospitals recognized by outside bodies, 971
Mental health services, 196

Midwifery service, 89
Notification of measles and whooping-cough, 807
Nurses : Introduction of 96-hour fortnight, 1123
Ready reference to hospitals, 1386
School children, treatment of, 477
Seaside convalescent home for women, 1387
Vulvo-vaginitis in children, 861

COUNCIL MEDICAL RESEARCH :
Artificial lighting and work of weavers, 150
Epidemics in public schools, 864—Leading article on, 856
Fellowships and appointments in tropical medicine, 1119
Influenza, epidemic, 1003
Kathleen Schlesinger Research Fellowship, 263, 1081
Mental defect, study of, 687
Report for 1936-7, 625, 639—Leading article on, 627
Suggestions relating to study of somatic psia, 523
Syphilis, treatment of, 795
Toxicity of Industrial Organic Solvents, rev., 75—Note on, 78
Travelling scholarships in medicine, 1019

Council, Medical Research of I.F.S. : Annual report, 477—Awards, 640
in New Zealand, 304
Increase in hospital
of 1922
825—Booklet, 583
and Town Planners :

Annual conference, 1229
Surrey County : Foundation-stone of new hospital laid, 826
Court, Sir Josiah, obituary notice of, 424
COWARD, Katharine H. (Elise W. KA-SER, and Letitia W. WALLER) : Shortage of calcium in "poorer-class" diet, 69 (O)—Note on, 81—Biological Standard, 337
tion of medical services in
air raid precautions, viii
COX, Alfred : Appreciation of Sir Thomas Filmer, 1184
H. E. : Chemistry and analysis of beans, 867
CRADBE, J. Sandison : Sterilization of hypodermic syringes, 1070
CRADDOCK, A. L. : Trauma and progressive muscular atrophy, 812—Sulphanilamide in meningitis, 1135
CRAIG, C. : Fracture of neck of femur, 929
Craine, G. V., called to the Bar, 319
CRAIK, E. B. : Treatment and control of threadworms, 1383
CRAMER, W. : Origin of cancer, 829 (O)—Leading article on, 855—Correspondence on, 973, 1024, 1069, 1128, 1129, 1181, 1394
CRANE, C. B. : Placental extract in prevention of measles, 1233
CRAWFORD, Harold : Treatment of acute poliomyelitis, 701
Crawford, Sir Raymond, obituary notice of, 63
Cream, canned, discoloration and corrosion in, 194
FREED, E. F. : Blood fragility tests, 353
Brichton-Browne, Sir James, obituary notice of, 311—Estate of, 935
RILE, G. : Diagnosis and treatment of essential hypertension, 911
Crime and criminals : statistics for 1936, 909—review of book on, 74
ripples, welfare of, handbook, 107
RIPPS, Mary : Human embryos wanted, 601, 154
ROBERTA, A. : Acetylcholine and serine, 119
ROCKFORD, A. L. : Case of B. coli meningitis, 107
ROOKES, James : Nasal sinusitis in childhood, 977
(O)—Correspondence on, 1027, 1132, 1150, 1257, 1393
ROSIEB, W. E. : Prevention of measles in children's hospital, 1003 (O)—Correspondence on, 1233
ROSS, Robert, obituary notice of, 295
ROSSEN, H. S. and R. J. : Operative Gynaecology, fifth edition, rev., 624
ROTHERS, Bronson : Pediatrician in Search of Mental Hygiene, rev., 517
ROWEN, G. P. : Muscular work in gas-protective clothing, 1011
Wines 1053
noted, 75
summarized
Address of
Secretary, 135
No. 214—Ne
Tele. No. 125
Correspondence on, 480, 540—Mint-Tory Hospital, 530—Appointment of water engineer, 699
Note on, 696—Water supply from Addison,
Well, 711—Safeguarding measures, 1111
Decisions of Town Council, 1292

- [illegible]

- EAST, W. Norwood : Prevention and control of addition, 195—Subnormal prisoner, 1165
EASTWOOD, W. J. : Rehabilitation centres for injured workmen, 202
EARS, J. H. : Note on incidence of sinusitis in children, 385 (O)
EBSWORTH, J. D. : (T. C. MORTON, and V. S. EWING) Sulphanilamide therapy in meningococcal meningitis, 1362 (O)
ECCLIS, W. McAdam : Place of health resort in surgery, 691—Appointed chairman of United Kingdom Council of International Hospital Association, 712
Edwards, A. G. : Statistical review (G. G. Lennon), 944 (O)
EDMONSON, A. G. : Advertisement of secret remedies, 1337
—H. Wilfred : Law and theories of evolution, 370—Origin of cancer, 1009
EDMUNDSON, A. G. : ... climate, 746
—Gold ... teachers' organizations, 137
Educator :
—medical, in East, 1121
—internship and (leading article), 628
—in open air, 1123
—physical (Viscount Dawson of Penn), 734—Discussion on, 747
—review of book on, 515
—and training, physical, conference on, 40
EDWARDS, F. Ronald : Femoral embolectomy, 90
—John Watkin, obituary notice of, 1134
—Peter W. : Results of sanatorium treatment, 345, 960
—Tudor : Lung abscess, 804—Extra-pneumothorax, 966
Egypt, narcotic drug traffic in, 1319
ELIASOW, Albert : Plantar warts, 814
ELAM, John : Time for midwifery, 310, 485—Divinely ether anaesthesia, 1127
ELBERTSON, W. Pallin : Frequency Curves and Correlation, third edition, 951
—wireless reception issued, 1003
—leads in, 187
—review of books on, 1004
Electrotherapy and national health insurance, 1400
Elephantiasis chirurgica, 240
Elgin, William Franklin, death of, 1078
Elliot, Right Hon. Walter, new Minister of Health, 1113
Elliotson, John, and mesmerism, 851
ELLIS, Frank : After-effects of modern treatment of carcinoma, 588, 700—Radium treatment of carcinoma of vulva, 1121
—G. Ronald : Cardiac failure, 584
—Havelock : Sex in Relation to Society, rev., 676
ELMSLIE, R. C. : Treatment of joint sprains and strains, 527
ELWELL-JOHNSON, L. : Swallowed safety-pin, 827
ELYAN, Michael : Treatment of common cold, 146
—Disclaimer, 214
EMBLETON, Dennis : Erysipelas and cellulitis, 483
Embolectomy, femoral, 90
—popliteal (G. Harvie Duncan), 1157
—successful femoral artery (J. B. Blackburne), 730
Embolism, systemic, as complication of lobar pneumonia (W. H. Hood), 674
Embryos, human, wanted, 604, 1348
"Emergency bag," 320, 496
Emerson, Haven, hon. doctor's degree conferred on, 1110
During labour, 54
114, 916
P. R. Allison), 272 (O)
of with intrapleural
ital study in rabbits,
rila
(parliamentary note), 41
lead in children, 130
post-vaccinal, 186
Encephalomyelitis, encephalitoidic, 629
Endocrinology, review of book on, 176
ENGLISH, O. Spurgeon (and Gerald H. J. Pearson) : Common Nerves of Children and Adults, rev., 232
—W. L. : Origin of cancer, 1070
Entercarb powder, 1007
Enteritis, regional, 1283
Enzymes : Die Fermente und Ihre Wirkungen (Carl Oppenheimer), 858
Epinephrine, alkaloid (J. H. Gaddum), 713 (O)—Annotation on, 739—Correspondence on, 874, 977
Ephetomin compositum liquidum, 75
- EPIDEMIOLOGICAL NOTES (continued) :
Polymyositis, acute, 431
Psittacosis, 700, 987, 1141
Scarlet fever, 103, 369, 431, 495, 549, 601, 659, 708, 760, 879, 931, 987, 1033, 1083, 1141, 1189, 1245, 1291, 1345, 1403
Small-pox, 601, 708, 760, 825, 879, 1141, 1189, 1245; 1291, 1345, 1403
Typhoid fever, 53, 103, 155, 263, 319, 601, 1245
Typhus, 601, 659, 708, 760, 825, 879, 987, 1033, 1083, 1141, 1189, 1291, 1345, 1404
Whooping-cough, 431, 879, 931, 987, 1033; 1245, 1291, 1345, 1403
Yellow fever, 1083
- Epilepsy, research in (parliamentary note), 367
Epistaxis, fracture of nasal bone and (W. M. Morrison), 1218
Ergot preparation (neo-femergin), 899
Ernest, Paul, death of, 209
ERWIN, G. S. : Pneumonitis, 705—(And R. J. McGILL) : Unusual physical signs in lobar pneumonia, 891 (O)
Erysipelas and cellulitis (John Hosford), 346—Correspondence on, 483, 764
Erythema, "cyclopropane," 1235, 1286
Erythromelalgia, surgical intervention in, 299
Escherich and acetylcholine, 119
ESHER, F. J. S. : Child guidance, 356
Esiderm, 517
Ether convulsions, 45—With recovery (H. H. Pinkerton), 780
Ethyl chloride anaesthetic mask and holder, 733
Evans' Journal, resumed publication of, 932
EVANS, Griffith : Problems of thyrotoxicosis, 1175
—R. G. Prosser : Malignant tumour of thymus gland, 775 (O)
Evolution, law and theories of, 370
Evolutionary theory, 497, 550, 1406
EWING, V. S. (T. C. MORTON, and J. D. EBSWORTH) : Sulphanilamide therapy in meningococcal meningitis, 1362 (O)
Examinations, 1217
EXLEY, Cyril James Gozney, obituary notice of, 1185
EXNER, G. G. : Minor dental emergencies in general practice, 1376
Exophthalmos, discussion on causes of, 1017
Ex-service men : Medical history of, 429—Health of, 928—Unemployed and disabled, 1138—Number treated in Ministry of Pensions hospitals, 1139—Mortality rate of, 1401
Extension apparatus, simple, 677
Eye diseases and injuries : congress report, 183
—injuries and infections of (Arnold Sorsby), 906
—new prosthesis, 1314
—review of books on, 232, 675
—treatment of minor conditions in (N. Bishop Harman), 861
—See of oxycephaly
Eyeball, (J. Sherney), 900
Eyes, blue, in natives of Ceylon, 921
Eye-strain, industrial, 458
EZZAT, H. : " Gonococcus antitoxin " for gonorrhoea, 1180
- Face, treatment of wounds of, and cut throat (Julian Taylor), 792—Correspondence on, 919
Factories Act : Information, 493
Factory inspectors, additional (parliamentary note), 928
—welfare, 460
Faculty, Royal, of Physicians and Surgeons of Glasgow : Meetings, 758, 984
FAILL, C. J. C. : Tuberculosis incidence, 966
FAIRBANK, H. A. T. : Who owns x-ray negatives? 93
FAIRDROTHER, R. W. : Anterior polymyelitis, 695
FAIRFIELD, Letitia : Law relating to abortion, 409
—Medical aspects of decline of population, 472
FAIRLEY, N. Hamilton : Anaemias and tropical diseases, 354
Fairweather, David, obituary notice of, 315
FALLS, Frederick H. (and Jane R. McLaughlin) : Obstetric and Gynaecologic Nursing, rev., 233
Family Meals and Catering : Luncheon, 807
Family, review of book on, 1158
FARMER, Sidney : Postmortem Examination, rev., 73
FARNON, Harold J. : Early diagnosis of diphtheria, 200
Fat absorption and metabolism, 356
Fats, edible, rancidity in, 1215
FAWCETT, A. W. : Hyperparathyroidism, 283
Feet, painful, discussion on, 748—Correspondence on, 918
FEIBLEMAN, J. (and J. W. FRIEND) : What Science Really Means, rev., 1266
FEINSON-MULDAVIN, Léon : Easy method of venepuncture, 45
FELIX, A. : Leprosy, 37—Prevention and treatment of enteric diseases, 353—Note on prophylactic use of anti-typhoid serum, 1091
Fellowship of Medicine : Law relating to abortion, 408
Femur, fracture of neck of. See Fracture
- FENTON, E. G. : Origin of cancer, 1024, 1181
—James : General health services and industrial hygiene, 39—(And C. P. HAY) : Prophylactic use of anti-typhoid serum in localized outbreak, 1090 (O)—Note on, 1091—Leading article on, 1109
FENZ, E. : Infiltration with novocain in sciatica, 1185
FERABY, G. A. : Lower critical temperature, 827
Ferrania tablets, 453
Ferriplan, 75
Fever, cerebrospinal, treatment of, 1833
—hay. See Hay fever
—intermittent hepatic, 880
—jungle yellow, 740
—Mediteranean, review of book on, 784
—"Q." 292
—paratyphoid, outbreak in training ship (Edward R. Pearce), 217 (O)
—history of prevention of (Jules H. Fenton), 142
—occultation, 482
—in Calcutta, 100
—chalk and, 695
—chlorine mixture for, 104
—its clinical aspects (Sir William Willcox), 1085 (O)—Leading article on, 1109—Correspondence on, 1176
—conveyed by milk (Square and others v. Model Farm Dairies), 1135
Croydon inquiry : Evidence of expert witnesses, 30, 86—Closing proceedings, 135, 189
—Writ issued to corporation, 212—Mr. Murphy's report, 404—Leading article on, 394—Correspondence on, 480, 540—Minister of Health's views, 1110
—(parliamentary note), 41
1243
—perforation in, 1176
—Prophylactic use of anti-typhoid serum in localized outbreak (J. Fenton and C. P. Hay), 1090 (O)—Note on (A. Felix), 1091—Leading article on, 1109
—in Somerset (parliamentary note), 367
—in s.s. Strathaird (parliamentary note), 51
—and tinned foodstuffs (parliamentary note), 493
—typhus, survey of, 186
—undulant, in Malta (J. E. H. Gatt), 151—Correspondence on, 645
—yellow, and aircraft, 185
—spread of, in Africa, 1321
Fevvers, enteric, prevention and treatment of, 352
FOLLIOTT, A. G. C. : Endocrine treatment of cryptorchidism 355—Thrombosis of inferior vena cava, 913
Fibromyomata, necrobiosis of, 1201
FIDDIAN, J. V. : Origin of cancer, 973
FISSINGER, Noel : Les Explorations Fonctionnelles, rev., 898
Finnis, South African sound, 432
FINCH, L. : Removal of innocent tumours, 461
FINCH, A. E. : Sedimentation tests in general practice, 1248
FINLAY, Alexander : Hundred Years' of Chemistry, 1106
—G. M. : Paradenitis venerea, 585—Chemotherapy of virus diseases, 875—Placental infection in malaria, 1280
—Leonard : Pseudo-hypoglycaemic attacks, 231—Infantile pyloric stenosis, 638, 702—Maxillary collapse of lung, 583—Clinical absence of rheumatism, 747—Elected Corresponding Member of Société de Pédiatrie, Paris, 1139
Finger-prints of twins, 1142, 1310
FINZI, N. S. : Who owns x-ray negatives? 296
Fireworks injuries in U.S.A., 212
First aid : elementary ambulance instruction, 1162
—review of book on, 668
Fish, Richard Huxley, obituary notice of, 484
FISHER, E. : Contraceptives and fertility, 484
—S. W. : Health of coal miner, 475
—V. E. : Introduction to Abnormal Psychology, second edition, rev

F—Continued with disease (particularity noted), 577,
582, 636, 1101.
FACOT, R. E.: Abuse of ephedrine, 874
FACTORY, cement, 95, 110, 205, 250, 267, 762, 1186,
1441, 1519, 1791
———dust from the, 415-230
FAHRENHEIT made Celsius, patent, 723
FAIRBANKS, H. C.: Observation in diagnosis, 1131, 1570
———Roberts, World campaign, 423
FAIRCLOTH, FRANK R.: *Diseases of Nervous System as In-
terests, Physiological and Pathological*, rev. 10
FARMER losses in intestinal tract (J. E. Brown,
G. Chambers, and W. B. Johnson), 514
FARRIS in Illinois (Hayes), 1041, 1679
———body and soul, 1041, 1679
For I. Ample and H. A. Wick, 47
FARRIS, PHILIP (and H. SANSIBUS): *The New Health*
Journal, 1916, p. 949
FARRELL, J. S.: Patient's feet, 743—Gout and
rheumatism, 743, 800, 802
FARRIS, R. Robert: Arthritis, 1289
FARRIS, MYLES: Treatment of citrus media, 1014,
1067
FARRIS, THOMAS, M.: Treatment of arterio-
sclerosis, 255
FARRIS, VICTOR D.: Death of, 1248
FARTHER, Wm., "perhaps," Surgeon and, 193
FARRIS, Lyle, and H. A. Wick, 47
FARRIS, H. N.: Research Fellowship for
cancer research, 1023
FARRIS, R. A.: Awarded Richard Noel medal, 211
FARRIS, R. H.: appointed Director of National
Physical Laboratory, 1246
FARRIS' position, mattress and blankets for, 1266
FARRIS, EDWARD JOHN: Surgery, notice of, 875
FARRIS, R. Eugene, 126
FARRIS, R. Eugene: Science of health reports, 8
Principles of Chronic Rheumatism with Treatments
to Compensate, rev. 1266
Fracture of neck of femur (A. H. Parsons) 773 (O)
———compensation, 871, 1025, 1150
———as other method of treating (L. P.
McMurray), 55 (O)—as compensation, 481, 541,
920
———articles, 416
Fractures, further, 291
———of lower limb, method of treating (Douglas Lane
Stevens), 71
———treated by hook, 673
FRANKEL, ERNEST, M.: Immunization against
typhoid, 41
FRANCE:
Académie de Médecine. See Académie
Association for development of medical education,
1718
Conseil Supérieur d'Hygiène Sociale, 642
Epidemic in Paris, 1017
Frank Deaths, 1068
Hazardous duties in high altitude pressures, 1223
Institute for study and prevention of occupational
diseases, 875
Insurance against professional risks by Son
Medical, 879
Lynde, Ross, 199, 642—Vertebral nerve, 1112
———Awarded Silver medal, 1192
LYNDE, Professor: new appointment, 642
Massive hospitalization of children, 198
Medicine, significant trends in, 644
Motor drivers, physical examination of, 874, 1229
Order of Public Health, 57
"Perhaps," surgery and forty-hour week, 199
Prize for local immunity, 1234
Road accidents and ill-health, 1216
Sabouraud, Raymond, 879
Serum and vaccines, control of by Academy of
Medicine, 642
Serpent, Emblem, emblem of, 869
Tuberculosis campaign since 1918, 1229
FRANCIS, A. E.: Flavin antiptotics, 857
———Alexander: Chlorine mixture for typhoid, 105
———Asthma and sensitivity to aspirin, 485
———Carl C.: *Fundamentals of Anatomy*, rev. 722
———Clement: Intranasal application of pollen
F
I
317
———K. J.: Physiology of lungs, 956
———Philip: Intranasal infection for hay fever, 918
FRANKLINS, CHARLES A. B.: Problem of final M.B.,
B.S. Lond., 147
FRANKS, RUTH: Suicide in Canada, 89
FRANKE, F. R.: Gout and rheumatism, 737—
Clinical aspects of transmission of effects of
new impulses by acetylcholine, 1249 (O), 1297
(O), 1349 (O)—Leading article on, 1570—Corres-
pondence on, 1333
———P. K.: Time of foot, 812 (O)
———Russell (and William SERGEST): Hyper-
naturation attacks, manifestation in hysteria, 578
(O)—Correspondence on, 578
Fraudulent concern exposed (Thiruvankatachari ar
Cohen), 1246
FEARZ, C. C.: *Physiology of the Human Body*, 349
FREEHAN, J. C.: *Physiology of the Human Body*, 349
FREY, J. C.: *Physiology of the Human Body*, 349
Freud, Sigmund, 1246
FREEM, J. C.: *Physiology of the Human Body*, 349
missions in army, 924

FELDMAN, SMITH, FRANK (and H. Houston MERRITT).
Cerebral Asphyxia, 25
FENNELL, ALBERT. Menstrual, 1192
FERGUSON, HENRY THOMAS. A, ordinary notice of, 762
FEIST, JAMES S., 924—In England, 1278—Review
of book on, 125
FETTER, SIR RICHARD GORDON,
—Norman Lect. Technique of Postal translation,
457
FIDURMANN, ERNST. *Standard Medical Compensatory*,
847
FIELD, A. B. L. Use and abuse of Antiphlogon, 142
FIENE, JULIUS W. (and J. FRIEDMAN). *Brief
Science Review Manual*, rev., 1276
FINCH, GEORGE THOMAS. Centers of Birth of, Gut
Journal, 115
FINLEY, H. W. Hypochondria associated In-
fluenza, 354
FISHER, JOHN P. *No Kneads Higher Master,
Laid Waste, and Possession of William Hunter*,
1220
FISH, DAVID & WILLIAM MORRIS. 1222
—Kettle Memorial, 1222
—King Edward Hospital. Special care for
children of (London), 1266—Gift from League of
Morris, 712—Out-patient dispensary, 1191—
Voluntary hospital emergency bed service, 1221,
1222—Annual meeting of Council, 1231
—Emergency Anti-tubercular, 1124
—Lady Tata Memorial Grants and Scholarship for
research in tropical diseases, 700, 1241
—National Central Council of Health, 1261
—National Industrial Trust, Work of 191
—Naval Medical Administration, Meeting 265,
1075
—Royal Medical Research—Work of, 113—
Report of a meeting, 191, 406, 624, 865, 1116—
Annual meeting 865
Save the Children Appeal number, 55—Hem-
mingsdon, 26
—Sherman Lecture, Annual report, 757
—Victor Hugo's Memorial, 1722
FLETCHER, BENJAMIN (ROBERTSON) FOLIO, 1287, 1291
FOURNELLE, PERCE. Personal account of after-effects
of short treatment of carcinoma, 450—Cancer
journalism, 555, 588, 616, 677, 870, 915,
916, 1292—On cancer of the gut, 1076, 1195
FOWLER, GEORGE, explants of, 274
FRANCIS, GEORGE MARLOW, appointed M.O.H. for Isle
of Man, 954

G

GALT, J. (and others). "Gastroentero-anthrax." In treatment of dysentery, 605 (Ox. Ann., 1938), no. 673; Correspondence on, 701, 755, 811, 872-1937, 674, 1064, 1122, 1180, 1234.

GARDIN, WILLIAM B. *Philosophy and Practice of Research*, 2nd ed., 2nd ed., rev., 654.

— WILLIAM E. M. GILBERT. *The Ethics of The*.

GARDNER, J. H. *Aquatic epiphytes*, 711 (Ox.).

— *Anatomical notes on the structure of the eye*, 874, 977.

GAY LILL, RICHARD. 1249.

GAZDARIS, GEORGE. *The Internationality in der Wissenschaft mit besonderer Berücksichtigung der Philosophie und der Naturwissenschaften*, 1356.

GAZDARIS, IAN. *Molecular Biology—How to Proceed*, 21.

GILCHRIST, J. F. P. Local application of proctosedol, 184, 104.

GILLIBRAND disease, state of heart in (P. M. Laidly), 106.

GILLOUPE, J. B. (and others). *Recherches Appliquées et Théoriques sur les Maladies de l'Appareil Digestif*, 712.

GIMBLE, F. W. Awarded Harrison Medal, 549.

Ginsler, Prof., death of, 1795.

GINSLEY, NADIR HOMAZ-SALAM, obituary notice of, 925.

GINSLEY, JOSEPH IN. Treatment of disseminated gonorrhea, 12, 121, 121.

GINS, THOMAS WILLIAM FRANCIS, obituary notice of, 624.

GIRDEN CITY, CHA. OF, 1111.

GIRSHICK, C. E. R. Treatment of lung cancer, 924.

GIRSHICK, P. C. C. Plutonium infection in rabbits, 12, 121, 121.

GIERST, D. C. — *Drops and Glaciers: Their Quantitative Analysis*, rev., 676.

GIRDON, LAWRENCE P. Use and abuse of antibiotics, 337—Artificially caused, 697—Flaviviruses, 877—Leprosy, 877—Tuberculosis, 877—Hepatitis, 877—Recent Advances in Pathology, third edition, rev., 929.

GIRVET, HERSCHEL ELTON (and ROY K. KRACK). *Diagnosis of Blood and Urine of Hereditary Disease*, 254.

GIRVIN, A.: Influenza, mumps and typhoid, 976.

Giss apparatus, life and term of, 136.

— mustard, yellow cross (parliamentary note), 1401.

— "Polon," "yellow-cross," 11.

— war: Sequence of, 817—Effects of poisoning by (parliamentary note), 1123.

Giss-protective clothing, immovable work, in 1011.

GISSING, G. TRIG. Sodium salicylate tolerance, 827.

Giss-sensitivity due to *B. dysenteriae* group, 81, 929.

Giss-gastroscopy, position of patient in (H. Taylor), 892.

— review of book on, 357.

GITTS, R. RUGGLE. Blue eyes in natives of Ceylon, 921.

GITT, J. E. H.: Undulant fever in Malta, 454—*Journal of Tropical Medicine*, 124.

GIUSTI, WILLIAM E. (J. S. INTING, and W. THOMSON). Calcium and phosphorus deficiencies in poor human dietary, 770 (O)—Correspondence on, 977.

announcements, David Peter, obituary notice of, 1234
BACCHUS, Sir Henry : Commemorative dinner to, 826
— hospital fund raised at Abingdon, 1193
BACWELL, G. H. (and others) : Laboratory and clinical investigations on tuberculin purified product derivative and old tuberculin, 702 (O)—General correspondence on, 1071
general medical advice for nation (parliamentary), 62-72
BAIRD, William George, obituary notice of, 925
Barford, Marjorie, death of, 926
Barnard grant made, review of book on, 676
BARNES : Number of medical practitioners in, 310
— New law relating to, printed, 826—Tuberculous venous stasis, 119—Information furnished for doctors in, 1191—Medical aid societies, 1242
BARON, Prof. Gust., 791
BART, Hans, obituary notice of, 796
BASCHKE, Charles F. (and Dan Lewis) : Pregnancy and lactation advances in Sweden, review of, 60 (O). See full item, 521
BATES : See BATES
BATH, Arthur, appointment of in General Medicine, 125
BATHURST, Augustus, death of, 118
BATTELL, G. P. : *Study of Tuberculosis of Males*, rev., 118
BAUER, A. G. (R. H. Ross, 1888, and Joan Gibson) : Human infection by *tub. viscosus* group, 612 (O)
— *Junction of tubercles*, 125
— *C. Cerebral tubercle*, 95
— H. J. Jefferies, 1026
— Robert, 604, 759
BEALDIE, Lady Helen : Her nature and treatment (A. J. Wright), 66 (O)—Notes on, 827
BEELEY, Gertrude, obituary notice of, 715
BERG, S. L. (and O. DAVIS) : Treatment of Phospha's phages, 1226 (O)—General correspondence on, 1231
BERNARD, Dr. Paul-Henri, 915
BERNARD, James Henry, obituary notice of, 106
BIRK, A. Morton : *Pneumonia*, 504 (O)—*Tubercle*, 764—*General correspondence*, 649, 705, 815, 920
BLACKBURN, John R. : Disease of tuberculin, 1026—Tuberculin in disease, 125, 1022
BLACKBURN, Alexander : See above
BLACKBURN, Harold, condensed osteoplastic preparation of Berlin Medical Society, 601
BLAIR, William : *Treatment of Lock of Tongue*, 481, 1179
BLIND, arterial pathology, gonadotrophic activity of in relation to increased intracranial pressure (W. R. Bunkin and others), 109 (O)—*W. R. Bunkin and others*, 109 (O)
— parathyroid, 109
— thyroid, malignant tumour of (H. G. Prosser Evans), 775 (O)
BLISS, E. Chas. : *Tuberculosis of*, 1261
— parathyroid, clinical features of (W. J. E. Boyd), 761
BLISS, Hugo : *Parathyroid, Histology, Constitution, Uses, and Abuse of Parathyroids*, 826, rev., 229
BLISS, contact lenses, 1215
Blood capillaries, 231
Blood, dangers of immune, 188
Blood, systemic, partial, as cause of clotting, 97
Bloodstream, septic, 1226
Bloodstream, allergic, incidence of tonsil clony in children, 1225
— I. G. : Incidence of tonsillotomy in school children, 1226
Bloodwater, 601, 761
BOEHLZ, James, obituary notice of, 755, 962
BOER, Robert Marshall, obituary notice of, 466
Boileau, Thomas : *Practical Surgery*, 720
— treatment of congenital clefts of lip, 822
— treatment of pulmonary tuberculosis, 741
BOOTHBY, Richard : *The Operation de la Spéculation*, rev., 422
BOREITER, Stuart : Referred pains arising from muscle, 68
BOREY, A. G. : Asphyxiated in urine, 793
BORLAND, South-West Medical College Society's spring meeting, 972—Medical College Society's spring meeting, 1026—Sussex Medical and Dental College Society's spring meeting, 1142—Manchester and District Medical College's Association annual competition, 121—Sussex Medical and Dental College society's spring meeting, 131
BOYLE, Frederick L. (ed.) : *Archives of Neurology and Psychiatry from Central Pathological Laboratory of Los Angeles County Hospital for Nervous and Mental Disorders*, rev., 315
Gonadotropic activity of anterior pituitary gland in relation to increased intracranial pressure (W. R. Bunkin and others), 109 (O)—Annotation on, 1110
— of pregnant women's serum, histological nature and quantitative variation of (M. Boycott and I. W. Rowlands), 1097 (O)—Annotation on, 1110
— extracts, absence of anti-gonadotropic substance in blood serum of man injected with (A. W. Spencer, E. F. Sowden, and I. W. Rowlands), 68 (O)
Gonosarcoma and melanocarcinoma in smears, new contrast stain for (E. R. Sandiford), 1157 (O)
Gonosarcoma, cutaneous manifestations of, 1328
— "gonosarcomatoidosis" in treatment of (E. T. Burke and others), 605 (O)—Annotation on, 629—Correspondence on, 701, 755, 811, 827, 1027, 1036, 1097, 1126, 1150, 1331
— live vaccines for, 1374

- Gonorrhoea, in women and children, 914
— In women, increase of in Copenhagen, 245
GONZALES, Thomas A. (M. VANCE and M. HELPERN):
Legal Medicine and Toxicology, rev., 847
GOODALL, E. W.: Prevention and treatment of
enteric diseases, 353—Perforation in typhoid fever,
1176
GOODHART, G. W.: Uraemia, 604
GORDON, G. C.: Persistent overmoulding of skull
bones causing fits in an infant, 14 (O)
— R. G.: Medical aspects of backwardness, 137
GORDON-TAYLOR, Gordon: Appreciation of Dr.
George A. Buckmaster, 40
GOSSE, William: After-effects of modern treatment
of carcinoma, 643
GOULD, Eric Pearce (editor): *Elements of Surgical
Diagnosis*, rev., 286
Gout, discussion on, 787—Annotation on, 787
Government offices: Health conditions of (parlia-
mentary note), 823—Anti-gas precautions in
(parliamentary note), 1133
— staffs, contributory hospital scheme for, 876
Grabham, Michael, obituary notice of, 983, 1185
GRAHAM, George: Diabetes and its treatment, 520,
570—New Insulins, 635—Value of zinc-protamine-
insulin, 637
GRAHAM-LITTLE, Sir E.: Problem of final M.B., B.S.
Lond., 94, 204, 309—Elected hon. member of
Argentine Dermatological Society, 496—M.R.C.P.
and psychiatry, 1131
Gramophone records presented to hospitals, 770
GRANT, James: *Pathogenesis, re* on, 1129
Graves's disease, *tion and*
GRAY, Albert A. on, 1129
— *Pathogenesis, re* on, 1129
— A. M. H.: Problem of final M.B., B.S. Lond.,
146, 253
— F.: Co-operation, 540
— St. George B. Delisle: Sterilization of syringes,
1237
— W. J.: Use of measles serum in school, 872
Grayson, Rear-Admiral Cary T., obituary notice of,
491
GREEN, A. Wynn: New prosthesis, 1314
— C. A.: Cultural methods in bacteriological
diagnosis of tuberculosis, 111 (O)—Leading
article on, 126—Serological examination of haemo-
lytic streptococci from acute rheumatic and control
groups, 1147 (O)
GREEN-ARMYTAG, V. B.: Haematocolpos, 144—
Sterility or infertile marriage, its causes and
treatment, 190—Law relating to abortion, 409—
Contraceptives and fertility, 410, 592—Placental
infection in malaria, 1281
GREENWOOD, Major: Problem of final M.B., B.S.
Lond., 45, 204, 817
Grégoire, Prof., elected member of Académie de
Médecine, 103
GREGORY, Chodak: Health and retardation, 138
— Sir Richard: Science and social service, 40
GRENET, H.: Clinical aspects of rheumatism, 747
GRIER, James: *History of Pharmacy*, rev., 74
Griffith, Frederick Thresher, obituary notice of, 818
— William Watson, obituary notice of, 151
Griffith, Alex. Hill, obituary notice of, 100
GRIFFITHS, D. Lloyd: Arterial occlusion in relation
to Volkmann's contracture, 1385
GRIGNARD, Victor: *Précis de Chimie Organique*,
rev., 1210
GRIMSDEAL, Harold (and Elmore BREWERTON):
Textbook of Ophthalmic Operations, third edition,
rev., 175
GROGOTT, John: *Textbook of Ophthalmic Operations*, 784
GROGONO, E. B. 1068
GROUT, J. L. A. (S) 1081
— Lobar pneumon, on,
— Asthma: recovery, on,
1177
GROVES, E. W. Hey: Appreciation of Dr. E. J. Toye,
313
GRUNDY, F.: Prevention and treatment of enteric
diseases, 353—Spread of streptococcal infection,
867
GUÉRIN, J. G. E.: What did Balzac die of? 747
GUILFORD, William M., 105th Birthday of, 319
GUILLAIN, Georges (and Pierre MOLLARET):
Neurologiques: Les Myoclonies Vél
Neurales, La
Névrose, Médicale
rev., 73—*Textbook of Ophthalmic Operations*, 784
GUMBEL, E. J.: *La Durée Extrême de la Vie Humaine*,
739
GUNN, William: Measles: epidemiology and
prophylaxis, 534
Guthrie, A. Cowan, obituary notice of, 151
— W. S. W.: Psoriasis, 1125
GYE, W. E.: Some recent work in experimental
cancer research, 551 (O)—Correspondence on,
608, 810, 871, 973, 1024, 1069, 1128
Gymnastics, review of book on, 731
Gynaecological disorders, non-malignant, radio-
therapy of, 248
Gynaecology, review of books on, 624, 1312
- H
HADFIELD, C. F.: Divinyl ether anaesthesia, 1175
— Geoffrey (and L. P. GARROD): *Recent Advances
in Pathology*, third edition, rev., 950
— J. A.: Health and retardation; 138
- Haematemesis and peptic ulceration, vitamin C
deficiency in (Benjamin Portnoy and John F.
Wilkinson), 554 (O)
— recurrent, in "Banti's disease" (Robert
Kemp), 222 (O)
Haematocolpos, 144, 764
Haematology, review of book on, 284
Haematomyelia, spontaneous (J. MacDonald
Holmes), 946 (O)—Annotation on, 956
Haemopneumothorax, spontaneous (J. Maxwell),
778 (O)
Haemorrhage, intracranial, discussion on, 749
— massive spontaneous intraperitoneal (Maurice
Silverstone), 230 (O)
— from rectum, causes of (J. P. Lockhart-
Mummary), 997 (O)
— into rectus abdominis muscle during pregnancy,
fatal (P. B. Hobbs), 895—Correspondence on, 1338
Hair dye, 213, 264, 1405
HALES, H. W.: Treatment of pneumonia, 932
HALFORD, A. C. F.: Use and abuse of carbolic, 702—
Excision of patella, 1170—Use and abuse of
antiseptics, 1248
HALL, Sir Arthur J. (G. S. SIMPSON, and J. L. A.
GROUT): Lobar pneumonia; subphrenic abscess;
duodenal fistula; recovery, 1043 (O)—Corres-
pondence on, 1177
— A. S.: Tuberculo-protein, 1071
— Charlton Robert Frederick, obituary notice of,
1397
— J. A. Moore: Blood sedimentation rate, 922
— Kathleen (and
Changes in liver of
Injections of sexual hormones, 438 (O)
— Muriel Barton: Juvenile nervous and mental
instability, 912
— R. W. P.: Anxiety state treated by hypnosis,
497
HALLAM, Rupert: After-effects of modern treat-
ment of carcinoma, 699
HALLS-DALY, J. F.: Recent advances in rheuma-
tism, 970
Ham House, Surrey: sale of library, 967, 1106
HAMBURGER, F.: Tuberculosis of bronchial glands,
1309
— Richard: Epidemiology and prophylaxis of
measles, 534
HAMILTON, B.: Unusual factor in rickets, 526
— J. Oliver, obituary notice of, 654
HAMPTON, P. W.: Excision of patella, 539
HANDY, J. H.: Painful feet, 748
HANDLEY, W. Sampson: Lymphangioplasty, 201
HANSCHELL, H. M.: Poradentia venerea, 584
HANSEN-REISTRUP, H.: Vitamin deficiencies in
mental hospital, 100
HARDWICK, C.: Pneumonitis, 815
HARDY, R.: Ascorbic acid in urine, 542
HARE, Anthony E. C.: Irradiation or surgery for
cancer? 1333
— Tom: Correct footwear, 480
HARGREAVES, E. R.: Herpes and varicella, 432
HARKNESS, A. H. (and others): "Gonococcal anti-
toxin" in treatment of gonorrhoea, 605 (O)—
in treatment of gonorrhoea, 605 (O)—
Annotation on, 629—Correspondence on, 701, 755,
811, 872, 1027, 1036, 1069, 1126, 1180, 1334
— Tom G. S.: Prevention of cancer, 1129
HARLOWE, H. D.: Premedication for tonsillectomy,
1057
HARMAN, N. Bishop: Treatment of minor conditions
in eye, 861
Harper, John Maurice, obituary notice of, 1397
— Philip: Antiphyth inoculation, 482
HARRIES, D. J. (and Emrys WILLIAMS): Unusual
tuberculous appendix, 277 (O)
— E. H. R.: Spread of streptococcal infection, 867
— T. A. B.: Drip feed for diphtheria, 1034
HARRIS, G. A.: *Chemical Methods in Clinical
Medicine*, second edition, rev., 383
Harrowgate Spa Medical Journal, first number of, 1139
HARROWES, W. M. C.: Mental defectives as good
citizens, 916
HARRY, Norman M.: Recovery period in anterior
polyomyelitis, 164 (O)—Annotation on, 178—
Correspondence on, 252
HARTILL, S.: Polydactylism, 932
HARVEY, A. M.: Alleged effect of acetylcholine on
immobilized joints, 835 (O)
— R. Simpson: Mosquito bites, 1401
HASTINGS, Anna B.: *Biology of Water Supply*, rev.,
1059
— J. P.: Pregnancy associated with ovarian
dermoid, 173—Fragment of needle in foot, 1309
— V. E.: Vitamin A and cancer, 1390
Hawaii, measles epidemic in, 712
HAYE, Philip: Endocrine treatment of cryptor-
chidism, 354
HAWES, R. Brunel: Vitamin B₁ deficiency, 413
Hawkyard, Arthur, obituary notice of, 1396
HAWTHORNE, C. O.: Pasteurization of milk, 109,
753, 917
HAY, Charles P. (and T. FRISTON): Prophylactic use
of antityphoid ser (O)—Note on (A.),
1109
— John: Cardiac failure, 584
Hay fever, intranasal ionization for (P. Franklin),
948
— Intranasal application of pollen solution
in (C. Francis), 1203 (O)
— treatment of, 756
Hayes, Surg. Major George Sullivan Clifford, obituary
notice of, 101
HAYLOCK, S. J.: Albuminuria and bromides, 493
- Head: Scalp wounds and fractures of skull, 635—
Concussion and compression, 743
Heals ray apparatus, correspondence on, 1179
HEALD, C. B.: Scapulo-humeral periarthritis, 644
HEALES, J. Newman: Correct footwear, 368
Health Department for Scotland: Report for 1937,
1015—Revision of school health records, 1282
— In industry, 957
- HEALTH MINISTRY:
Bacteriological investigation of puerperal sepsis,
807
Blindness prevention, 789
Croydon typhoid report, 530
— *Textbook of Ophthalmic Operations*, 784
— *Textbook of Ophthalmic Operations*, 784
630
- Health Office, International: Report of medical
director, 185
— resorts: Science of, 91—Place of surgery, 691—
Horticulture at, 692
— review of book on, 1266
— services: Co-operation in, 536—At Salford
(parliamentary note), 929
— visitors, work of, 1233
Healy, Francis, case of, 1137
HEANEY, C. M.: Chalk and typhoid, 693
Hearing aids in general practice (F. J. Clemenson),
1114—Correspondence on, 1283
Heart: Bundle branch block, 863
— failure, 584
— massage of, 712
— patent foramen ovale, 773
— *Textbook of Ophthalmic Operations*, 784
— *Textbook of Ophthalmic Operations*, 784
sease (S. M. Laird),
133 (O)—Annotation
on, 457
Heel, painful, 712, 827
JEFFERMAN, L. W.: Rate of growth of nail, 1192
JEFFERY, A.: *Handbuch*

- HOFFS, P. Bodo: Fatal haemorrhage in rectus abdominis muscle during pregnancy, 195—Correspondence on, 195
- HOLLER, Andrew Edward, obituary notice of, 424
- HOMANS, W. J.: Control of sulphamidamide therapy, 225—Correspondence on, 225
- HORNBY, J. M.: Bug destruction, 547
- HOLLAYS, even distribution of (parliamentary note), 876
- HOLLAND, Emily: Sterility or infertile marriage: its causes and treatment, 195—Medical aspects of decline of population, 470
- HOLLAND, Philemon, 349
- HOMES, Harry, obituary notice of, 50
- J. Macdonald: Spontaneous haematomata, 916 (O)—Announcement on, 954
- HOMES, Oliver Wendell, dramatized life of, 602
- HOMES, W. H.: Industrial eye-strain, 425—Report of children's branch, 701
- sacred convalescent, for women, 1257
- HOMES, equivalent, for poor, 214
- HONOURS: New Year, 83, 85—M.B.E., conferred, 101, 406—Birthdays, 1322, 1323, 1406
- HOOD, William H.: Syphilis and embryos as complication of pneumonia, 674
- HOPE, Samuel E. Moseley, obituary notice of, 65
- HOOPER, Lord: Rheumatic disease, 797, 1016—Health and clearness, 915—Portrait of, 1113—Funeral Directors (Registration) Bill, 1341
- HORNEMAN, result in (radio) article, 837
- HORNEMAN, see therapy, 440
- treatment of prostate hypertrophy, 94
- HORNEMAN, effective absorption of (A. S. Parker), 571 (O)—Announcement on, 599
- review of books on, 122, 1053
- see clearance of excretion of, 411
- anal, changes in flora of, after castration and injection of (Kathleen Hall and Vladimir Komarovsky), 425 (O)
- HORN, R. J. Mable: Pasturization of milk, 199
- HORNALL, Robert E.: Chlamydia: case history and post-mortem findings, 261 (O)
- HORNLEY, Victor, Memorial Lecture, 122
- HORNLEY, John: Bacteriology and cellulitis, 316—Correspondence on, 454, 764—Treatment of leish and cutaneous, 400—Correspondence on, 454, 594, 812—Radioactive range of service, 489
- HOSKIN, T. Jenner: Causes and treatment of catatonia, 5-12—Cramica, 694
- HOSKIN, Surgeon-Admiral Donald Templeton, obituary notice of, 819
- HOSPITAL accommodation in West Biding, 259
- HOSPITAL, for Sick Children: Annual report, 752
- Birmingham United: Annual report, 1251
- Canterbury: Opening, 292
- Cable, and Holt Radium Institute: New department and extensions opened, 9-5
- clearing house for London, 427
- construction and maintenance: Report of committee, 1223
- East Suffolk and Ipswich: Opening of new orthopaedic department, 416
- Elmhurst and School: Appeal, 140
- for Epilepsy and Paralysis and Other Diseases of Nervous System: Name changed, 1075
- finance (parliamentary note), 1409
- Glasgow Royal Maternity and Women's: Annual report, 140
- Royal's 25th anniversary of dental school, 1-57—Financial position of, 1069
- Houshall Isolation, administration of (parliamentary note), 1187
- Hull, for Women: Opening of new maternity home, 467
- Knox Edward VII Memorial, Bombay: Report, 699
- London: Festival dinner, 1224—Gifts to, 1225
- Works reprinted, 1265
- London Road Public Assistance, Stoke-on-Trent: Scheme for extension, 1246
- and Mayor Treloar Cripples: Design and planning of, 1169
- Maida Vale, for Nervous Diseases: New name, 1076
- mental, patients, and Matrimonial Causes Act, 492
- Metropolitan Ear, Nose and Throat: Centenary, 467
- Middlesex, Medical School: New athletic ground, 955—Annual lecture-hall endowed, 1292
- Opening of Meyerstein Institute of Radiotherapy, 1316
- Milmay Mission, opening of new department, 10
- Moordale Eye: Annual dinner, 639
- Mount Vernon and Radium Institute, union of, 1310
- National, for Diseases of Nervous System: Out-patient department and new wing, 1404
- National, for Rheumatic Diseases, Bath: Bicentenary, 297
- new, at Capetown, 626
- Ophthalmic, of St. John of Jerusalem: Note on work of, 1245
- posts, applying for, 46, 91, 143, 206
- Royal, for Diseases of Nervous System, in Irish Journal of Medical Sciences, 687
- Royal Berkshire: Centenary, 478
- Edinburgh, for Mental and Nervous Disorders: Annual meeting, 640
- Eye: Exhibition dealing with industrial eye injuries, 1947
- HOSPITAL, Royal Free (London School of Medicine for Women): Tissue distribution, 1404
- Maternity, Belfast: Annual meeting, 1122
- Mental, Glasgow: Annual meeting, 641
- National, for Rheumatic Diseases, Bath: Commemorative 15th anniversary volume, 490
- Northern: New research laboratories, 1214
- Princess Alice, Sydney: Anniversary, 441
- for Sick Children, Glasgow: Meeting of, 89
- South Hants and Southampton: New pathological department, 767
- Victoria, Belfast: Opening address, 275—Museum Circle, 60
- St. Bartholomew's: Lord Horley's portrait, 1113—Payee patients at, 1255
- St. George's, Giff, 1191
- St. John's, for Diseases of Skin: Out-patient clinic, 767
- of St. John of Jerusalem: Venerable Order of, 170
- St. Mark's: Cases of haemorrhage from rectum, 915
- St. Mary's: Gift, 53
- St. Thomas: Report of Clergy Northcott Trust, 274—Reports, second series, vol. 2, 1005
- services and luncheon, 407
- Stimson Memorial Maternity: Annual meeting, 505
- staff, payment of, 8
- St. John, for Radium Treatment: Change of address, 1205
- trust deeds and taxation (parliamentary note), 1059
- Ulster, for Women and Children: Annual report, 1121
- University College: Meeting of Governing Body, 273—Treatment with two-course course of radium, 29
- West London Medical School, 147—New clinic for chronic rheumatic diseases, 755
- Westminster, Medical School: Change of address, 29—New quarters, 29—Opening of new building, 4117
- Hospitalization, master, of children in France, 118
- HOSPITAL, British in China, 1222, 1234
- day in London, 1928, 970
- derating of (parliamentary note), 429
- Edinburgh, Lord High Commissioner's visit to, 1225
- F.C.C., Antisepsis training at, 629—Administration of, 975—Estimated expenditure, 971—Recognition of, 971—Really reference to, 1256
- mental: Fees for anaesthetics at, 507
- Remuneration in, 479
- maternity, planches of, 955, 1064, 1123, 1282—Leaving article on, 1162
- mental: Voluntary patients in (parliamentary note), 491—Service patients in (parliamentary note), 1409
- modern, exhibition of photographs of, 1227
- Newcastle, co-ordination of, 416
- St. Mary's, Manchester: 12p. 14, 141
- health voluntary (parliamentary note), 547
- voluntary: Nature emergency survey (parliamentary note), 823—Emergency bed service, 1221, 1222—Recommendations of commission, 1409
- HOSKIN, E. G.: "Emergency bag," 456
- HOSKIN, food contamination by, 1247
- HOSKIN, Number built in England and Wales by relative entries, 1406—Seed in Scotland, 1406
- HOSPITAL, Number of houses reconditioned, 477
- (Financial Provisions) Bill, 429
- and planning, 1275
- (Rural Workers) Amendment Bill, 1079
- in Scotland, 1229
- HOSKIN, Dr. J. E. J., 26
- HOSKIN, B. Whitechurch: X-ray film developing box, 659
- W. B.: Food contamination by houseflies, 1247
- HOSKIN, John: Pelvic surgery and true conjugal, 275 (O)—Correspondence on, 261
- HOSKIN, W. B.: Castle burns, 171
- HOSKIN, A. W. McKenney (and S. A. Ashworth): Coal-bag naphtha for destruction of bed-bugs: application in dwelling-houses and tenements, 169 (O)—Leading article on, 177—Correspondence on, 547—Bed-bug in human ear, 1406
- C. Alton: Primitive sight and human sight, 292
- William: Tuberculous leprosy, 26
- W. Kent: Naval sinistral in childhood, 1393
- HULL E. (and L. Ashman): *Essentials of Electrocardiography*, rev. 1104
- HULTKRANTZ, J. V., death of, 926
- HUNT, J. Gordon: Dosage of tuberculin, 1026
- HUMPHREYS, Justice: Law relating to abortion, 408—New divorce law, 1021
- HUNT, Elizabeth: Skin manifestations in rheumatism, 392
- H. B.: Acute acid in bronchial asthma, 726 (O)—Correspondence on, 870
- J. H.: Painters self-mutilation, 905
- HUNTER, Donald: Industrial diseases, 633
- J. B.: Massive collapse of lung, 583
- J. W. A.: Pregnancy and parturition after amputation of cervix, 1220
- S. R.: Appreciation of Dr. D. P. Gausson, 1223
- HUNTER, Sir Arthur: Causes and treatment of flatulence, 551—Physical basis of "billousness" and "wind round heart," 661 (O)
- L. A., awarded fellowship in medicine, 1246
- HUTCHINSON, Herbert: Classification of adventitious auricles, 752—Elected President of Royal College of Physicians of London, 160
- HUTCHINSON, disease in New Zealand, 301
- HUTCHINSON, medical, 257
- HUTCHINSON, for rheumatoid arthritis, 294, 604
- HUTCHINSON, medical, review of book on, 517
- and Tropical Medicine, London School of: Annual meeting of court of governors, 214—Degrees and post-hoc, 261—Community centres and public health, 1069
- Hyperostosis frontalis interna (T. de Leboerky and A. Orlandi), 1049 (O)
- Hypertension, relation with generalized otitis media (A. W. Fawcett), 283
- Hypertension, see blood pressure, high
- Hypertension, essential, diagnosis and treatment of, 241
- parotid, arterial, 1059
- retinal, arterial, 184
- Hypertension, urinary, line in, 326
- Hypertension attacks: manifestation in hysteria (Russell Fraser and William Sargent), 275 (O)—Correspondence on, 243
- Hypnotic treatment (anxiety state), 497
- Hypnotic (pseudo) attacks (Leopard Findlay), 241
- HYPOTENSIVE, anterior, in diabetes mellitus, 1170
- HYPOTENSIVE, hypertension attacks (Russell Fraser and William Sargent), 275 (O)—Correspondence on, 243
- I
- Icterus grahis neotoma, aetiology of, 1271
- Icterus, mechanical obstruction of, by appendix (D. Matheson), 415
- ILKINGWORTH, C. F. W.: *Short Textbook of Surgery*, rev., 1209
- Imbilio, 247
- Immunology, review of books on, 235, 783
- Imperforate constrictor, 1746
- Imp. G. G., treatment of, 329
- Incapacitating illness (parliamentary note), 1021
- Income Tax:
- Allowable expenses, 712
- Allowance for wear and tear, 1192
- Bank debt, sale of, 24
- Cash basis for professional accounts, 631
- Change in partnership—cash basis, 497
- Death of partner, net, 947
- Division of partnership profits, 497
- Employment of non-hereditary, 604
- by steamship line, 329
- Everyday problems of, 81
- Expenses—admission E, 1245
- Income from abroad, 1084
- Motor car depreciation, 954
- Partnership accounts, 126
- Partnership from practice, 58
- Semi-domestic expenses, 827
- Supplementary reserve commission gratuity, 1194
- Temporary residence in United Kingdom, 1102
- Index Medicus-Pharmacopoeia, rev., 623
- Indexes, half-yearly, 131, 249
- India:
- Accum in 1936, 179
- Association of Surgeons in India, proposed formation of, 692, 1124
- Child welfare in Bombay, 251
- Diploma in obstetrics and gynaecology, 1124
- Dysentery among Europeans of Calcutta, 1090
- Ever, typhoid, in (Shubra), 252
- Fund, anti-tuberculous, 1124
- Infant mortality in Madras, 1124
- King Edward VII Memorial Hospital, Bombay: Report, 697
- Madras hospitals and dispensaries, 450
- Malaria in, 1031
- Manufacture of opium alkaloids in government factories in, 929
- Medico-Legal Prof. Morten in India, rev., 1211
- Obstetric and Gynaecological Congress, 479
- Pastor Institute, Coonoor, 222
- Punjab, women patients in, 470
- Viceroy, appointment of Honorary Surgeon to, 657
- Indigestion and patent medicines, 790
- Industrial diseases, lecture on, 625
- welfare the world over, 344
- Infant feeding, review of book on, 1105
- Infantile Bill, 710, 876
- Infectious diseases, control of, 343
- Industry, Edinburgh Royal: History of, 85—Annual meeting of Court of Contributors, 140
- General, at Leeds: Annual report, 636
- Glasgow Royal: Annual nurses prize-giving, 140
- Annual meeting of subscribers, 476
- Glasgow, Western: Annual meeting of contributors, 415
- Hull Royal: Gift, 826
- North Staffordshire Royal: Gift for new block, 955
- Staffordshire General: Extensions, 1022
- Stirling Royal: Annual meeting of subscribers, 198
- Influenza, epidemic (leading article), 1003
- Institute for investigation of, founded at Budapest, 103
- Is it influenza?

THE BRITISH
MEDICAL JOURNAL

Journal of Comparative Pathology and Therapeutics:
 Jubilee number, 1012
 — of *Médecine de Lyon*, issue devoted to legal and
 social medicine, 53
 — of *Morphology*, published bimonthly, 763
 — of *Nervous and Mental Diseases*: December
 issue, 103—February issue, 603
 — of *Neurology and Psychiatry*, January issue,
 131, 575
 — of *Social Ophthalmology*, 1272
 JOYNER, C. Maxwell: Recurrent dislocation of
 shoulders, 703
 JUDD, Fred H.: Autophytic dermatitis, 207
 JUNE: Myeloclasia of pharynx and larynx, 97
 JUNG, C. G., proposed visit of, to London, 263, 66
 JUNGWICHEL: Injection risks, 955
 Jurisprudence, medical, review of book on, 847
 Juhl, Jens, obituary notice of, 928

KAPLAN, Ira I.: *Radiation Therapy*, rev., 622
KASSER, Elsie W. (Katharine H. COWARD and
Leticia W. WALLER): Shortage of calcium in
"poorer-class" diet, 59 (O)—Note on, 81—Corres-
pondence on, 202, 255
KASTEMAN, Julian: Sulphanilamide and sul-
fathiazole, 106

1235
Kedah, health survey of, 1406
KEEN, J. A.: *Short Manual of Regional Anatomy*, rev., 124
Keating's *Medical Digest*, 988
KEITH, Sir Arthur: Prehistoric people of Mount Carmel, 390—Reviews Sir Grafton Elliot Smith, 815
—J. D.: Rheumatic heart disease and vagus nerve, 956
KELLOGG, J. H.: Preliminary account of referred
—
Kellie, Col. George Jerome, obituary notice of, 1181
KEMP, Philip: Noise and health, 138
—Robert: Recurrent haematemesis in "Bant's disease," 222 (3)—Intracranial haemorrhage, 750
KENDERDINE, Eric: Vitamin therapy and uterine function, 1054
KENNY, Miss: Treatment of acute streptococcal infections with sulphathiazide, 352
—Sister: Method of treatment of acute polymyositis, 168—Annotation on, 178—Correspondence on, 252, 701, 1150, 1230—To superfice test of her treatment, 106—Report of Queensland Commission, 350
KENT, Basil S.: Problem of final M.B., B.S. Lond., 489
KEOGH, E. V. (F. M. BERNET, and D. LUSIO): Immunological Reactions of Filterable Virus, rev., 1153
Keratoplasty (T. H. S. Tizzard), 1293 (D)
KERLEY, P. (S. C. SHANKS, and T. W. TWISING): *Textbook of X-Ray Diagnosis*, rev., 1193
Kerr, Francis Ferguson, obituary notice of, 1185
—J. M. Munro: *Operative Obstetrics, Guide to the Principles of Obstetric Practice*, 1017
—, 1024
KERSHAW, JOHN D.: Co-operation between M.O.H. and G.P., 644
KESLEY, G. (and others): *Fractures, Dislocations and Sprains*, 709
KEY, J. A. (and others): *Fractures, Dislocations and Sprains*, 709
—, 710
—, 711
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—, 1121
—, 1122
—, 1123
—, 1124
—, 1125
—, 1126
—, 1127
—,

LONDON:

- Appropriation of public health institutions, 537
Births and deaths in 1937, 478
Coroners' inquests, 906
County Council. See Council
Emergency bed service in voluntary hospitals, 1231
Hospital clearing house, 427
Immunity of (leading article), 22
Inquiry into health of bus workers, 403
Hospitals day, 1938, 970
Mental health services, 106
Midwifery service, 80
Notification of measles and whooping-cough in, 807
Treatment of school children, 477
University. See University
Ventilation problems on underground, 656
Water of, in 1936 (leading article), 341
- LOUGHANE, F. McE.: Painful feet, 749
LOVE, R. J. McNeill: Abrasions and contusions, 82
LOVELL, R.: Diseases common to man and animals, 138
LOWNDES, G. A. N.: *Silent Social Revolution*, rev., 515
LUBNER, S. H.: Auricular fibrillation in cardiazol treatment of, 1031
Luff, Arthur P.
Lunacy law of
— and mental deficiency, research in, 297
Lund, Herbert, obituary notice of, 490
LUNDIE, C.: Referred pains arising from muscle, 1029
Lung abscess, diagnosis and treatment of, 803—
— Correspondence on, 924
— cancer of, 682, 755
— massive collapse of, as complication of operations, 682
— town-dwellers, 476
Lungs: Classification of adventitious sounds, 702, 752, 870, 917, 973
LUSH, Dora (F. M. BURNET, and E. V. KEON): *Immunological Reactions of Filterable Viruses*, rev., 1150
LUTEN, Drew: *Clinical Use of Digitalis*, rev., 1052
Luther, Col. Anthony John, obituary notice of, 152
Lymphangioplasty, 201
LYNCH, Roche: Narcotic poisoning, 1217
Lysozyme and bowel, 1111
LYTH, J. C.: Obituary notice of Dr. L. A. Johnson, 1230
- M
MACBETH, Alison: Correct footwear, 307
MCALL, A. J.: Cardiac failure, 584—Intracranial haemorrhage, 749
— John Oppie (and P. R. STILLMAN): *Textbook of Clinical Periodontia*, second edition, rev., 1159
— Eva: Opportunities for women in medicine, 96
MACCALLUM, F. O.: Chemotherapy of virus diseases, 875
— John Bruce, life of, 733
McCANCE, R. A.: Analysis of diets taken by pregnant women, 191—Mineral salts in therapy, 531
McCANN: Sterility and marriage, its causes and treatment, 190
MacCartie, Lieut.-Col. Charles Joseph, obituary notice of, 101
McCARTNEY, J. E.: Epidemiology and prophylaxis of measles, 534—Treatment of cerebrospinal fever, 1384
McCAY, Frank: Treatment of bacillary dysentery, 489
McCLARY, G. F.: Medical aspects of decline of population, 472
McCLUNG, C. E. (editor): *Handbook of Microscopical Technique for Workers in Animal and Plant Tissues*, second edition, rev., 1006
MACCONAILL, M. A.: Structure and function in synovial joints, 1385
MACCORMAC, Henry: Treatment of otitis externa, 412
McCOWAN, P. K.: "Neo-hippocraticism," 972
McCrae, Lieut.-Col. John, 20th anniversary of death of, 319
McCullagh, Thomas Alexander, obituary notice of, 818
MACDONALD, C. Baird: Pancreatic extract in Graves' disease, 1231
— D. M.: *Essentials of Pharmacology, Materia Medica, and Therapeutics for Medical Students*, rev., 339
— J. (and K. Adlard COLES): *Income Tax Explained*, 81
— John, presentation to, 1283
MacDougall, Major Donald John, obituary notice of, 708
McEWAN, 1037
— thyroiditis, 55—Correspondence
— to-pubic osteo-
- MCGEEHEE, W. H. O.: *Textbook of Operative Dentistry*, second edition, rev., 451
MCGILL, R. J. (and G. S. ERWIN): Unusual physical signs in lobar pneumonia, 891 (O)
MCGOWAN, J. P.: Causation of rickets, 94—Causation of cancer, 698—Modern views on pellagra, 917—Calcium and phosphorus deficiencies, 977—Adrenal cortex and intersexuality, 1336—*Doctors' Cookery Book*, 1393
MACGOWN, J. C.: Otitis externa, 544
MACGREGOR, T. N.: Amenorrhoea: its aetiology and treatment, 717 (O)
McGUINNESS: Influenza virus vaccine, 291
Machine and worker, 700
MACINTYRE, A. B.: Sodium sulphamylsulphanilate and canine distemper, 875
MACKAY, Helen: Nutritional therapy during pregnancy, 192
McKay, James, obituary notice of, 50
McKay, William Bertie, obituary notice of, 314
McKelvey, Major Daniel, obituary notice of, 877
McKELVIE, W. Bryce: Carcinoma of palate, 974
MACKENNA, R. M. B.: Diseases of Skin, fourth edition, rev., 74—Plantar wart, 509 (O)—Correspondence on, 649, 703, 814—Pruritus vulvae, 584
MACKENZIE, Murdo: Insulin therapy in schizophrenia, 411
McKenzie, Robert Tait, obituary notice of, 1397
McKIM, William: Cause of chronic gastric ulcer, 647
MACKINNEY, Loren C.: *Early Medical Medicine*, rev., 75
Mackintosh, Sir Ashley, bequests of, 635
MCLAGGAN, J. Douglas: *Diseases of Ear, Throat, and Nose*, rev., 232
MACLEOD, J. J. R.: *Physiology in Modern Medicine*, eighth edition, 782
MACLEOD, J. M. H.: Tuberculoïd leprosy, 36
MACLAUGHLIN, J. H.: Sulphonamide for prophylaxis in midwifery, 757
MACLAUGHLIN, Jane R. (and Frederick H. FALLS): *Obstetric and Gynecological Nursing*, rev., 233
MACMURRAY, John: Philosopher's view of modern psychology, 750
McMURRAY, T. P.: Fracture of neck of femur treated by oblique osteotomy, 330 (O)—Correspondence on, 481, 541, 920—*Practice of Orthopaedic Surgery*, rev., 567
McNabb, Surg. Rear-Admiral Sir Daniel Joseph Patrick, obituary notice of, 152
— H. Horsman: Appreciation of Mr. A. H. Griffith, 100
MACNALLY, Sir Arthur: Report to Board of Education, 35—Epidemiology and prophylaxis of measles, 534—Appreciation of Sir Arthur Downes, 653—Physical education, 748—Appreciation of Lieut.-Col. E. tonsillectomy
MACRAE, D. J.: complications of labour, 849
— R. D.: Aetiology of acute appendicitis, 816
McShine, Arthur Hutton, appointed to Executive Council of Colony of Trinidad and Tobago, 1246
McSWEENEY, C. J.: Bragg-Paul pulsator in treatment of respiratory paralysis, 1206 (O)
McSWINEY, B. A.: Physical education in Europe, 747
McWatt, John, obituary notice of, 593
— planning of maternity hospitals, 1005
MADAUS, Gerhard: *Lehrbuch der Biologische Heilmittel*, rev., 1159
Madras hospitals and dispensaries, 480
MADSEN, Thorvald: *Lectures on Epidemiology and Control of Syphilis, Tuberculosis, and Whooping Cough*, 343
MAGEE, H. E. (J. RAMSAY, and V. T. THIERES): Composition of blood in pregnancy, 1199 (O)
Magennis, Edward, obituary notice of, 150
Magill, W. I., awarded Hickman medal, 1013
Magan, Dr., death of, 819
Magnesium trisilicate preparation (trisomin), 433
Magillier for small operations, 339—Note on, 498
MAI, H.: Serotherapy of anterior poliomyelitis, 1311
MAIN, F. T.: Post-traumatic Parkinsonism and effect of atropine, 170 (O)
MAINGOT, Rodney: Primary carcinomas of stomach and sigmoid colon occurring simultaneously, 118 (O)
MAINLAND, W. F.: *German for Students of Medicine and Science*, rev., 676
Maier, William Alexander, obituary notice of, 315
MAITLAND, A. Ian L.: Acute appendicitis, 361
— D. G.: Early diagnosis of pulmonary tuberculosis, 544
— Francis George, obituary notice of, 1134
Mahria control in Hong Kong, 1273
Mahria in India (parliamentary note), 1031
— in Malaya, 458
— placental infection in, 1280
— review of book on, 235
MALLESON, Joan: Law relating to abortion, 410—Contraceptives and fertility, 484
MALLOCH, Archibald: *Short Peers. Life and Letters*, rev., 733
— MacCallum, M. D., 1103
— lives, 535
MALPAS, Percy: *MacCallum*
— Pruritus vulvae, 584
Malta, undulant fever in (J. L. H. Gatt), 454
MANCLARK, Richard A.: Sterilization of syringes, 1286
MANN, Ida: *Developmental Abnormalities of Eye*, rev., 232
- MANSON-BAHR, P. H.: Lung abscess, 801
MARLES, E. E.: Serum treatment of gonorrhoea, 1035
MARFAN, A.-B.: *Les Éléments du Pronostic dans Les Maladies aiguës*, rev., 1313
Margarine, nutritive value of (parliamentary note), 429
Marinesco, George: Elected Grand Officer of Legion of Honour, 103—Death of, 1240
MARKOWITZ, J.: *Textbook of Experimental Surgery*, rev., 731
MARRACK, J. R.: Nutritional therapy during pregnancy, 192
Marriage and venereal disease in Canada: new legislation, 763
MARSHALL, C. R.: Active principle of *Cannabis indica*, 1233
— J. N.: Autophytic dermatitis, 41
MARTIN, G. Ewart: Treatment of otitis externa, 412
— cord, 417
— of non-
malignant gynaecological disorders, 249—Temporary sterilization by x rays, 419
MARTINEZ, G. N.: *Lav Micocutis*, rev., 21
Masani, Lieut.-Col. Hormasji Dadabhai, obituary notice of, 1139
Mask, box, for oxygen administration (J. Argyll Campbell), 1260 (O)
MASON, Dorothy E.: Correct footwear, 203
Massage and electrotherapy: extension to Scottish clinic, 808
Materia medica, review of books on, 1367
Maternal welfare in Durham County, 1138
Maternity centre for Moray, Nairn, and Banff, 1385
— and child welfare, conference on, 803
— scheme for West Riding, 639
— services, new, address on, 467
— in Scotland (parliamentary note), 492
— work in Glasgow, 140
MATHIE, Horace: Treatment of otitis media, 113
MATHEWSON, Donald: Mechanical obstruction of ileum by appendix, 845
— John, obituary notice of, 365
Matrimonial Causes Act: Correspondence on, 591, 1177, 1235, 1388—Medico-legal aspects of, 1021—B.M.A. and (parliamentary note), 1080—Divorce for insanity, 1237
MATTIA, Dawood: *Critical Investigation of Blood Groups and their Medico-Legal Application*, rev., 1367
MATTHEW, G. Douglas: Treatment of chronic cervicitis, 868
MATTHEWS, Janet W.: Siliceous dusts, 867
— Newton: *Brucella abortus* infection treated by sulphanilamide, 493
MATTHEW, Marjorie R.: *Chemical Procedures for Clinical Laboratories*, rev., 175
MATTICK, A. T. R.: Phenomenon of refection, 1070
Mattress and blankets for Fowler's position, 1268
Maturation, skeletal, review of book on, 624
Mauress, Surg. Gen. Thomas, obituary notice of, 152
MAURY, J. C.: Purpura fulminans in scarlet fever, 363
MAXWELL, James: Massive collapse of lung, 582—Spontaneous haemopneumothorax, 778 (O)—Diagnosis and treatment of lung abscess, 803—Classification of adventitious sounds, 917
MAY, Surg. Capt. Percival M.: Primary vaccination at age of 12, 497
MAY and BAKER Ltd.: Supply of trypanamide, 764
MAYER, Martin (and Bernard NORBT): *Malaria: Handbook of Treatment, Parasitology, and Prevention*, rev., 235
Mayo Clinic and Foundation, physicians and surgeons of, 630
Mayo-Smith, Capt. Charles Frederick, obituary notice of, 1139
MAYHOFFER, B.: *Short Dictionary of History of Medicine*, rev., 234
MAZZEI, Edigio S. (and M. R. CASTEX): *Suero Estudios sobre los Neumococos Espanoles*, rev., 624
M.B., B.S. Lond., final, problem of, 45, 94, 116, 201, 257, 309, 363, 489
Meade-King, Richard Liddon, obituary notice of, 654
MEANS, J. H.: *Thyroid and Its Diseases*, 741—Leading article on, 785
Measles epidemic, 697
— epidemiology and prophylaxis, 537
— nervous complications of (A. G. E. Tob), 1361 (O)
— of London, 807, 822
— (W. E. Frost), 1233
— serum, Adult, 4—age of in school, 872—Parliamentary note on, 876—Preparation of, 1112
Meat importation and official certificate, 242
Meholin, therapeutic uses of, 1297
Medal, Bernhard Norbt, presented, 211
— Gold, David Anderson-Berry, 155
— Harrison, awarded, 519
— Lister, 1166
— North Persian Forces Macdonald, 1399
— Violet Hart, awarded, 1404
Medical Annual Yearbook of Treatment and Prevention Index, 1934, rev., 1102
— co-operation between England and France (leading article), 1318
— Directory: Warning, 264
— men, British, these on, 249
— officers of health and general practice, 644
— co-operation between, 490, 549, 644
— Periodicals: *Periodica Medica*, 517

INDEX

Obituary (continued)

- Backus, George Alfred, 48, 49
Baltie, Harry M. Brown, 68
Barnes, Henry Turpin, 129
Bass, Walter H. M. D., 28
Bart, Frederick Vanley, 131
Bartlett, Percy Clark, Goodley, 133
Bastien, Jack, 157
Bastien, Fred, 157
Bastien, Ernest, 1134
Bastien, Thomas, 1279
Bastien, W. at Col. John Heston, 131
Bastien, John F. C., 72
Bastien, Major Douglas Hamilton, 1129
Bastien, Percy, 427
Bastien, John Heston, 32
Bastien, Arthur Taylor, 1249
Bastien, Frederick Jay, 1078
Bastien, Sir Joseph, 424
Bastien, Sir Raymond, 631
Bastien-Brown, Sir James, 311
Bastien, Robert, 248
Bastien, D. at Col. James D. I., 758
Bastien, Archibald, Walter, 634
Bastien, Ernest, 131
Bastien, Joshua Tower, 508
Bastien, John, Col. Robert McLellan, 101
Bastien, Archibald William Wallace, 319
Bastien, William Henry, 706
Bastien, Donald, 69
Bastien, George, 178
Bastien, George, 178
Bastien, Henry Bryan, 64
Bastien, Archibald, 925
Bastien, Alfonso, 1249
Bastien, William Henry, 682
Bastien, Dr., 491
Bastien, Sir Arthur, 632
Bastien, John Heston, 319
Bastien, Lieut. Col. Charles, 1249
Bastien, Col. Thomas Edward, 758
Bastien, John Watkin, 1134
Bastien, William Thomas, 1078
Bastien, Paul, 294
Bastien, Cyril James Gurney, 1185
Bastien, Walter, 319
Bastien, Richard Huxley, 631
Bastien, Sir Thomas, 1184
Bastien, Vladimir M., 178
Bastien, Edward Joseph, 875
Bastien, Henry Ernest Klee, 762
Bastien, John, 1078, 1185
Bastien, William E. M., 248
Bastien, Eric, 1249
Bastien, Prof., 178
Bastien, Nadir Heston Shaw, 625
Bastien, Thomas William Francis, 634
Bastien, David Peter, 1248
Bastien, William Conway, 925
Bastien, Maurice, 925
Bastien, Heston, 706
Bastien, Augustus, 1298
Bastien, Gustavus George, 315
Bastien, James Henry, 538
Bastien, James, 875, 692
Bastien, Robert Heston, 491
Bastien, Michael, 875
Bastien, Rear-Admiral Cary T., 491
Bastien, Frederick Thresher, 818
Bastien, William Watson, 151
Bastien, Alex. Hill, 101
Bastien, A. Cowan, 131
Bastien, Robert, Col. Frederick, 1397
Bastien, J. Oliver, 625
Bastien, John Maurice, 1297
Bastien, Arthur, 1298
Bastien, Surg.-Major George Sullivan Clifford, 101
Bastien, Ellen, 1021
Bastien, Robert, 1248
Bastien, Alfred, 1249
Bastien, Wilhelm, 655
Bastien, Surg. Vice-Admiral Sir Robert, 8-9
Bastien, Andrew Edward, 425
Bastien, Harry, 50
Bastien, Samuel E. Meston, 655
Bastien, Surg. Rear-Admiral Donald Templeton, 819
Bastien, J. V., 925
Bastien, Richard Hermann, 491
Bastien, Surg. Capt. Robert Dundonald, 153
Bastien, Surg. Rear-Admiral Thomas Tendon, 152
Bastien, J. E., 1229
Bastien, Lawrence Alfred, 1229
Bastien-Phillips, Cecil Ernest, 50, 109
Bastien, Jess, 925
Bastien, Thomas, 1029
Bastien, Fritz, 925
Bastien, Col. George Jerome, 1181
Bastien, Francis, 1185
Bastien, Capt. Horace Harvard, 657
Bastien, Sir Frederic Troby, 424
Bastien, George David, 631
Bastien, Werner, 203
Bastien, Otto, 491
Bastien, Friedrich, 925
Bastien, Bernard, 151
Bastien, Josef, 203
Bastien, Robert Enwaicht, 261, 314
Bastien, James Arthur Richard, 634
Bastien, Le Teller, Dr., 491
Bastien, Lieut.-Col. Asher, 1129
Bastien, Frank Benjamin, 925
Bastien, Erich, 151
Bastien, Otto, 261

Obituary (c. 1910-1920?)

- Hulse, Hunt 431, Alfred Thomas Ivimey, 491
 Hutton, John Lockhart, 418
 Ingh, Arthur Pearson, 1036
 Irwin, Herbert, 490
 Luther, Col. Anthony John, 152
 MacArthur, Lieut.-Col. Charles Joseph, 101
 McCallagh, Thomas Alexander, 818
 Macdonald, Major Isacit John, 708
 MacFadyen, John Young, 318
 McKay, James, 50
 Mackay, William Leslie, 314
 McKehey, Major Darius, 877
 McKenna, Robert Tall, 1167
 McNabb, Surge Rear-Admiral Sir Daniel Joseph
 Patrick, 152
 McNeill, John, 308
 MacWalter, John Conteray, 499
 Macnab, Edward, 159
 Martin, Dr., 819
 May, William Alexander, 515
 Mathill, Francis George, 1134
 Matthews, George, 1210
 Masart, Lieut.-Col. Hermann Dostal, 1179
 Mathews, John, 255
 Maxwell, Surge-Major Thomas, 152
 Mayo-Smith, Capt. Charles Frederick, 1129
 Meade-Kirk, Richard Leslie, 654
 Mehill, Felix, 625
 Michael, Frederic Archibald Hope, 772
 Min A, James Jackson, 1131
 Moore, Samuel, 818
 Murray, David, 59
 Mowat, Robert Stewart, 1283
 Nazell, Otto, 926
 Nance, Surge Capt. Sir Arthur Stanley, 11-1
 Neill, Alexander William, 1077
 Neston, Henry Harvey, 765
 Parker, Charles Arthur, 764
 Pascha, George Bryce, 926
 Patterson, Frank, 69
 Pathe, Sir, David, 1240
 Peir, Edward James, 1186
 Peiris, Francis David, 1077
 Putnam, James W., 875
 Quayle, Col. William Blair, 708
 Rabant, John, 1240
 Randell, David Frederick, 169
 Richards, David Edward, 875
 ———— Evan Williams, 1078, 1185
 Rhynd, Emmet, 299
 Robt, Major Alexander Keith, 775
 Roberts, Arthur Donald, 762
 ———— Lieut. Col. Vivian Heathcote, 1240
 Robinson, Abraham Hejwath, 169
 ———— Thomas, 159
 Robson, B. Boyd, 1185
 Rose, Matthew, 526
 Roughton, John Paul, 651
 Rowland, Edward Walton Spencer, 564
 Row, John, 564
 Russell, George Hanna, 764
 Salmon, Raymond, 491
 Samperton, Gastano, 926
 Sanders, Charles, 49
 Santos, Marcel A., 269
 Sack, Thomas William, 764
 Schmidt, Hermann, 635
 Scott, Alexander Thomas, 1079
 ———— Lieut. Col. James, 366
 Slann, Frederick, 766
 Sealan, Denis A., 545
 Simmer, David, 526
 Sismet, Richard Reginald, 819
 Smyth, Malcolm Bruce, 9
 Somers, James Louis Edgeworth, 762
 Spallanz, James A., 655
 Standen, Albion, 209
 Stanton, Sir Thomas, 512
 Stark, Harry, 862
 Starks, Sir Thomas Gordon, 69
 Steadman, Thomas Lathrop, 1295
 Steen, Wilfred Alexander, 1342
 Stern, Louis William, 775
 Stevenson, David Lyon, 765
 Stewart, Charles Parker, 365, 426
 Stoker, Graves, 564
 Steiner, Dr., 491
 Stoute, Donnie Garnett, 268
 Strazman, Cyril Patrick Andrew, 1078
 Stuart, Robert William, 69
 Suttcliffe, Edward Ernest North, 967
 Swaley, Lieut.-Col. Maurice, 366
 Swynerton, Charles Francis Macey, 1298
 Sym, William George, 261
 Symond, Lieut.-Col. Henry John Hugh, 924
 Taddell, Don-rico, 266
 Tellier, Walter Henry Maxwell, 1074, 1134
 Theat, Arthur, 269
 Tierney, Gerald Joseph Walton, 365
 Toland, Charles Kirk, 766
 Toye, Edwin Josiah, 313
 Town, Edward, 1264
 Trunam, Charles Edwin, 943
 Urrin, Lieut.-Col. John Johnson, 1182
 van Leeuwen, Evert Cornelis, 655
 Van Roy, 151
 Walker, John Frederick, 597
 Walker, Hermann, 926
 Waller, Lieut.-Col. Herbert James, 1240
 Wardlaw, Col. Donias, 155
 Watson, Anne Mercer, 925
 ———— Robert, 364

Obituary (continued):

- Welsh, Eileen, 657.
Wesler, Thomas Kennedy, 150
White, Sara E., 653
Williamson, Llew. O. J. *Educator*, 1972, 1272
Williams, Arnold Whitchield, 215
Wilson, John Cowan, 159
Wingrave, V. H. Wyatt, 1312, 1297
Withers, Sanford M., 762
Wood, James, 89
Wyld, Rutland S., 191
Wyatt, Henry George, 1239
Young, Thomas Brett, 706
— William, 819
— William Alexander, 597
Zabner, Alfred, 1210
- O'Brien, A. J. R., appointed Chief Medical Adviser In Civil Control, 4-0
O'Brien, R. A.:
— Histology and prophylaxis of measles, 574
— Spread of streptococcal infection, 867
— Treatment of cerebrospinal fever, 1784
Obstetrics, development of, 211
— review of books on, 72, 78, 1312
Obstetrical Practice, new infant, 826
O'Connor, T. W., abstract of, 1246
— J. F.: Technique of blood transfusion, 420
O'Donnell, D. B.: Law relating to abortion, 119
O'Donoghue, J. J., called to the bar, 219
Odgers, instrument for detection of, 75
Oedipus: transsexual elements of, 1065
Oestrin, effect of, on basal metabolic rate, 1277
— therapy, clinical experiment in (P. M. E. Bishop), 940
Oesch's test, radiological after, 1299
OFFICER, P.: Birth branch book, 809
OFFICE, conditions of (parliamentary note), 1213
OHARA, W. H.: Treatment of war in, 152, 147—
— clearing ground of surgery, 1191 (O)—Correspondence on, 1281, 1282
OHGREN, C. Fred.: P.: Dietsch's, 694
OHMER, H. Gordon: Treatment of placenta praevia, 1671
OHLENSAW, Robert G. W.: Rapid radiography for Smith-Petersen (post.), 579—Correspondence on, 699, 705
OLIVER, J. H.: Conservative treatment in oral inflammation, 1272
OLMSTEAD, J. F.: Treatment of otitis externa, 413—
— Nasal rhinitis in children, 1132
ONEILL, M. *Quintessence of Veterinary Medicine (On San Daniel Tellor on Quilman-Langley & Co., Inc.)*, 232
Orthodontics, 1272
ORTHODONTIC, symposium, analysis of cases of from Orthodontic Association, 50 Correspondence, 40—
Orthodontic literature (parliamentary note), 29
— testing unit, portable, 784
Orthopaedics, review of books on, 173, 589, 516, 1054, 1267
— Needs of Eye
ORTHOPEDIC, A.: Peripheral nerve pain of vertebrae, 1267
— Carl: *Die Fortschritte und ihre Wirkungen*, parts 6, 7, 8, and 19, 826
Ort infection, conservative treatment of, 264
ORINIS, A. (and T. DE LINCHIA): Hypertrophic tonsils interna (Stewart-Morris syndrome), 1049-10
ORMAN, R.: Complete prolapse of rectum, 722
ORMY, A.: Methods of, 1267
ORMY, D. R.: Origin of cancer, 1469
ORMSBY, Oliver S.: *Practical Treatise on Diseases of Skin*, 5th edition, rev., 239
ORR, Thomas: Planning of maternity hospitals, 655
Orthopedic work in Yorkshire, 970
Orthopedics, review of books on, 567
OTOLARYNGOLOGICAL, dental caries, 358
— J. G.: Allotment and town planning, 695
— G. B.: Why "post-anesthetic pulmonary" complications? 279 (O)—Correspondence on, 487, 1127
OSGOOD, R. B.: Rheumatic disease and voluntary system, 809
OSHAGHANY, Laurence (and Ferdinand SATTER): *Handbook of Thoracic Surgery*, rev., 174
Osler in 1878, 214
OSTER, Thomas G.: Gastro-enteritis due to *B. dysenteriae* Sonne, 91
Otitis-arthritis, neurological factor in, 653
Otosclerosis, ichthyoid: with report of case (G. D. F. McFadden), 1369
Otolaryngology, review of book on, 950
Osteomyelitic surgical treatment of 44—
O-topsy
O-TERR
OTOSCOPIC
O'Sullivan, B. Ward, case of (parliamentary note), 1187
Otitis externa: "hot-weather ear" (George Morley), 373 (O)—Correspondence on, 514
— treatment of, 412 (F. W. Capps), 958
— medical treatment of (Nyx-Furnby), 1014, 1061
Otolaryngology, British, founders of, 595
OTTLEY, Constance: Intratracheal alcohol injection for relief of pain, 510 (O)—Disclaimers, 660
Ovary, dermoid cyst of and pregnancy (J. P. Hasten), 173, 214
OVINE
Owens, time of, 314
OWEN, E. F. D.: Aetiology of acute appendicitis, 816

- Obituary :**
Abbot-Anderson, Sir Mauric, 1078
Abel, John Jacob, 1398
Adams, John, 315
Alderson, Squadron-Leader Ronald Eltringham, 491
Altenburger, Hans, 626
Anderson, Lieut.-Col. John, 1241
Andrews, Charles Horace, 315
Angus, Henry, 490
Arnold, Ernest Charles, 490
Arrou, Joseph, 926
Ashford, Thomas Longinore, 1240
Ashworth, Joseph Harold, 99
Austen, Major Ernest Edward, 261
Baillon, Francis Joseph, 1396
Bailey, Robert Cozens, 762
Baker, Lieut. Francis John, 1241
Banister, John Bright, 931
Barncroft, David Malehinson, 203
Baro, Lorenzo, 1240
Barral, Etienne, 926
Barrett, Keppel, 1078
Bartlett, Ralph Clarke, 923
Bastos, Enrique, 926
Bate, Col. Thomas Llwed Limesay, 152
Batterbury, George Henry, 596
Bayer, Gustav, 1240
Beadnell, Major Herbert Owen Marsh, 152
Beaton, Col. Charles Henry, 366
Bellin, Leon, 401
Bennett, Col. Vivian Ross, 1240
Bensley, Lieut.-Col. Charles Norman, 793
Bernays, Adolphus Vaughan, 203
Bigland, Alfred Douglas, 543
Birt, Col. Cecil, 704
Bluet, George Mallack, 1293
Boas, I., 1184
Bogdanovic, M., 491
Bonanni, Attilio, 1293
Bott, Lieut.-Col. Robert Henry, 363
Boyceott, Arthur Edwin, 1123
Boyd, John McAlister, 706
Bramhall, Lieut.-Col. Charles, 152
Brown, Lieut.-Col. William Hamilton, 152
Brown, George Barrows, 99
—— Henry Reynolds, 610
—— Lawson, 151
Buchanan, George Gray, 1240

- PATON, J. I. H.: Lipoid diet preparations, 1112
PATTON, J.: Therapeutic uses of prostosterone, 96
PATEL, D. H.: Cholesteryllike heart disease, 177
Pathology, review of books on, 731, 850, 1211, 1257
Paton, Leslie, elected hon. member of Royal Society of Medicine at Liverpool, 101
PATTERSON, Frank, obituary notice of, 459
— Norman's Carcinoma of palate, 974
PAUL, Hilda, obituary notice of, 459
PAULI, M., M.D.: Refractory pellagra, 1178
PAYNE, James E.: Story of growth of Sumner, rev., 1267
PAYNE, Rachael T.: Wound healing in cardiac patients, 1233
— Ronald H.: Extrauterine pregnancy with several sites retention of dead fetus, 5-6
— Venereal proctitis for diabetics, 637
PEARCE, G. H.: Iron for anaemia, 159
PEARL, Raymond: Smoking and longevity, 781
PEARSON, Gerald H. J. (and O. Spence & Fennell): Common Nerveous of Children and Adults, rev., 212
— Wilfred: Effects of strain in children, 472
PERHENT, Geoffrey: Continues intravenous saline, 421
Perkins Health Center: Report, 1212
PERTILLER, Albert: *Tumors and Leishmaniasis*, 763
PETTIT, Edward R.: Outlook of paratyphoid A and dysentery in training ship, 217 (O)
Petts, modern views on (leading article), 127—
Correspondence on, 501, 917
Pelvic, masculine female, 557
Peterson and true conjugate (John H. Ware), 278 (O)—Correspondence on, 261
PETTERSON, Ralph: Circulation in relation to arthritis, 50
PETTINGER, Vaughan: Subcutaneous emphysema during labour, 24
PETTUS, L. S.: Report on mental deficiency, 687

PENNSYLVANIA
Health of exercise men (parliamentary note), 624
Medical health of exercise men (parliamentary note), 429
No. of exercise men in hospital, 1129
No. in mental institutions, 929

PETHICKS, Samuel-Lancelot (A. H. Deatherage), 441—Correspondence on, 509, 614
Perimetry, review of book on, 1067
Peridontitis, review of book on, 1129
Peritonitis, pneumococcal, peritoneal in, treated by sodium pentothal narcosis (J. B. G. Main), 912 (O)
PERRY, C. H.: History of Earle, Act, 13—
PIERS, Sydney: Toxic food, 828
PIETRI, C. Bruce: Clinical aspects of rheumatism, 501
Perry, P. Perry and Clappara, 1183
PETERS, R. A.: Vitamin B deficiency, 413
— R. J. (and F. R. Kott) and R. A.: *Analysis of Results of Treatment of Earle Island, and Miscellaneous Tertiary Syphilis*, 793
Petholdt, Paul, death of, 1240
Pfeiffer, Richard, 80th birthday of, 932
Pharmacology research, 525
— review of books on, 239, 310, 677, 1314, 1367
Pharmaceutical International, 3
Pharmaceutical Commission of, 1273
Pharmacy industry in New Zealand, reorganization and control of, 204
— and Poisons Act, expin, 260
— review of books on, 71, 622
PHILIP, James P.: Circulation in gangrene, 129
— Sir Robert: *Collected Papers on Tuberculosis*, 189
PHILIPP, Ernst: Lymphoid tissue of alimentary canal, 293
PHILLIPS, James: After-effects on modern treatment of carcinoma, 228, 614
— Leonard: Radiotherapy of non-malignant gynaecological disorders, 249
— Miles H.: History of prevention of general fever, 1 (O)—Correspondence on, 142—Notes on, 370, 432—Radiotherapy of non-malignant gynaecological conditions, 219—Medical aspects of decline of population, 471
— V.: Subcutaneous emphysema during labour, 54
Physic, Philip Synz (1764–1837), 465
Physical therapy equipment, demonstrations of, 764
— training and recreation, grant for, 1123
Physician, surgeon, and dentist, co-operation between, 26
Physiology, review of book on, 782
PICKENS, Ralph M. F.: Safe milk and safe butter, 723
PICKFORTH, F. A.: New outlook on physiology and pathology of mental and emotional states, 295 (O)—Recovery in spinal cord, 307, 453
PICOT, Lionel J.: Pasteurization of milk, 512
Picures, medical, 1162
Pierion, L. M., made Commander of Crown of Italy, 496
Pilgrimage, Hedjaz: Report, 225
PILETT, E.: *Analyse Physique des Calculs Urinaires et Biliaires*, rev., 1265
Pin, swallowed, and round-worm (R. Walch), 18
PINKE, N.: Angiospasm and head injuries, 213—
Destruction of bugs, 932—Sterilization of syringes, 1292
PINKERTON, Herbert H.: Ether convulsions with recovery, 780
— Pituitary notes on, 985
Placenta in malaria, 1280
— previa, expulsion of in advance of foetus, 420
Plasenta travels, treatment of, 1071, 1126, 1181, 1237–(O), 1343 and J. G. Glendon, 1238 (O)—
Correspondence on, 1231
Plasental extract in prevention of measles, 1237
— danger of immune globulin, 488
Plasma, equilibrium of, 470
PLATT, review of book on, 7-2, 1179
Plasma filtrate in local anal pathochemical culture, 257
Plaster, forceps for removal of, 1160
PLATT, B. S.: Vitamin B deficiency, 411
PLESTNER, Kurt (and Ludwig HEINZEL): *Das Nervensystem und die Funktionen der Hirnhäute*, rev., 472, 455
PLIKW, Francis: *Clinical and Experimental Parasitology*, rev., 1007
Ploughing, Annual Meeting of B.M.A. at, See Association
Pneumocephalic, 1057
— lipod, 1112
— thorax: subphrenic abscess, duodenal fistula—recovery (St. A. Hall, G. S. Simpson and J. L. A. Grant), 1041 (O)—correspondence on, 1117
— cysticercus emboli from as complication of (W. H. Ross), 674
— nasal polypoid changes in (G. S. Lewin and R. J. McGinn), 811 (O)
— review of book on, 452
— and Serum Therapy (H. T. Lloyd and R. Hoffmann), 1271
— serum treatment of (leading article), 766—
Correspondence on, 203, 417, 481
— splenic, English, 417, 481
— treatment of, 115, 912—Leading articles on, 1271
Promethazine (A. M. Stone G.P.), 204 (O)—Correspondence on, 619, 701, 811, 929
Pronephros, review of book on, 724
Prophylactic and physical, 1247
Proton cases, report, 1044 (O)
Proteins, review of book on, 353
— telephone prescriptions for: warting, 1288
Protector, aspirin (E. H. Hill), 1265
— digitalis, last 91—recovery (F. M. B. Allen), 836
— food (Julius Hertzberg), 618 (O)
— from (J. A.), 825
— industrial, 75
— lead, from water, 160, 1182
— hard, the, 1217
— erythrocytic, 828
— war gas, effects of (parliamentary note), 1128
Polymorphitis, acute, in New Zealand, 1064 (O), 5-6
— treatment of, analysis of Sister Kenny's Method (F. H. Hill), 160 (O)—See also Act, on, 178
Polymerisation, on, 232, 701, 1170, 1229
— anterior, from medical aspect, 625
— recovery period in (Norman H. Harvey), 164—Annotation on, 178—Correspondence on, 232
— Report of Queensland Commission on Sister Kenny's method, 350
— secondary, review of, 1211
— epidemic (Chen-Ping-Fung), 478
— in Vietnam, 1169
— zinc sulphate spray for prevention of (leading article), 951
Pollution, river, and water supply, 1107
Polydactyly, 952
Polyps, nasal, and otitis media, 1177
Population, colonial, review of book on, 1211
— medical aspects of decline of, 450
— question, 291
— (Statistics) Bill, 216
Porosities venerea, discussion on, 584
PORTER, Langley and W. E. CARTER: *Management of Sex Defects of Child*, fifth edition, rev., 1105
Porter, Benjamin (and John P. Wilson), rev., 1105
Intrauterine test for vitamin D deficiency, 224 (O)
— Vitamin C deficiency in peptic ulceration and haematemesis, 554 (O)
Postgraduate courses in Glasgow, 1122
Postmenstrual Examination (Sheila Farber), rev., 73
Post-operative examinations, tabulation of results, 740
Pottery, Henry: Rehabilitation centres for injured workmen, 296
Posture of children, 712
— and painful feet, 918
POULTON, E. P.: Value of zinc-protein-salts, 637—Climate in causation of disease, 745—Gout, 728
POWER, Stephen: Bacillary enteritis, 1283
POXTON, F. J.: Social aspects of juvenile rheumatism, 592
Practitioner, unqualified, criminal negligence of, 1401
PRATT, J. Davidson: Chemotherapeutic products, 700
Pregnancy, abdominal, case of (Ronald Reid), 1201
— anamnia of, 1244
— and associated disease, interaction of (R. W. Johnston), 765 (O)
— associated with ovarian dermoid (J. P. Hastings), 173
— composition of blood in (J. Ramay, V. T. Thurnham and E. E. Macleod), 1199 (O)
— extra-uterine: live child (F. Stahl), 779 (O)—
Correspondence on, 1201
— with several months' retention of dead foetus (Ronald H. Payne), 226
— and lactation changes in fibroadenoma of breast (Charles F. Geschickter and Dean Lewis), 429 (O)
— nutritional therapy during, 191
— and parturition after amputation of cervix, 1220
— review of book on, 324, 1266
Pregnancy, Uterine rupture following Cesarean section (C. E. B. Rickards), 1259 (O)
PREGNANT women's serum, biological nature and quantitative variation of gonadotropic activity of (M. Benoit and E. W. Rowlands), 1097 (O)—
Annals on, 1119
Pre-natal, standard of, 1011

PREPARATIONS AND APPLIANCES
Altimeter, throat and nasal, 1054
Amalgam, 1007
Aspirin, 281
Caloric, 122
Calcium carbonate, 234
Carbamide, 287
Crutch pad, non-slip rubber, 1264
Deaths, 217
Drip feed for dietary ether, 1034
Entarich powder, 1007
Epithelium competition lipium, 75
Eye, 517
Eyelids: gas anaesthetic mask and holder, 733
Extensor apparatus, thumb, 677
Ferritin tablets, 651
Fertilizer, 75
Food, home-made infants, 818
Formulas, capsules of, 254
Gamma 1, 285
Lamps for ultraviolet treatment, 624
Laurel dip bath, modified, 1105
Lease bed system for medical bookkeeping and case record, 1160
Mattress and blankets for Ford's peltis, 1268
Metformin, 517
Milk, sterilized, with vitamin B, 125
Needle culture, 257
New foramin, 520
Nitrogen, 784
Oedema, instrument for detection of, 75
Ophthalmic testing unit, portable, 7-4
Osteomalacia tablets, 125
Plaster forceps, 1160
Procedure for infection of haemorrhoids, 809
Prothesis, eye, 1214
Radiography, rapid, for Smith-Petersen operation, 299
Reflexometer, 517
Rhinolite, 624
Shipway apparatus, modified, 1105
Speculum, induction, 818
Syringe for hollowing catheters, 784
Sulphonamide emulsion, 517
Tubercular test, 784
Tuberculin, 453
Vaseline ointment, 481 in treatment of, 517
Vitamin preparations, "prothetic," 274
X-ray materials and accessories, 125

Price Methods: December issue, 103
PRICE, T. W.: Abscess of tubercula, 1026—
Universal reaction to prostatic, 1235
Prevention and Treatment of Blindness (Scotland) Bill, 1060
PRICE, David: Instrumental midwifery, 8-9
— Dorothy: Tuberculosis in infants, 275 (O)—
Correspondence on, 35

Oxford, Dominion graduates at (leading article), 24
 OXLEY, W. H. F.: Law relating to abortion, 409
 Oxygen administration, concerning box mask for (J. Argyll Campbell), 1260 (O)
 — want and oxygen therapy (leading article), 235
 — Correction, 320—Correspondence on, 358, 498

P

PADGETT, Earl Calvin: *Surgical Diseases of Mouth and Jaws*, rev., 1313
 Paediatrics, 1937 Year Book (I. A. Abt), 575
 — review of books on, 566, 1105, 1314
 PAGE, C. Max: Treatment of muscle injuries, 576
 — W. A.: *Br. abortus* infection treated by sulphamamide, 594
 PAGEL, W. (and F. A. H. SIMMONDS): Chronic disseminated tuberculosis, illustrated by case of cortico-pneural disease, 15—Experimental allergy, 1226
 Paget's disease, treatment of, 355
 Pain, intrathecal alcohol injection for relief of (Constance Ottley), 510 (O)
 — peripheral nerve, of vertebral origin, 574, 923
 — somatic, suggestions relating to study of (Sir Thomas Lewis), 321 (O)—Leading article on, 340, Correspondence on, 593, 755
 Pains, lower abdominal, of cervical origin: their genesis and treatment (James Young), 105 (O)—Correspondence on, 201, 255, 381, 484
 — referred, arising from muscle, preliminary account (J. H. Kellgren), 325—Leading article on, 340—Correspondence on, 488, 504, 755, 1029
 Palate, carcinoma of (John R. Nuttall), 839 (O)—Correspondence on, 974
 Palestine: Annual report of health department for 1936, 521—Ophthalmology in, 1248
 PALSER, L. G. M. (and D. L. LEWIS): Changes in blood pressure and respiratory volume following spinal anaesthetic, 1202 (O)
 PASTER, Gilbert G.: Rehabilitation centres for injured workmen, 264
 Papillae, enlarged follicle, 432
 Papworth Village Settlement: Experimental allergy, 1226
 Paraldehyde, fatal dose of, 1136
 Paralysis, infantile. See Poliomyelitis
 Paralysis, Brown-Paul mulsator in treatment of, 828
 Paré, Ambroise, bibliography of works of, 1220
Paris Médical: Issue devoted to therapeutics, 53—Issue devoted to dermatology, 431—Issue devoted to heart diseases, 1191
 PARISH, H. J. (and others): Laboratory and clinical investigations on tuberculin purified protein derivative and old tuberculin, 992 (O)—Correspondence on, 1071
 PARK, S. D. Scott: Treatment of boils and carbuncles, 594
 PARKER, A.: Water 1
 — Charles Arthur.
 PARKES, A. S.: Effective absorption of noradrenaline, 371 (O)—Annotation on, 396—Hormone excretion, 412
 Parkinsonism, post-traumatic and effect of atropine (T. F. Main), 170 (O)
 Parliament, Medical Notes in
 Abyssinian refugees, health of, 877
 Accidents, road: No. killed and injured while crossing road by traffic lights, 877
 Africa: Government doctors in, 1243
 Air raid precautions: Hospitals and, 760, 1031, 1288, 1400—Medical volunteers for services, 927
 — Voluntary hospitals and, 927—London hospitals and, 984—Government offices and, 1138—Respirators for school children, 1243—Sensitivity to mustard gas, 1401
 Alcohol: No. of convictions of drunk while in charge of car, 823
 Ammanford colliery, investigation at, 929
 Analgesia at childbirth, 1400
 Anthrax outbreaks in Angus, 1288
 Approved societies, variation in benefits of, 655
 Austrians, admission of to Britain, 759
 — Austrians, admission of to Britain, 759
 — nt of prisoner in, 51
 — 1243, 1343
 Borstal Institution, new, 602
 Budget, 984, 1031, 1030
 Caledonia, health of boys on, 822
 Cancer death rate, 1031
 Cattle, diseases in, 656
 Chemical monopolies, 1242
 Chemotherapy research, additional grant for, 1139
 China, medical aid in, 428, 1031
 Clinics, ante-natal, of local authorities, 928
 Coal miners, pulmonary disease among, 493
 Cod-liver oil imports, 656
 Committee, Conservative Parliamentary Agricultural, 547
 — Parliamentary Medical, 547, 821, 1399
 — to review public health and local government law, 50
 — 822, 877
 — idington well, 711
 — vice, 656
 Diabetes and chills, 1081
 Diphtheria mortality, 1081

Parliament, Medical Notes in (continued):
 Divorce and Nullity of Marriage (Scotland) Bill, 1186, 1241
 Drug traffic increase in China, 1137
 Electrotherapy as additional benefit, 1400
 Encephalitis, fatal, following vaccination, 51

ry of, 429—
 disabled, 1135
 sions hospitals,
 1139—Receiving pensions, death of, 1401
 Factory inspectors, additional, 928
 Fever, typhoid, in Somerset, 367
 — on s.s. *Strathaird*, 51
 — and tinned foodstuffs, 493
 — outbreak at Hawick, 1243
 Food and Drugs Bill, 759
 Foot-and-mouth disease, 367, 822, 926—Vaccine therapy in, 1401
 Foreign professional men, extensions of stay granted, 603
 Gas, mustard, sensitivity to, 1401
 — poisoning, effects of, 1138
 General medical service for nation, 1289
 Glasgow: Houses built by corporation, 1243
 Government offices: Health conditions of, 823—Anti-gas precautions in, 1138
 — staffs, contributory hospital scheme for, 876
 Healy, Francis, case of, 1137
 Holidays, even distribution of, 876
 Hospital finance, 1400
 — mental: Patients and Matrimonial Causes Act, 402—Treatment of voluntary patients, 1138
 — trust deeds and taxation, 1080
 Hospitals, derating of, 429
 — mental: Voluntary patients in, 492—Service patients in, 1400
 — Scottish voluntary, 547
 — voluntary: National emergency survey, 823
 — of commission, 1400
 Houses built with State assistance, 1401
 Housing Acts: Houses reconditioned under, 877
 — (Financial Provisions) Bill, 429
 — (Rural Workers) Amendment Bill, 1080
 Incapacitating sickness, 1031
 Infanticide Bill, 710, 876
 Institute, Hannah, experiments of, 1187
 — Whiston, medical superintendent of, 1243
 Insulin treatment in mental hospitals, 1243
 Ins 1187
 — 402—Sickness 02—Variation in 655—Dispensing an, 656—Benefits ension of medical for juveniles, 1137
 — Dental benefit, 1138—No. of insured persons, 1343—Electrotherapy as additional benefit, 1400
 Jamaica: Nutrition problem, 1139
 Leprosy incidence and treatment, 50
 Malaria in India, 1031
 Margarine, nutritive value of, 429
 Maternal welfare in Durham County, 1138
 Maternity services in Scotland, 492
 Matrimonial Causes Act and mental patients, 492, 1080
 Measles, notification of, 822
 — serum, 876
 Medical history of ex-service men, 429
 — services in army expansion, 821
 Medicines, patent: Annual expenditure on, 1187—Report of Select Committee, 1243
 Mental defectives: Detention of, 1287—Medical examination of, 1288
 — Deficiency Bill, 1287
 — Act, 1913: No. of patients discharged under, 493—Alleged wrongful detention under, 821
 — on, 1400
 — Institution: No. of patients from Ministry of Pensions, 929
 Midwives and local authorities, 1343
 — salaried, appointment of, 51
 Milk advertisements, B.M.A.'s, criticism of, 547, 602
 — cheap, schemes, 1137
 — dried, welfare authorities and, 602
 — free, for school children, 367
 — graded, bacteriological standards for, 1187
 — to hospitals, price of, 492
 — Marketing Board, Exchequer payments to, 929
 — pasteurized: reports of Milk Nutrition Committee, 429
 — and tuberculous infection, 367
 — power of local authorities, 603
 — skimmed, supply and disposal of, 822
 — supply and consumption, problems of, 928
 — impure, 1243
 — tests in Scotland, 1186
 Milk-borne diseases, epidemics of, 1343
 — food poisoning and expectant, additional Mothers, nursing and for, 877
 nutritive foodstuffs for, 877
 National Health Insurance (Amendment) Bill, 492
 Nursery school provision, 1400
 Nursing Homes Registration (Scotland) Bill, 1253
 — profession: Conditions of employment, 822
 Nutrition and dietary surveys, 1399

Parliament, Medical Notes in (continued):
 Nutrition for expectant mothers: results of scheme, 1187
 — investigation at Stockton, 493
 — of South African native, 547
 Obstruction of highway by doctor's car, 710
 Officers, conditions of, 1243
 Ophthalmic benefit, 50
 Opium alkaloids, manufacture of, in Government factories in India, 929
 Osteopathic research, 656
 O'Sullivan, Bernard, case of, 1187
 Parliamentary Medical Committee: Meetings of, 367, 547, 1031
 Patents, etc. (International Conventions), Bill, 876
 — medical, 1133
 Population (Statistics) Bill, 316
 Prescriptions, insurance, dispensing of in West Lothian, 656
 Prevention and Treatment of Blindness (Scotland) Bill, 1030
 Prisoners, psychological treatment of, 822, 928
 Psychotherapy for convicted prisoners, 822, 928
 Recruiting depots, civilian doctors employed at, 1243
 Recruits: Health of, 655—New Medical standards for, 1138
 Rheumatic disease, Parliament and, 492
 Rheumatism, facilities for treatment, 1080
 — treatment of, 759
 Salford, health services at, 929
 — health services, cost of, 1079
 Schools, special, No. of children on registers of, 493
 SERVICES:
 Air Force: morale of officers, 759—Remuneration of medical officers, 1401—Sewerage at Hemswell, 929
 Army: Health of recruits, 655—No. Invalided from, 929—Accommodation for sick on troop transport, 657
 Navy: Marriage allowance to officers, 659, 711, 822
 Services patients in mental hospitals, 1400
 — 1243
 — 316
 — incidence of, 1243
 — investigation into prevention of, 51
 — progress of investigations, 1401
 — scheme: claim by Sheffield widow, 429
 Slum clearance: Progress of, 429, 877, 1343, 1401—No. of orders, 493
 — 1013, 1101
 — 1031
 — certain occupational enerals, 1400
 Stillbirths, registration of in Scotland, 602
 Telephones, public, infection from, 823, 927
 Tropical diseases, annual cost of, 1400
 Tuberculosis: assistance to owners of beef cattle, 822
 — Inquiry in Wales, 877
 — services in Wales, 50
 Tuberculous persons, rehousing of, 547
 Tyne: scheme for sewage disposal, 823
 Tyneside health services, 493
 — extent and cost of, 711
 — 51
 — ch Arsenal, 693
 — 37, 602
 — 343
 — background, problems of, 656
 Veterinary research, grants for, 656
 War disabilities, No. receiving hospital treatment for, 493
 — pensioners, mortality of, 51
 War-disabled, pensions for, 1343
 Water engineer, employment of by local authorities, 493
 — shortage, 316
 West Indies: Health and medical services in, 547
 — Social services in, 1399
 Workmen's Compensation Act Inquiry, 821
 Parliament, Antoine Auguste, bicentenary of, 126
 PARRY, L. A.: Abortion and the law, 541—Spontaneous combustion, 1237
 — T. Wilson: Obituary notice of Dr. V. H. W. Wingrave, 1342
 — W. Hillon: Treatment of diphtheria, 1294
 Pascha, George Boyche, death of, 926
 PASSE, L. R. Garnett: Irradiation of surgery for cancer? 1231
 Pasteur, new French liner named after, 922
 Patella, fractures of treated by excision (G. O. Tippet), 533 (O)—Annotation on, 297—Correspondence on, 539, 647, 1179, 1241
 — warning against excision of for recurrent dislocation, 418
 Patellar ligament, unusual case of chondritis of (J. M. Turner), 17
 Patents, etc. (International Conventions), Bill, 876
 — medical (franchisement rate), 1154
 Paternity excluded by blood group, 1154
 PATERSON, Donald: Sick Children, *Diagnosis and Treatment*, 2nd ed., rev., 1314

Reviews of Books (continued)

- [illegible]

Reviews of Books (continued)

- [illegible]

Reviews of Books (continued)

- [illegible]

- Protonsil. *See also* Sulphanilamide
Prostate, enlarged, hormones for, 94, 604
— treatment of, 382
Prosthesis, new, 1314
Prostigmil, 1340
Prosthetics, rehabilitation of, 634
Protoformotherapy, review of book on, 287
Provia, Francis Lionel, obituary notice of, 1077
Pruritus vulvae, discussion on, 584
Pseudocystitis, review of book on, 508
Psittacosis again (leading article), 737—In Vienna, 1035
Psoriasis, some problems in (J. T. Ingram), 881 (O)—
— Correspondence on, 1125, 1178, 1336
— vitamin D treatment of, 377
Psychiatric Research Bureau, 190
— service, 1304
Psychiatry, M.R.C.P. and, 1071, 1131, 1286
— review of books on, 123, 124, 515
— training in, 193
Psychological factors in organic disease, 1171
Psychology down the ages (leading article), 395
— and gynaecology, 968
— of medical profession, 1235, 1301
— modern, philosopher's view of, 750
— review of books on, 337, 338, 783, 1211
— unconscious mind and medical practice (Ernest Jones), 1351 (O)
Psychoneurosis, scientific handling of, 1118
Psychoneuroses, treatment of, 42, 93, 144, 257
Psychopathology, review of book on, 287
Psychotherapy for convicted prisoners (parliamentary notes), 822, 928
Public Health Acts, review of books on, 949
— (Aircraft) Regulations, 1933, 937
Pulse rate, low, 422
Punjab, women patients in, 479
Pupils, unequal, incidence of in unconvicted prisoners (H. K. Snell and G. A. Cormack), 672 (O)—
— Correspondence on, 873
PUPPEL, I. D.: Urinary iodine in hyperthyroidism, 520
Purpura fulminans, review of book on, 1150
PURVES-STEWART, J. H.: *of Nervous Diseases*, 8th ed., 1937
Putnam, James, 190
PYBES F. C. (a): *ditary bone*
tumours in mice, 1300 (O)
PYGOTT, F.: Schick relapses after diphtheria, 120 (O)
— Correspondence on, 305
PYKE, M. A.: Contraceptives and fertility, 362, 540
Pyorrhoea, review of book on, 1150

Q

- Quayle, Col. William Adair, obituary notice of, 703
Quinsy and retropharyngeal abscess (R. Scott Stevenson), 1323
Quintuplets, Dionne, and their doctor, 104

R

- Rabaut, Julien, death of, 1240
Rabies, control of in Palestine, 521
RACE, Joseph: Gout and rheumatism, 799, 800
RACKEMANN, Francis M.: Asthma problem, 193
Radio-active pads, 252
Radiography, rapid, for Smith-Petersen operation, 569, 650
Radiologist, liability of: mock trial, 707
Radiologist's range of service, 310, 363, 422, 489
Radiology, review of books on, 123, 174, 1103, 1104, 1210
Radiotherapist, status of (leading article), 1009
Radiotherapy, neutrons for, 292
— of non-malignant gynaecological disorders, 248
— results of, 810
— review of book on, 622
Radium in carcinoma of vulva, 1121
— compounds and Finance Act, 155
— to epithelioma of lip, block anaesthesia for (Phyllis F. L. Daplyn), 613
— metabolism, 1372
RADLOFF Ellen M. (and V. H. MOTTREAN): *Food Tables*, rev., 176
RAGAB, A. F.: "Gonococcus antitoxin" for gonorrhoea, 1180
RAMADIER, J. A. (and R. CAUSSE): *Traumatismes de l'Oreille*, rev., 846
Rambaut, Daniel Frederick, obituary notice of, 100
RAMCHANDANI, C. Y.: "Gonococcus antitoxin" for gonorrhoea, 1027
RAMSAY, Jeffrey (V. T.): *Composition of blood*
Rancidity in edible fats, 1215
RAND, Herbert W. (and H. V. NEAL): *Comparative Anatomy*, rev., 566
RATHERY, E.: *La Pratique de la Cure Insulinique et les Diabétiques*, rev., 1160
RAYEN, Alice: *Prejudicial Assumptions in Poison Cases*, rev., 234
Raynaud's disease, discussion on, 208
RAYNER, E. H.: Risks of explosion in anaesthesia, 456
REA, R. Lindsay: *Neuro-Ophthalmology*, rev., 1267
REAVELL, D. O.: Pneumonitis, 815
Recreation for workers (leading article), 1269

- Rectum, benign ulceration of, 638
— complete prolapse of, 722
— causes of haemorrhage from (J. P. Lockhart-Mummery), 997 (O)
Red Cross Clinic for Rheumatism, proceeds from ball, 212
— International Conference: Meeting to arrange agenda, 240—Preliminary arrangements, 1022—Opening of, 1381
Rees, Sir Milsom, scholarships awarded, 931
REEVE, M. W.: Mosquito bites, 1247
Reflection, phenomenon of, 741, 1070
Registrar-General: Statistical Review of England and Wales, 1936, 40—Births and deaths, 1937, 212
— Review of 1935, 402
Regulation, Normal and Diseased, in Human Organism rev., 899
Rehabilitation centres for injured workmen, 202, 250, 264, 305, 370
REHBERGER, George: *Lippincott's Quick Reference Book for Medicine and Surgery*, 10th ed., rev., 389
REID, E. W.: Transport of iron, 590
— J.: Prevention and treatment of enteric diseases, 353
— Ronald: Case of abdominal pregnancy, 1301 (O)
REITER, P. J.: Vitamin deficiencies in mental hospital, 190
RENARD, G. (and A. P. MEKDJIAN): *La Migraine Ophthalmique*, 278
REXTON, R. Stuart: Two unusual cases, 422—Correction, 498
Research Fellowships, Leverhulme, 246
— medical, in Britain (leading article), 627
Respiratory tract, review of book on, 176
Reticulogen, 517
Reticulo-endotheliosis, single, manifestations of, 1378
Retinitis, albuminuric, 188

Reviews of Books:

- Aborigines, Australian, Coming into Being among
— 733
Cope), 1006—Correspondence on, 1003
Adolescent (Ada Hart Arlitt), 1314
Agranulocytosis, Clinical and Experimental Investigations in, With Special Reference to Etiology (Preben Plum), 1007
Alcohol: One Man's Meat (Edward A. Strecker and Francis T. Chambers, Jun.), 1366
Alimentary tract: Normale und Pathologische Vorgänge in Gesamtem Verdauungstrakt (H. K. Snell and G. A. Cormack), 672 (O)
— Zweiter Teil, Klinik, 176
Foods, Inhalants, Coneria, and Other Causes
— medica, fourth series, three vols., 286
Anaphylaxis: L'Anaphylaxie Expérimentale et Humaine (Valéry-Radot, Maurie, and Holtzer), 125
Anatomy, Comparative (H. V. Neal and H. W. Rand), 566
— Fundamentals of (C. C. Francis), 732
— Regional, Illustrations of (E. B. Jamieson), five vols., second edition, 285
— Short Manual of, Written for Medical Student as Aid to Rapid Revision of Whole Subject (J. A. Keen), 124
Animals, Parts of, Movement of Animals, Progression of Animals (Aristotle), translation, 783
Anthropology: Physical Introduction to (E. P. Stibbe), second edition, 848
Appendicitis, Clinical Study (W. H. Bowen), 122
Athletics and Training (Guy Butler), 1314
Austin Twelve on the Frontier (E. Gertrude Stuart), 287
Bacteriological Atlas, Muir's (C. E. van Rooyen), second edition, 21
Bacteriology, Medical (L. E. H. Whitby), third edition, 624
— Muir and Ritchie's Manual of, tenth edition, 452
Baths of Bath in Sixteenth and Early Seventeenth Centuries (P. R. James), 848
Bee-venom: Bienengift als Heilmittel (R. Schwab), 783
Bile, Physiological Chemistry of (Harry Sobotka), 1363
Biological Standardization (J. H. Burn), 20
Biologists in Search of Material (Pioneer Health Centre, Peckham), 1312
Bio-politics, Essay in Physiology, Pathology, and Politics of Social and Somatic Organism (Morley Roberts), 622
Blood, Diseases of, and Atlas of Hematology (Roy R. Kracke and Hortense Elton Garver), 284
— Groups and their Medico-Legal Application, Critical Investigation of (Dawood Matta), 1367
— Pressure: Der Blutdruck des Menschen (Eskil Kylin), 389
Brain, Sheep's, Dissection and Study of (James Wilkie), 339
Bronchopneumocystosis, Castellani's, 176
Brooks, Harlow: Man and Doctor (J. J. Moorhead), 1007
Calculus: Analyse Physique des Calculs Urinaux et Biliaires (E. Pillet), 1263
Cancer, Cause of (D. Brownlie), 1263
— Neuere Ergebnisse auf dem Gebiete der Krebskrankheiten (edited by C. Adam and R. Auler), 125

Reviews of Books (continued):

- Catering, Scientific, for Institutions. Handbook for Food Supervisors in Hospitals, etc. (J. de Kay Whitfield), 1104
Charities Register and Digest, Annual, forty-fifth edition, 176
Charterhouse Rheumatism Clinic Original Papers, vol. 1, 74
Chemical Analysis, Qualitative, Tables of, 1368
— Methods in Clinical Medicine (G. A. Harrison), second edition, 888
— Procedures for Clinical Laboratories (Muriel R. Mattice), 175
Chemistry, Biological and Clinical (Matthew Stech), 1006
— Comprehensive Treatise on Inorganic and Theoretical (J. W. Mellor), vol. 16, 338
— Précis de Chimie Organique (V. Grignard), 1210
Children, Sick, Diagnosis and Treatment (Donald Paterson), 3314
Chromaxia: Interprétation du Fonctionnement du Système Nerveux par la Motion de Subordination: Subordination et Posture (Pierre Mollet), 451
Civilization and Disease (C. P. Donnellson), 1209
Congress of Internal Medicine, First, Proceedings of, 125
— International, of Union of Therapeutics, Proceedings, 176
Contraceptives, Chemical, Spermidal Powers of: Approved Tests (J. R. Baker), 848
Cosmetics, Manual of (C. Lazar), 20
Criminals We Deserve. Survey of Some Aspects of Crime in Modern World (Henry T. F. Rhodes), 74
Croatian Medical Society, Short History of, 268
Curves, Frequency, and Correlation (W. P. Elderton), third edition, 931
Dentistry, Operative, Text Book of (W. H. O. McGehee), second edition, 451
Dermatology and Syphilology, 1937 Year Book of, 1053
Diabetes: La Pratique de la Cure Insulinique et les Diabétiques (F. Rathery), 1160
Diagnosis, Physical: Art and Technique of History Taking and Physical Examination of Patient in Health and Disease (Don C. Sutton), 567
— surgical: Précis de Diagnostic Chirurgical (Ch. Lenormant), four vols., 1032
Diathermy, Short Wave (Tibor de Cholnoky), 1313
Dictionary, Black's Medical (J. D. Comrie), fourteenth edition, 176
Digitalis, Clinical Use of (Drew Luten), 1052
Disease and Man (R. F. Lapham), 21
Dreams, Children's: Unexplored Land (C. W. Kimmins), 1103
Dreyer, Georges: Memoir by his Wife, Margate Dreyer, 175
Drowning: Die Pathogenese des Ertrinkens in Zusammenhang mit der Behandlung (C. J. Mijlich), 1368
Drugs and Galenicals: Their Quantitative Analysis (D. C. Garratt), 676
Ear, Middle, Physiology of (J. G. Byrne), 809
— Throat, and Nose, Diseases of (J. Douglas McLaggan), 232
— Traumatismes de l'Oreille (J. A. Ramadier and R. Causse), 846
Education: Silent Social Revolution (By G. A. N. Lumsden), 515
— ation, Fundamentals (Sir Thomas Lewis),
— of, For Student and (R. Ashman and
E. Hull), 1104
Encephalogram, Normal (L. M. Davidoff and C. G. Dyke), 1210
Endocrinology: Les Acquisitions Nouvelles de l'Endocrinologie (R. Riviere), third edition, 176
Examination: Les Explorations Fonctionnelles (N. Fiesinger), 893
Eye, Developmental Abnormalities of (Ida Mann), 232
— Ear, Nose, and Throat, 1937 Year Book of, 675
Fever, Mediterranean, Eruptive or Exanthematic (C. Costanzi), 781
Fever, for Nurses (G. E. Brown), 899
First-Aid (First-Aid Association), 176
Food Tables (V. M. Daplyn), 176
Fractures, Dislocations, and Sprains, Management of (J. A. Key and R. L. Conwell), second edition, 675
Freud, Sigmund, General Selections from Works of (John Rickman), 125
Gastroscopy, Textbook of (Norbert H. Hahn), 287
German for Students of Medicine and Science (W. F. Mainland), 676
Gymnastics (Form-giving Exercises), Text-Book of (K. A. Knudsen), 731
Gynaecology, Operative (H. S. and R. J. Chess), fifth edition, 624
Health, Brush Up Your (Hugh Chappell), 1266
Heart, Failure of and Circulation (Terence East), 847
— Healthy, and Diseased Heart, 7-3
Hematology, Atlas of, and Diseases of Blood (Roy R. Kracke and Hortense Elton Garver), 284
Hepatitis: Les Hépatites (M. Laper), 675

Reviews of Books (continued):

- Viruses, Filterable, Immunological Reactions of (F. M. Burnet, E. V. Keogh, and D. Lush), 1159
- Vitamins, Biological Standardization of (Katherine H. Coward), 337
- Der Vitaminhaushalt in der Schwangerschaft mit besonderer Berücksichtigung der Hormone und Hormone A und C (Gerhart A. und C. Gerhart) und Hormone und Hormone A und C (Gerhart A. und C. Gerhart), 1159
- Weight, Ideal (W. F. Christie), 809
- Who's Who, 1938, 74
- X-Radiation, Influence of, on Development of Immunity to Heterologous Transplantation of Tumors (Johannes Clemmesen), translation, 1266
- X-Ray Diagnosis, Textbook of (S. C. Shanks, P. Kerley, and E. W. Twining), vol. 1, 1103
- Year Book of Dermatology and Syphilology, 1937, 1053
- Eye, Ear, Nose, and Throat, 1937, 675
- General Medicine, 1937, 170
- General Therapeutics, 1937, 1103
- Obstetrics and Gynaecology, 1937, 1312
- Radiology, 1937, 123
- Reynolds, Henry, obituary notice of, 819
- Rheumatic disease and Parliament, 492
- transatlantic broadcast, 1016
- diseases, chronic, survey of, 397
- conferences on, 745, 797, 801
- heart disease and vagus nerve, 956
- Rheumatism, acute, anti-scarlatinal serum in, 237
- cause of, 214
- discussion on recent advances in, 970
- on skin manifestations in, 300
- facilities for treatment (parliamentary note), 1050
- juvenile, 272
- research in Leeds, 536
- new German periodical, 427
- review of books on, 74, 677, 783, 848, 896, 1103, 1105, 1268
- Serological examination of haemolytic streptococci from acute rheumatic and control groups (C. A. Green), 1147 (O)
- treatment of (parliamentary note), 759
- Rhinitis, atrophic, 1236, 1341
- Rhinorrhoea, spontaneous cerebrospinal (S. Livni), 1203
- Rhodes, A. J.: Chemotherapy of virus diseases, 924
- Henry T. F.: *Criminals We Deserve. Survey of Some Aspects of Crime in Modern World*, rev., 74
- Ribs, abnormality of (W. A. Bellamy), 283
- Richard, G.: Influence of heredity on hyperplasia, 1229
- Robert: Paris floods, 1017
- Richards, David Edward, obituary notice of, 875
- Evan Williams, obituary notice of, 1078, 1185
- Henry: Psoriasis, 1178
- J. Stewart: Bee-eating Scalyham, 988
- W. Guyon: Appreciation of Mr. P. Furnivall, 1185
- Richardson, Air Commodore A. V. J., appointed Director of R.A.F. Medical Services, 101
- J. C.: Spontaneous haematomyelia, 956
- Rickards, C. E. B.: Uterine rupture following Caesarean section, 1350 (O)
- Rickets, causation of, 94
- unusual factors in, 525
- Rickman, John: *General Selection from Works of Sigmund Freud*, rev., 125
- Ridwell, L. A.: Herpes and varicella, 156—Is it influenza? 976—Wound healing in carcinomatous patients, 1130
- Rise, E. H.: Massive collapse of lung, 583
- Ritchie, J. M. (and E. Blackstock): Effect of iron administration in cases of subnutrition, 512 (O)—Correspondence on, 590, 650
- Rivers, A. B.: Dangers of treating "indigestion" by advertised nostrums, 790
- Rivett, Carnae: Radiotherapy of non-malignant gynaecological disorders, 249
- Rixford, Emmet, death of, 209
- Rivoire, R.: *Les Acquisitions Nouvelles de l'Endocrinologie*, third edition, rev., 176
- Robb, Major Alexander
- Roberts, Arthur Donald
- Harry: *Troubled Waters*, 1392
- J. A. Fraser: Intelligence and size of family, 904
- Problems of thyrotoxicosis, 1174
- J. E. H.: Deep x-ray therapy, 474—Diagnosis and treatment of lung abscess, 804
- Morley: *Bio-politics. Essay in Physiology, Pathology, and Politics of Social and Somatic Organism*, rev., 622—Origin of constructive variation, 1129
- Lieut.-Col. Vivian Heathcote, obituary notice of, 100
- W. Neill, 1078
- Florence, obituary notice of, 150
- Henry: Coupons for Sherman Bigg Fund, 757
- Robert, R. Boyd, obituary notice of, 1185
- Roderick, H. B.: Fracture of neck of femur—another method of inserting Smith-Petersen pin, 10 (O)
- 16 (O)
- Ronger, Ritchie: Treatment of otitis externa, 412
- Rogers, H. R.: Cutaneous and conjunctival diphtheria, 1172
- Lambert: Scalp wounds and fractures of skull, 655—Concussion and compression, 743
- Sir Leonard, awarded Manson medal, 985
- ROLLESTON, Sir Humphry: Appreciation of Sir Raymond Crawford, 651—Ivar V. Sandström and parathyroids, 851—(And A. A. MONCRIEFF) (editors): *Practical Procedures*, rev., 898—Appreciation of Surg. Vice-Admiral Sir Robert Hill, 980
- J. D.: Smoking and longevity, 875—"Typhoid Mary", 932, 1247—Cancer and smoking, 1405
- ROMANIS, W. H. C. (and Philip H. MITCHNER): *Science and Practice of Surgery*, sixth edition, rev., 623
- ROOKE, E. Joan: Early occurrence of high blood pressure in coarctation of aorta, 564 (O)—Correspondence on, 650, 703
- ROOKE, Margaret: Gonorrhoea in women and children, 914—Anti-venereal measures in Scandinavia, 1224
- ROSE, Horace: Time for midwifery, 485
- Maximilian, death of, 926
- ROSE-INNES, R. H. (A. G. and Joan GIBSON): Human infection with *Actinomyces caprae*, 612 (O)
- ROSS, Cosbie: Endocrine treatment of cryptorchidism, 355
- Paterson: Surgery of sympathetic nervous system, 299—Sulphanilamide in streptococcal infections, 352
- T. A.: Treatment of psycho-neuroses, 145
- Roughton, John Paul, obituary notice of, 654
- Round-worm and swallowed pin (R. Walsh), 18
- ROWALLAN, Lord: Pasteurization of milk, 918, 1072
- ROWCROFT, Col. G. F. in Britain, 255—
- Rowe, Albert H.: *Inhalants, Contactants, Fungi Bacteria, and Other Causes*, rev., 451
- Rowing: Life history of university "blues", 997
- Rowland, Edward Walton Spencer, obituary notice of, 364
- ROWLANDS, I. W. (A. W. SPENCE and E. F. SCOWEN): Absence of anti-gonadotropic substances in blood serum of man injected with gonadotropic extracts, 66 (O)—(And W. R. HENDERSON): Gonadotropic activity of anterior pituitary gland in relation to increased intracranial pressure, 1094 (O)—Annotation on, 1110—(And M. BOYCOTT): Biological nature and quantitative variation of gonadotropic activity of pregnant women's serum, 1097 (O)—Annotation on, 1110
- RUBAZOL, 624
- RUBIN, Walter: *Liber de Rheumatismo et pleuritis dorsali*, rev., 848
- RUMSEY, H. St. John: Partial glossectomy as cure of stuttering, 97—*Clear Speech for Stage, Platform and Pulpit*, rev., 951
- Rupture of internal semilunar cartilage, unusual case of (Hugh G. Watson), 364
- Rusk, John, obituary notice of, 364
- Russell, George Hanna, obituary notice of, 364
- W. Kerr: Strength of intravenous saline infusion, 432
- RUTHERFORD, R.: Abortion associated with broad ligament cysts and B. *velutii* infection, 173
- RYCE, J. L.: Superior pulmonary sulcus tumour, 1304 (O)
- RYLE, John A.: Oxygen want and oxygen therapy, 358—Assistance to medical students from Austria, 1286
- Sabapathi v. Huntley, 151
- Sabouraud, Raymond, death of, 491
- SAENZ, A. (and L. COSTA): *Diagnostic Bactériologique de la Tuberculose*, rev., 124
- St. Bartholomew's Hospital Journal, change in format, 432
- St. John Ambulance Brigade: 1937 Report, 1382
- Salnt-Beuve, Charles Augustin, account of, 407
- Salford: 48-hour week for nurses, 1292
- Saline, continuous intravenous, 421
- infusion, intravenous, strength of, 432
- infusions (Hamilton Bailey), 294
- Salvarsan production in United Kingdom (parliamentary note), 1242
- Samplero, Gaetano, death of, 926
- SAMSON: "Dental belching," 1374
- Tuberculous tracheobronchitis, 239
- SAMUELS, H. (and P. FORES): *Public Health Act, 1936*, rev., 949
- SAMUELSON, Sir Herbert, gift to University College Hospital, 53
- Sanatorium, King Edward VII, Midhurst: Report, 1386
- treatment, results of, 345
- Sanders, Charles, obituary notice of, 49
- Frederic: Correct footwear, 764
- Sanderson-Wells, T. H., endows lectureship at Middlesex Hospital Medical School, 1292
- SANDFORD, B. R.: New contrast stain for gonococci and meningococci in smears, 1155 (O)
- Sandström, Ivar Victor, and parathyroids, 851
- Sanitary Inspectors Handbook (H. H. Clay), third edition, rev., 453
- pad, internal, 880, 932, 1036, 1084, 1247
- Santas, Manuel A., death of, 209
- SANTY, Paul (André CADE and Jean HIRTY): *Tuberculose du Tube Digestif*, rev., 516
- Sarcol, multiple benign, and tuberculous ulceration (R. H. Wiseman), 673—Correspondence on, 872, 1285
- SARGANT, William (and Russell FRASER): Hyperventilation attacks, manifestation in hysteria, 378 (O)—Correspondence on, 543
- SAUERBRUCH, Ferdinand (and Laurence O'SHAUGHNESSY): *Thoracic surgery*, rev., 174
- SAUNDERS, A. M. Carr (and D. C. JOSEF): *Social Structure of England and Wales*, second edition, rev., 1053
- SAYILL, Agnes: Cauterization of cervix, 484
- SCADDING, J. G.: Lung abscess, 804
- Scalds and burns, treatment of (Philip H. Mitchell), 209—Correspondence on, 202, 811
- ary notice of, 706
- measures in (Margaret Commission), 1277
- ork Academy medal, 711
- (F. Pygott), 120 (O)—
- Correspondence on, 305
- SCHINZ, Hans R. (and Adolf ZUPPINGER): *Siebsche Methode der Tuberkulose, Zürcher Erfahrung*, 1110
- Relation in cardiol
- py in, 192
- and Terence Lee), 565
- chronic, with remission following spontaneous epileptiform seizure (Wm. H. Shepley), 1361
- Insulin for, discussion on, 410—Note on, 497—
- Leading article on, 900—Parliamentary note on, 928—Correspondence on, 1026, 1069, 1126—
- Annotation on, 1214
- successful defence of, 1031
- SCHMID, Calvin F.: *Mortality Trends in Minnesota*, rev., 1160
- Schmidt, Hermann, death of, 655
- L.: Juvenile rheumatism, 802
- SCHNITZER, M. T.: *Medicinal Index und Therapeutisches Vademecum*, rev., 388
- Scholarships and grants, 139, 263, 298, 408, 431, 657, 736, 1404
- SCHOLEFIELD, Sir Joshua (and others): *Public Health Acts*, etc., eleventh edition, vol. 1, 819
- School accommodation for defectives (parliamentary note), 927
- child, health of, 35
- children, health of in Durham (parliamentary note), 367
- London, treatment of, 477
- Hayling Island Open Air: Opening, 1121
- health records in Scotland, revision of, 1282
- services, cost of (parliamentary note), 1079
- Schools, public, epidemics in: statistical analysis, 864—Leading article on, 855
- special, number of children on registers of, 401
- SCHWAB, Robert: *Diagnostik als Heilmittel*, 783
- Schäfer, presacral infiltration with novocain, 1168
- Science and industry, 348
- review of book on, 1266
- and social service, 40
- SCLEARE, I. M.: Psychological illness, 193
- Sclerosis, disseminated, surgical treatment of by Sympathectomy and ganglionectomy (C. F. Koch and E. de Savitsch), 1254 (O)—Annotation on, 1271
- Scoliosis, adolescent, pathology of (R. G. Abercrombie), 215 (O)—Leading article on, 236
- Scotland:
- ABERDEEN: Medical curriculum at, 972—Report of M.O.H., 357—University of, 874—University of, 1288
- Anthrax outbreaks in Angus, 1288
- Blindness prevention, 971
- Board of Control: Report, 1067
- Cannockburn hospital for paying patients, 502
- Carnegie Trust: Annual meeting, 476
- Central Midwives Board: Meeting, 540
- Child welfare, 751
- Chiropractors in, 751
- Committee to review public health and local government law (parliamentary note), 59
- Divorce and Nullity of Marriage (Scotland) Bill, 1186, 1241
- EDINBURGH:
- Dental Hospital and School, 110
- Institutional maternity services in, 89
- Maternity Hospital: Annual meeting, 593
- M.O.H., 536
- Orthopedic clinic, 971
- Postgraduate courses in, 972
- Public dispensary, 357
- Research in surgery, 916
- Royal Infirmary finances, 140
- Royal Medical Society: Annual dinner, 536
- University: See University in General Index
- Finance of universities, 1172
- Gifts to Scottish universities, 392
- GLASGOW:
- Empire Exhibition, 411, 916—"Fitter Britain" at, 916
- Health of children, 1067
- Houses built, 493, 1243
- Maternity work in, 140
- Postgraduate courses, 1372
- Rheumatic Clinic, 536
- Royal Infirmary, 140, 476

Scotland (continued):

GLASGOW (continued):

University. See University in General Index.
Western Infirmary: Annual meeting, 415

Health Department: Report for 1937, 1015—
School health records, 1232

visitors, 1223

Hospitals for civilian casualties in air raids, 302

Insanity in, 1067

Housing conference, 1223

Insanity in, 1067

James Mackenzie Institute for Clinical Research, 197

Lunacy law in, 476

Massage for fitness, 803

Medical research, 197

Nursing, district, 536

Homes Registration (Scotland) Bill, 1233

problem, 193

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

Results of, 550

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Results of, 550

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Results of, 550

Results of, 550

Results of, 550

SERVICES (continued):

Navy, Royal:

Marriage allowances to naval officers, 656, 711

Naval Medical Compassionate Fund: Meetings, 365, 1073

Report of health of, 1935, 578

Prize, Alexander Memorial, 1399

Leishman Memorial, 1399

Parkes Memorial, 865

Service patients in mental hospitals, 1400

Voluntary Aid Detachments, 1399

Sewage in Mersey estuary, 1331

Sex: adrenal cortex and intersexuality, 1336

review of books on, 257, 676, 1053

Sexual offenders: probation at mental hospital, 260

Seymour, W. Douglas: *Improving the Blackboard*, 293

SHANDS, A. R.: *Handbook of Orthopaedic Surgery*, rev., 339

SHANKS, S. Cochrane (P. KERLEY, and E. W. TWISSING): *Textbook of X-Ray Diagnosis*, rev., 1109

Shann, Frederick, obituary notice of, 706

SHAW: Influenza virus vaccine, 291

B. H.: Insulin for schizophrenia, 1026

J. J. M.: After-effects of modern treatment of carcinoma, 870

Maurice: West London Post-Graduate College, 46

West London Hospital Medical School, 147

Causes and treatment of flatulence, 531

W. B.: Disclaimer, 1406

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

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Shannon, P. H.: *Obituary notice of*, 545

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Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Shannon, P. H.: *Obituary notice of*, 545

Sleeplessness, acute, 1036

SLEIGH, J. C.: Spread of streptococcal infection, 867

Sleman, Richard Reginald, obituary notice of, 819

SLESINGER, E. G.: After-effects of modern treatment of carcinoma, 700

Sloane, Sir Hans, life and times of, 349

SLOT, Gerald: Treatment of hay fever, 754—

—treatment of, 754

—treatment of, 754

—treatment of, 754

—treatment of, 754

—treatment of, 754

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—treatment of, 754

SURGICAL PROCEDURES IN GENERAL PRACTICE

(Fatal) wounds and cut throat, treatment of (Julian Taylor), 792—Correspondence on, 919
Foreign bodies in tissues (Harold Dodd), 633
Fracture of nasal bones and epistaxis (W. M. Mollison), 1218
Hearing aids in general practice (F. J. Cleminson), 1185
Joint sprains and strains (R. C. Elmaliac), 527
Muscle injuries, treatment of (C. Max Page), 576
Nasal conditions (E. D. D. Davis), 1167—Correspondence on, 1236, 1341
Otitis externa, treatment of (F. C. W. Capps), 958—
 media, treatment of (Myles Formby), 1014,
 1015
Quies and retropharyngeal abscess (R. Scott—
 Stevenson), 1323
Saline infusions (Hamilton Bailey), 204
Scalp wounds and fractures of skull (Lambert
 Rogers), 685
Tonsilectomy (Lionel Colledge), 1274—Corres-
 pondence on, 1300
Tumours, innocent, removal of (Ernest Finch), 461
Wounds, treatment of (W. H. Ogilvie), 132, 183
Surridge, Edward Ernest North, obituary notice of, 46
SUTHERLAND, Hallday: Bovine tuberculosis in
 Britain, 353—Pasteurization of milk, 704, 812,
 918, 1028—Tubercula in diagnosis, 1233
 —Eage: Treatment of cerebrospinal fever, 1884
 —W.: Treatment of ascites, 550
SUTTON, E. G. C.: Pharyngeal obituary rev., 567
 —E. G. C. (British Association of trauma with
 progressive muscular atrophy, 225 (O)—Corres-
 pondence on, 359, 486, 813
Svartz-Malmberg, Nanna, appointed professor of
 medicine at Stockholm, 496
Swab left at operation: damages awarded, 1073
Swaby, Lieut.-Col. Maurice obituary notice of, 366
SWATSON, R. W.: Rupture of aorta, 44
Swedenborg, Emanuel, 250th anniversary, 239—
 Commemoration stamps, 823
Swift, Homer: Rheumatic disease, 1017
Swynerton, Charles Francis Massey, obituary notice
 of, 139
Symplocococcine and seborrhoeic, 1354
SYDNEY, Annie: Unusual case of miscarriage,
 1157—Note on, 1247
Sym, William George, obituary notice of, 260
Symons, Lieut.-Col. Henry John Hugh, obituary
 notice of, 924
Symptoms, treatment in treatment of disseminated
 tuberculosis, 1254, 1271
Sympatholytic or sympatholytic? 544, 640
Syndrome, adeno-genital (leading article), 1056—
 Correction, 1142—Correspondence on, 1336
Syphilis, review of books on, 337, 1053
 —lightning on, 1142
 —treatment: survey of current methods, 795
Syringe, hypodermic: Care of, 214—Sterilization of,
 1070, 1178, 1237, 1286, 1292

T

Taddel, Domingo, death of, 926
Tar dermatum, 784
Tasmania: Health report for 1936, 691
TAYLOR, Gustave: Leprosy, 37
—— Hermon: Position of patient in gastroscopy, 892
—— Julian: Treatment of facial wounds and throat, 792—Correspondence on, 919
Teeth: research into dental caries, 393
TEGGAAR, Bryce: Influenza meningitis treated with
 paraffinase and lumbar puncture, recovery, 1365
Telephones: pulse, infection from (parliamentary
 notes), 823, 927
TEL福德, E. D.: Surgical intervention in erythro-
 melalgia, 299
Telling, Walter Henry Maxwell, obituary notice of,
 1074, 1134
Temperature, "lower critical," 827
TEMPLETON, W. Lees: Intermittent hepatic fever,
 850
Testator's mental state, 820
Testis, undescended, endocrine treatment of, 354
Tetanus from cancer cure, 1013

case (F. V.
der Augen-
E. MAGEE);
1199 (O)

Planning, rev., 74

THOMAS, J. F.: Massive collapse of lung, 582

— John E.: Blood testis in disputed paternity, 354

THOMPSON, C. G. K.: Treatment of cerebrosplenic
fever, 1383

— F. G.: Scapulo-humeral peri-arthritis, 589

— H. Gordon: Lymphoid tissue of alimentary
canal (O) — Correspondence on, 203 — British
Hospitals in China, 1388

— W. A.: Endocrine treatment of cryptorchidism,
255

THOMPSON, A. P.: Early occurrence of high blood
pressure, 630

— H. J.: Time for midwifery, 595

— William W. G. Galt, and J. T. IRVING):
Calcium and phosphorus deficiencies in post-
human dietary, 770 (O) — Correspondence on, 977

— W. W. D.: Life and Times of Sir Hans Sloane, 342

THORNTON, C. E.: Rheumatism scheme in London,
803

Thorotrast, is it safe? 903
THORPE, Frederick T.: Ascorbic acid in urine, 542
Thorst, Arthur, death of, 209
Threadworms, treatment and control of, 1383
Throat, cut, and facial wounds, treatment of (Julian Taylor), 762
Thrombosis of inferior vena cava, 913
THROWER, W. R.: Technique of blood transfusion, 487
THURSFIELD, Hugh: Applying for hospital posts, 91
THRUSTON, Gavin: "Spontaneous human combustion," 1340
Thymus gland, malignant tumour of (R. G. Prosser), 775 (O)
Thyroid and its Diseases (J. H. Means), rev., 781—
 Leading article on, 785
 —review of book on, 781, 1366
Thyrotoxicosis, clinical problems of (Peter McLwan), 1037 (O)—Leading article on, 1055—Correspondence on, 1125, 1174, 1231
 —Inquiry into, 1022
TIDY, L. Leitch: Surgery of sympathetic nervous system, 300—Mineral salts in therapy, 533—Massive collapse of lung, 583
Tierney, Gerald Joseph Walton, obituary notice of, 365
TILEY, J. B. (and J. F. WARIN): Severe case of chicken-pox with some unusual features, 1265—Incidence on, 1392
Tin and cream, Boileau's on, 404
Tinea of foot (P. K. Fraser), 842 (O)
TIPPERT, G. O.: Treatment of fractures of patella by excision, 383 (O)—Annotation on, 397—Correspondence on, 539, 647, 1179, 1284
TIZZARD, T. H. S.: Keratoplasty, 1303 (O)
Tobacco, Alcohol, and physical efficiency, 850
TOFT, E. P.: Lower abdominal pains of cervical origin, 262
 T. Wingate: *Atlas of Skeletal Maturation*, rev., 624
Toland, Charles Kirk, obituary notice of, 706
TOMB, J. Walker: Acriflavine emulsion, 256, 1392
Tomography in chest radiography, 638
Tongue, geographical, 660
 — painful, 104
Tonsillectomy (Lionel Colledge), 1274—Correspondence on, 1390
 —Incidence of in school children, 1225
 —premedication for, 1057
TOPPING, Andrew: Prevention and treatment of enteric fever, 352—Spread of streptococcal infection, 867
TOULRAINE: Spontaneous recovery from cancer, 525
TOWERS, Agnes E.: Tetanus and ectopic pregnancy, 1391
Town planning for health, 696
Toxicology, review of book on, 847
Toye, Edwin Josiah, obituary notice of, 313
Tornal and Vesley, 464
Tracheobronchitis, tuberculous, 239
Trachoma, aetiology of, 1111
 —International Organization against: Meeting of, 138
TRAQUAIR, H. M.: *Clinical Perimetry*, third edition, rev., 1007
Trauma of heart (Hugh Barber), 433 (O)—Annotation on, 437
 —with progressive muscular atrophy, association of (G. E. Frederick Sutton), 225 (O)—Correspondence on, 359, 486, 813
Treatment and diagnosis, some recent advances in (A. H. Douthwaite), 1143 (O)
 —review of books on, 234, 388, 566, 622, 733, 1102, 1103, 1367
TRENDL, Eduard, 1393
TREVAN, J. W.: Nutritional theory during pregnancy, 191
TRIBEDI, B. P. (and M. N. DE): Observations on dysenteric conditions among Europeans of Calcutta, 1000 (O)
Trichinosis in Britain, spurious record of, 255
Triplets, uniovular, 320
Trisomin, 453
Tristan da Cunha, appendicitis in, 646
Tropical diseases, annual cost of (parliamentary note), 1400
 —medicine, fellowships and appointments in, 1119
 Liverpool School of: Annual report, 806
Wainwright, 950, 1174—
 Cicely Northcote: Report, 274
 Pennsylvania journal of "
tuberculin
on (A. T.
1071
Tuberculosis, bacteriological diagnosis of (leading article), 126
 bovine, in Britain, 358
cc
W. Pagel), 15 (O)
se of
and

Tuberculosis, *Collected Papers on* (Sir Robert Phillip),
180

spondence on, 359
— human, of bovine origin, 904
— in Maoris, 304
— pulmonary, chrysotherapy in, 741
 — collapse therapy of (*leading article*), 1212
 — early diagnosis of, 145, 544
— report of Trudeau Foundation, 26
— results of sanatorium treatment, 345
— review of books on, 75, 124, 338, 516, 697, 1268

Inquiry, 877
Tuberculous persons, rehousing of (parliamentary note), 547
Tuck, G. L. (Dr. Wu Lien-Teh), retirement of, 399
TUCKER, Cecil F.: Modified cholecystectomy, 336
TUMARKIN, I. A.: Treatment of otitis externa, 413
Tumour, breast, endocrine factors in, 524
 — malignant, of thymus gland (R. G. Prosser Evans), 775 (O)
 — mixed of lip (K. T. Loke), 121— (F. M. Collins), 121
 — superior pulmonary sulcus (J. L. Ryce), 1304 (O)
 — of vocal cord following nasal endotracheal anaesthesia (Michael Cohen), 283—Correspondence on, 1127
Tumours, hereditary bone, in mice (F. C. Pybus and E. W. Miller), 1300 (O)
 — innocent, removal of (Ernest Finch), 461
TURNER, A. Logan.: *Story of a Great Hospital.*
 Royal Infirmary of Edinburgh, 1720-1920, 85
 G. Grey: Circulation in gangrene, 139—
 Sulphanilamide in streptococcal infections, 352—
 Massive collapse of lung, 583—Incision for appendicitis, 1065
 Non-malignant stenosis of oesophagus, 1065
 H. M. Stanley: Bacillary dysentery, 143
 J.-M.: Unusual case of chondrification of patellar ligament, 17
Twain, elder, 932
Twins, finger-prints of, 1142, 1340
 — studies in heredity and environment, 1270
 —"Sympathetic" (Cecil W. Kidd), 450
TWISING, E. W. (S. C. SHANKS, and P. KELLEY):
 Treatment of Venous Disease, rev. 1103

Typhoid fever. See Fever
 —"Mary," 932, 1247
TYRELL, W. B.: Organization of medical services in air raid precautions, 911

U

UDELL, F. N.: Nursing problem, 193
Ulcer, chronic gastric, cause of, 647
duodenal, surgery and, 969
— Mooren's, treatment of with liver extract
(Charles J. Cantillon), 71
— varicose, aid in treatment of, 517
Ulcration, peptic, vitamin C deficiency in. See
Vitamin C
Tuberculosis, associated with sarcoid (R. H.
Wiseman), 673—Correspondence on, 872, 1295
Ultra-violet treatment, lamps for, 624
UNDERWOOD, E. Ashworth: *Manual of Tuberculosis
for Nurses and Public Health Workers*, second
edition, rev., 338

UNITED STATES OF AMERICA:

NEW YORK MEDICAL SOCIETY, 102
Pictures, medical, 1192
Sulicide in, 80

Universities, health at (leading article), 523
 — Scottish: Parliamentary by-election, 197—
 Results of, 550—Gifts to, 302—Finance of, 111
 University of Aberdeen: Meetings of, 641,
 1388—Hon. LL.D. conferred, 608—Degrees and
 pass lists, 823—Medical curriculum, 972—Lectures,
 1289
 — *Belast*, Queen's: Appeal, 639
 — Birmingham: Degrees and pass lists, 101
 — Lectures, 315—Honorary degrees, 1190
 — Bristol: Degrees and pass lists, 101, 1395
 — Calcutta: Honorary degrees, 103
 — California: *Publications in Pharmacology*, 850

UNIVERSITY OF CAMBRIDGE:
 Appointments, 758, 1034, 1241
 Awards, 316, 366, 1034
 Degrees and pass lists, 47, 261, 366, 423, 491, 599,
 637, 1034, 1190, 1289, 1341, 1394
 Elections, 599, 1259
 Gifts to, 316, 758
 Lectures, 423, 491, 758
 Medical research, assistants in, 1190
 — women, 104
 Oral examination in pharmacology, 1190

- Society, Medical, of London : Programme, 90—Surgery of sympathetic nervous system, 208—Deep x-ray therapy, 473—Causes and treatment of flatulence, 580—Anniversary dinner, 580—Uremia, 693—Lung abscess, diagnosis and treatment, 803—Hospital planning at Alton, 1169
- Officers of Health : Public health services and industrial hygiene, 38—Prevention and treatment of enteric diseases, 352—Spread of streptococcal infection, 866—Treatment of cerebrospinal fever, 1383
- Sickness, Annuity, and Life Assurance : Annual general meeting, 803
- Superintendents : Diabetic out-patients, 535
- Medico-Legal : Food poisoning, 618—New divorce law, 1021
- Midland Mental and Pathological : New outlook on physiology and pathology of mental and emotional states, 265—Electropathology of brain, 751
- Mid-Staffordshire Medical : Retrospect and prospect in medicine, 1122
- National Smoke Abatement : Annual report, 742
- North of England Obstetrical and Gynaecological : Protocols in obstetrics, 39—Masculine female pelvis, 535—Cases, 914—Radium for carcinoma of vulva, 1121—Pregnancy and labour after repair of prolapse, 1121—Pregnancy and parturition after amputation of cervix, 1330
- Obstetrical and Gynaecological, Vienna : 50th anniversary, 660
- Ophthalmological of United Kingdom : Annual congress, 1017—Annual banquet, 1018
- Oxford Medical : Lower abdominal pains of cervical origin, 105
- Pathological, of Manchester : Town-dweller's lung, 476—Prophylaxis of influenza, 750
- Pharmaceutical : Privy Council nominations to council of, 826
- Pharmacological : Report of college, 525
- Physical : Exhibition of scientific instruments, 120
- of Public Analysts and Other Analytical Chemists : Fat absorption and metabolism, 350—Dinner, 587—Silicose dusts, 867
- of Radiographers : Annual dinner, 478—Liability of radiologist : mock trial, 707
- for Relief of Widows and Orphans of Medical Men : Quarterly court of directors, 212, 926
- Royal : New Fellows, 634—Conversazione, 1166—Foreign Member elected, 1166
- of Arts : Italian army in Abyssinia, 805
- Swiney Prize, 817, 1202
- Medical, of Edinburgh : Annual dinner, 536
- SOCIETY, ROYAL, OF MEDICINE :
Medals awarded, 985, 1013
Town planning and garden cities, 606
Section of Anaesthetics.—Massive collapse of lung, 582
Section of Dermatology.—Skin manifestations of rheumatism, 300
Section of Epidemiology and State Medicine.—Measles : epidemiology and prophylaxis, 533—Shellfish and public health, 738—Handicapped child, 1019—Incidence of tonsillectomy in school children, 1225
Section of Medicine.—Asthma problem, 193—Infectious disease in therapy, 581
- Section of Oology.
412
Section of Physical Medicine.—Skin manifestations in rheumatism, 300—Effects of strain in children, 472—Massive collapse of lung, 582—Physical education, 734, 747
Section of Psychiatry.—Cardiazol convulsion therapy in schizophrenia, 192—Insulin therapy in schizophrenia, 410
- Section of Pathology.
412
Section of Therapeutics and Pharmacology.—Nutritional therapy during pregnancy, 191—Significance of sex hormone excretion, 411—Value of zinc-protamine-insulin, 637—Anterior hypophysis in diabetes mellitus, 1170
United Services Section.—Air raid precautions : organization of medical services, 910—Annotation on, 1011
- Section of Hygiene.
3—led,
3—led,
935—Placenta
Southern Medical, of Glasgow : 1937—20th anniversary
of bone, 355—Changing ground of surgery, 1193
of bone, 355—Changing ground of surgery, 1193
for Study of Fecundity : Prevention and control of addition, 195—Alcohol, tobacco, and physical efficiency, 850
of bone, 355—Changing ground of surgery, 1193
for Study of Fecundity : Prevention and control of addition, 195—Alcohol, tobacco, and physical efficiency, 850
of bone, 355—Changing ground of surgery, 1193
for Study of Fecundity : Prevention and control of addition, 195—Alcohol, tobacco, and physical efficiency, 850
- Society, University of London Animal Welfare :
Annual report, 34
—West London Medico-Chirurgical : Causes and treatment of sterility, 195—Industrial diseases, 638
—Recent advances in rheumatism, 970
Sodium lactate for diabetic coma, 683, 814, 1036
—pentose nucleotide treatment of leucopenia in pneumococcal peritonitis (J. B. G. Muir), 942 (O)
—salicylate tolerance, 827
—sulphanilic sulphamide and canine distemper, 875
SOLOMONS, Bethel : Treatment of placenta praevia, 1334
Soluseptasine and lumbar puncture treatment of influenza meningitis : recovery (Dyce Teggart), 1365
Somers, James Louis Edgeworth, obituary notice of, 762
SONI, R. L. : Haematecolpos, 764
SONS—
of, 702, 752, 870,
917, 973
SOUTAR, H. S. : *Surgeon's Pocket Book*, second edition, rev., 21—Appreciation of Mr. P. Furnivall, 1076
Spain : Pamphlet on medical aid for, 263—Medical relief for, 760—Medical aid for Barcelona, 764
—Relief of distress in Madrid, 1036
Spalding, James A., obituary notice of, 655
Spas, British, and publicity (parliamentary note), 1081
Spasms, intestinal, manipulative treatment of (J. H. Cyriax), 445
SPEARMAN, Charles : *Psychology Down the Ages*, 395
Speculum, induction, 848
Speech, review of book on, 951
of, 702, 752, 870,
917, 973
SPENCER, A. M. : Aetiology of acute appendicitis, 227 (O)—Correspondence on, 307, 358, 600, 488, 489, 646, 816
SPIESMAN : Susceptibility to common cold, 573
Spinal cord, recovery in, 307, 417, 488
SPIRA, Leo : Chicken-pox with unusual features, 1392
SURO, P. (and J. BERBERICH) (editors) : *Therapie der Tuberkulose*, two vols., rev., 897
Splenectomy and acholic jaundice, 353
—in 1887, 1220
Splint for indwelling catheters, 784
Sprains and strains, joint, treatment of (R. C. Elmslie), 527
SPURGIN, Percy B. : Presentation to, 1023—Mechanical diagnosis, 1235
Squint, human, primitive sight and, 301
STABLER, Frank : Extra-uterine gestation : live child, 779 (O)—Correspondence on, 1391
STACEY, J. E. : Radium treatment of carcinoma of vulva, 1121
STADDON, C. S. : Problem of final M.B., B.S. Lond., 309
STALKER, Harry : Doryl in functional urinary retention, 1393
STALLYBRASS, C. O. : Gastro-enteritis due to *Bact. sonnei*, 200
Stamps : Austrian medical, 403—Swedenborg commemoration, 828—Medical postage, 1142, 1406
Stander, Alfons, death of, 209
STANLEY-JONES, D. : Trauma and progressive muscular atrophy, 360
Stannus, Hugh S., granted authority to wear Insignia of Chevalier of Légion d'Honneur, 763
Stanton, Sir Thomas, obituary notice of, 312
Stark, Harry, obituary notice of, 982
Starkey-Smith, Thomas Gordon, obituary notice of, 99
Statistics : Births and deaths in London in 1937, 478
—Occupational birth rates, 1931, 603
—of, 1936, 40—1937,
—a review of 1935,
1400
—return for, 1937,
641
—See also Epidemiology
STEBBING, George F. : Irradiation or surgery for cancer ? 1333
Stedman, Thomas Lathrop, death of, 1398
STEEL, Matthew : *Biological and Clinical Chemistry*, rev., 1006
Steen, Wilfred Alexander, obituary notice of, 1343
Stenosis, infantile pyloric, treated with anti-spasmodics (J. Vernon Braithwaite), 334 (O)—Correspondence on, 486, 538, 646, 702
Stensen, Niels (1638–86), 1360
STEPHENS, G. Arbour : Cause of acute rheumatism, 214—Early occurrence of high blood pressure, 650
Sterility or infertile marriage, causes and treatment, 195
Sterilization of hypodermic syringes, 214, 1070, 1178, 1237, 1286, 1292
—temporary, by x rays, 362, 419, 484, 1012
Stern, Louis William, death of, 875
—Ruby O. : Coughing in public, 362
Sterols, review of book on, 847
STEVENS, W. Mitchell : Causation of cancer, 871
Stevenson, David Lyon, obituary notice of, 705
—Douglas Lang : Method of treating fractures of lower leg, 71
—Howard : Appreciation of Dr. M. B. Smyth, 93
- STEVENSON, Molra : Anaemia of pregnancy, 1384
—R. Scott : Quinsy and retropharyngeal abscess, 1323
Stewart, Charles Parker, obituary notice of, 365, 423
—Donald : Public health services and industrial hygiene, 38—Organization of medical services in air raid precautions, 912
—F. G. : Tomography, 638
Stewart-Morel syndrome, 1049
STIBBE, E. P. : *Introduction to Physical Anthropology*, rev., 848
Stillbirths, registration of in Scotland (parliamentary note), 602
STILLMAN, Paul R. (and J. O. McCall) : *Textbook of Clinical Periodontology*, second edition, rev., 1159
STIRLING, R. : Appreciation of Dr. C. P. Stewart, 423
STIVEN, H. : Acute appendicitis, 489
Stodart, Squadron Leader David Edmund, obituary notice of, 599
Stoker, Graves, obituary notice of, 364
STOKES : Influenza virus vaccine, 291
—Percy : Incidence of tonsillectomy in school children, 1226
STOSHAM, F. V. : Tetanus supervening on middle ear disease, 380
STOSES, Marie C. : Contraceptives and fertility, 310
Stoute, Douglas Garnett, obituary notice of, 204
STRAHAN, J. H. : *Health Survey of State of Kedah*, 1406
Strain, effects of in children, 472
Stranghan, Cyril Patrick Andrew, obituary notice of, 1078
Strangulation, internal, through aperture in mesentery (John A. Baty), 671 (O)
STRECKER, Edward A. : *Alcohol : One Man's Meat*, rev., 1366
—H. Pullar : Insulin therapy in schizophrenia, 411, 1126
Streptococcal infections, acute, treated with sulphamide, 351
Streptococcal haemolytic, serological examination of, from acute rheumatic and control groups (C. A. Green), 1147 (O)
STRONG, L. C. : Chemotherapy and cancer, 1216
STRUDWICK, Ethel : Physical fitness campaign, 137
STRUTHENS, J. A., called to Bar, 1191
Strychnine poisoning, 823
STUART, E. Gertrude : *An Austin Tuckie on the Frontier*, rev., 287
—Robert Wilson, obituary notice of, 99
Stuttering, partial glossectomy as cure of, 97
SUBBAROW, Y. : Modern views on pellagra, 804
Sudan : Medical work in, 632—Appointment, 943
Suicide in America, 80
Suicide's insurance policy, 1182
Sulphamide, aperients and, 1236, 1392
—and breast milk, 1142
—Intraperitoneal treatment of streptococcal empyema with : experimental study in rabbits (W. F. Nicholson), 115 (O)
—mechanism of new chemotherapy (leading article), 522
—in meningitis, 1335
—and pentothal sodium, 1068
—and sulphamezobenzene, 496
—therapy in meningococcal meningitis (T. C. Morton, V. S. Ewing, and J. D. Eshworth), 1362 (O)
—treatment of acute streptococcal infections, 351
—of *Brucella abortus* infection, 187
—of chancroid (R. C. L. Batchelor and R. Lees), 1100 (O)
—control of, 923, 975
—and urinary antisepsis, 459
—See also Prontosil
Sulphonamide chemotherapy in genito-urinary (non-gonococcal) infections (A. J. Cockin), 1151 (O)
—emulsion, 517
—first mention of, 976
—preparations in obstetric practice, prophylactic use of (R. W. Johnstone), 562 (O)—Correspondence on, 757
Sulphonamide-P in *Brucella abortus* infection, 145
SUMMERSKILL, Edith : Labour candidate at West Fulham, 660—Elected to Parliament, 826
SUNTZEFF, V. : Carcinogenesis after oestrogen injections, 1209
—*Surgeon's Pocket Book* (H. S. Sontag), rev., 21
Surgery, changing ground of (W. H. O'Grady), 1193
—(O)—Correspondence on, 1253, 1390
—major abdominal, cardiac complications in, 179
—research in Edinburgh, 916
—review of books on, 75, 174, 339, 349, 454, 567, 622, 731, 1052, 1203, 1313
—of sympathetic nervous system, discussion on, 234
- SURGICAL PROCEDURES IN GENERAL PRACTICE :
Abrasions and contusions (R. J. McNall Love), 82
Blood transfusions, methods of giving (H. F. Brewer), 241—Correspondence on, 263, 429, 147
Bolls and carbuncles, treatment of (John H. Burns and Gerald, treatment of (Philip H. Mitchiner), 27—Correspondence on, 93, 292, 311
Concussion and compression (Lambert Evers), 717
Dental emergencies, minor, in general practice (G. G. Exner), 1376
Erysipelas and cellulitis (John H. Burns), 316—Correspondence on, 453, 764
—in (S. E. Burns), 316
Harmful, 111

- "Wind round heart" and "biliousness," physical basis of (Sir Arthur Hurst), 661 (O)
- Wingrave, Vittrius H. Wyatt, obituary notice of, 1342, 1397
- WINSOCE: Transport of iron, 453
- WINSBURY-WHITE, H. P.: Uraemia, 694—Brief review of, 426—collective cases of urinary calculus, 1204 (O)
- WINTER, Arthur G.: Measles, 697
- Wireless reception, electrical interference with (leading article), 786—Circular issued, 1063
- WISEMAN, R. Howitt: Multiple benign sarcoid and tuberculous ulceration, 673—Correspondence on, 572, 1235
- Withering, William, December number of *Medical Classics* devoted to, 319
- Withers, Sanford M., death of, 762
- WITTS, L. J.: Treatment of asthma, 194
- WOLF, George D.: *Physician's Business. Practical and Economic Aspects of Medicine*, rev., 1210
- Women in medicine, correspondence for, 96
- WOOL: ———— in midwifery, 418
- Sir Kingsley: Fracture services, 416—Care of blind, 915
- Paul: Cardiac complications in major abdominal surgery, 139
- WOODARD, W. A.: Acriflavine emulsion, 648
- WOODCOCK, O. H.: Contribution of Adler to psychological medicine, 29
- WOODMAN, Dorothy: Output of prolactin A in urine in certain extragenital conditions, 666 (O)
- Musgrave: Treatment of otitis externa, 412—After-effects of modern treatment of carcinoma, 871
- WOODHOUSE, P. E.: Ethyl chloride anaesthetic mask and holder, 733
- WOODS, Sir B. Stanton: Physical education, 748
- WOOLF, Mortimer: Painful feet, 749
- Workmen's Compensation Act inquiry (parliamentary note), 821

- WRIGHT, A. Dickson: Uraemia, 693
- A. J.: Labyrinthine ziddiness, its nature and treatment, 663 (O)—Note on, 827
- Garnett: Surgery and duodenal ulcer, 969
- Hartland S., death of, 491
- H. W. S.: Acute appendicitis, 307
- W. H.: Treatment and control of threadworms, 1383
- WYNEOE, R. F.: Plantar warts, 703
- Wynter, Walter Essex—Bartholomew Close, Newbury, 493

X

- X-ray film developing box, 650, 705
- materials and accessories, 125
- negatives: Who owns them? 47, 92, 205
- X rays, effect of an hereditary mutation, 642
- review of book on, 1266
- temporary sterilization by, 362, 419, 484, 1012

Y

- Year Book of Dermatology and Syphilology, 1937, rev., 1053
- — Eye, Ear, Nose, and Throat, 1937, rev., 675
- — General Medicine, 1937, rev., 176
- — General Therapeutics, 1937, rev., 1103
- — Municipal, rev., 453
- — Obstetrics and Gynecology, 1937, rev., 1312
- — Pediatrics, 1937 (L. A. Abt), 575
- — Radiology, 1937, rev., 123
- Yearsley, James, and Metropolitan Ear, Nose and Throat Hospital, 1838-1938, 464—Correspondence on, 593, 669
- Macleod: Founders of British otology, 593

- YELLOWLEES, David: Psychiatric treatment in Scotland, 855
- YEOMAS, William: Skin manifestations in rheumatism, 301
- YOUNG, B. A.: Diabetic out-patients, 536
- C. J.: Splenectomy and acholic jaundice, 357
- Control of sulphanilamide treatment, 975—(And W. N. WEST-WATSON): Failed splenectomy in acholic jaundice, and relation to toxæmia to haemolytic crises, 1395 (O)
- F. G.: Anterior hypophysis in diabetes mellitus, 1170
- James: Lower abdominal pains of cervical origin, their genesis and treatment, 105 (O)—Correspondence on, 201, 255, 361, 484—Nutritional therapy during pregnancy, 192—Medical aspects of decline of population, 471
- J. Horton: Portable ophthalmic testing unit, 784
- Thomas Brett, obituary notice of, 706
- W. A. Bruce: Appreciation of Dr. Lockhart Livingston, 925
- William, obituary notice of, 819
- William Alexander, obituary notice of, 597
- Young offenders, treatment of, 391
- Yovanovitch-Batut, Milan, 90th birthday, 496

Z

- Zeitschrift für Altersforschung: new periodical, 263, 496
- ZIMMERMAN, H. M.: Toxic effects of cod-liver oil, 736
- Zinc-protamine-insulin, modern treatment of diabetes mellitus and use of (F. Graham Lescher), 11 (O)
- — value of, 697
- Zinc sulphate spray for prevention of poliomyelitis (leading article), 953
- ZOS, L.: Vitamin D for psoriasis, 377
- Zuber, Alfred, death of, 1240
- ZUPPINGER, Adolf (and Hans R. SCHINZ): *Seibzehn Jahre Strahlentherapie der Kreber. Zürcher Erfahrungen, 1919-1935*, rev., 72

- University of Dublin: Degrees and pass lists, 823—
Lecture, 934
Durham: Appointments, 48, 366, 1190—
Awards, 423
Edinburgh: Degrees and pass lists, 48—
Awards, 414, 491—Hon. LL.D., 1190, 1395
Lectures, 1241, 1289—Chair of medicine, 1387—
Appointment, 1305
Glasgow: Degrees and pass lists, 934—Awards,
934—Annual meeting of General Council, 1067
Leeds: Appointments, 48, 401, 599—Annual
report for 1936, 302—Degrees and pass lists, 758
Liverpool: Professor emeritus conferred, 366—
Appointments, 707, 1190—Degrees and pass
lists, 707
- UNIVERSITY OF LONDON:
Appointments, 153, 209, 316, 423, 546, 657, 758,
823, 1079, 1341
Awards, 316, 657, 1034, 1190, 1239, 1341
Building plans, 657
Degrees and pass lists, 48, 101, 209, 261, 823, 1034,
1341
Fellows elected, 546
Final M.B., B.S., correspondence on, 45, 94, 146,
204, 257, 309, 363, 490
Lectures, 153, 209, 360, 423, 491, 546, 877, 984,
1079, 1190, 1241
Presentation day, 877, 1132
Recognition of teachers, 153, 877
Regulations amended, 423, 877, 1341
Scholarships, 707, 1132, 1190, 1395
- University of Manchester: Degrees and pass lists,
48—Appointments, 209, 1190, 1289, 1395—
Honorary D.Sc., 877, 1190—New buildings, 1190
National, of Ireland: Degrees and pass lists,
101, 823—Curriculum, 477
- UNIVERSITY OF OXFORD:
Appointments, 546, 1241
Awards, 877
Conferment of D.M., 491
Degrees and pass lists, 261, 599, 1034
Elections, 657, 706, 1189
Honorary D.Sc., 1394
Oxford Graduates' Medical Club, 578
Radcliffe Medical Fellowship established, 366
Regulations, changes in, 934, 1189
Window unveiled to commemorate gifts, 1394
- University of Paris: Honorary
Sheffield: Meeting of
Degrees and pass lists,
1341—Appointment, 1341
Wales: Appointment, 1190—Degrees and pass
lists, 1395
Uræmia, discussion on, 693—Leading article on, 630
Urticaria, painful, 1034
Urine, possible discrepancy in estimation of ascorbic
acid in (G. W. T. H. Fleming and T. E. Burrows),
333 (O)—Correspondence on, 542, 593
retention of, following excision of rectum
(H. T. Simmons), 171 (O)
Urology, review of book on, 233
Urticaria, treatment of, 660, 763
Urwia, Lieut.-Col. John Johnson, obituary notice of
1182
Uterine function, vitamin therapy and, 1084
Uterus, displacement of, 727
rupture of, following Caesarean section (C. E. B.
Rieckards), 1359 (O)
- V
Vaccination, extent and cost of (parliamentary note),
711
fatal encephalitis following (parliamentary
note), 51
primary, 432, 497, 550, 604
regulations at Woolwich Arsenal, 603
Vaccinia, deaths from in 1937 (parliamentary note),
602
VALLERY-RADOT (and others): *L'Anaphylaxie
Experimentale et Humaine*, rev., 125
VAN BREEMAN, J.: Gout, 799
VANSE, Morgan (T. A. GONZALES, and M. HELPERN):
Legal Medicine and Toxicology, rev., 847
VAN DER HORST, W.: Treatment of enlarged
prostate, 382
van Leeuwen Evert Cornelius, death of, 655
van Roey, Prof., death of, 151
VAN ROOYEN, C. E.: *Muir's Bacteriological Atlas*,
second edition, rev., 21—Chemotherapy of virus
diseases, 924
Varicella and herpes, 54, 156
Vascular disease, obliterative, treatment of by—
intermittent venous occlusion (J. J. Mason Brown
and W. Melville Arnott), 616 (O)
VAUGHAN, J.: Therapy during
pregnancy,
YEAL, J. R.:
Veins, varicose
Venepuncture, easy method
Venereal diseases: Anti-venereal measures in
Scandinavia (Margaret Rorke), 1224—Report of
commission, 1277—Correspondence on, 1339
clinics (parliamentary note), 1343
intermittent, in treatment of
Venous occlusion, intermittent, in treatment of
obliterative vascular disease (J. J. Mason Brown
and W. Melville Arnott), 616 (O)
- Ventilation problems of London underground rail-
way (parliamentary note), 658
VERE-HODGE, N.: Bed-bug in human ear, 1406
Veterinary research, grants for (parliamentary note),
656
VICKERS, W. G.: *Health Survey of State of Kedah*,
1406
VIGNES, Henri: *Maladies des Femmes Encientes*.
Affections des Muqueuses Génitales, rev., 338
VILVANDRE, G.: Deep x-ray therapy, 474
VINES, W. H. C. (and others): *Adrenal Cortex and
Intersexuality*, 1056—Correction, 1142—Corres-
pondence on, 1336
Virus diseases, chemotherapy of, 791, 875, 924—
(C. J. Oakley), 895
immunity (leading article), 952
Viruses, review of book on, 782, 1159
Vital statistics. See Epidemiology and Statistics
Vitamin A deficiency and cancer, 421, 1390
A deficiency, diagnosis of, 343
B deficiency, problems of, 630, 756
B, deficiency, 413
B, phenomenon of refection, 741
C deficiency, intradermal test for (Benjamin
Portnoy and John F. Wilkinson), 328 (O)
C deficiency in peptic ulceration and haema-
temesis (Benjamin Portnoy and John F. Wilkin-
son), 554 (O)
C deficiency in, estimated by
capillary resistance
C, function of, 660
D for psoriasis, 377
deficiencies in mental hospital, 190
K, annotation on, 1080
preparations, new, 234
therapy and uterine function, 1084
Vitamins, review of books on, 337, 732, 1366
Voluntary Aid Detachments: Official returns, 1399
Vulva, radium treatment of cancer of, 1121
Vulvo-vaginitis in children: clinical and administra-
tive aspects, 901
- W
WADDINGTON, C. H.: Effects of x rays on hereditary
mutation, 642
WADSWORTH, T. W.:
WAKELEY, Cecil P. G.:
WALDAPPEL, Richard
untersuchung des Kehlkopfes, rev., 100
WALES:
Board of Health: new headquarters, 586
Juveniles in need of supplementary nourishment,
493
Tuberculosis inquiry in (parliamentary note), 877
problem in, 190
services in (parliamentary note), 50
University of. See University
WALKER, F. Oliver: Correct footwear, 308—Magnifier
for small operations, 339—Note on, 498
G. F.: Trauma and progressive muscular
atrophy, 360
John Frederick, obituary notice of, 597
Kenneth: Sterility or infertile marriage, its
causes and treatment, 196
WALLACE, H. S.: Occupational dermatoses, 1226
WALLER, Letitia W. (Katherine H. COWARD, and
Elsie W. KASSNER): Shortage of calcium in
"poorer-class" diet, 59 (O)—Note on, 81—
Correspondence on, 202, 255
W. E.: Treatment of plantar warts, 649
WALSLEY, W. C. D.: Classification of adventitious
sounds, 702
WALSH, R.: Swallowed pin and round-worm, 18
Walter, Hermann, death of, 926
W. Grey: Electro-pathology of brain, 751
Walton, Lieut.-Col. Herbert James, obituary notice
of, 1240
Sir James: Deep x-ray therapy, 474
War disabilities, Number receiving hospital treatment
for, 493
sessions for, 1343
note), 51
153
WAR:
Wareham, J.: Pure English, 944
WARE, John: Severe case of
WARIN, J. F. (and J. B. TILLEY): Severe case of
chicken-pox with some unusual feature, 1263—
Correspondence on, 1392
Wart, plantar (R. M. MacKenna), 509 (O)—
Correspondence on, 649, 703, 814
Wasicky, R. B., to visit London and receive Hanbury
Medal, 319
Wasp sting, death, 1348
Water engineer, employment of by local authorities
(parliamentary note), 493
of London in 1936 (leading article), 341
pollution research, publications on, 155
trade effluents, 249
purity of, 827
requirements of surgical patients (D. L. C.
Bingham), 67 (O)
shortage (parliamentary note), 316
supplies and river pollution, 1107
safeguarding of, 636
Supply, Biology of (Anna B. Hastings), 1059
from Addington Well, Croydon (parla-
mentary note), 711
WATERFIELD, Noel L.: Suture needle, 257
- WATERHOUSE, Rupert: Gout, 799
WATERMAN, James A.: Uniovular triplets, 320
WATERS, Charles A. (and others) (editors): 1937
Year Book of Radiology, rev., 123
WATSON, Anne Mercer, obituary notice of, 925
Chalmers: Pasteurization of milk, 1027
G. I.: Origin of cancer, 973—Pasteurization
of milk, 1028
Hugh G.: Unusual case of rupture of internal
semilunar cartilage, 234
Robert, obituary notice of, 364
WATSON-JONES, R.: Rehabilitation centres for
injured workmen, 305—Oblique osteotomy for
fracture of neck femur, 481, 1025
WATSON-WILLIAMS, Eric: Treatment of otitis
externa, 412
Wax, excessive secretion of, 763
WEATHERBY, L. A.: Appreciation of Dr. Harold
Stimmons, 596
WEBSTER, A. D.: Osler in 1877-8, 214
J. H. Douglas: Periodicity of recurrences in
cancer, 41—Deep x-ray therapy, 473—After-effects
of modern treatment of carcinoma, 588, 699
R. C.: Chronic littritis, 448 (O)—Correspondence
on, 594, 703, 816, 921, 978
Weekes, Lionel William, convicted of posing as
doctor, 1347
Weight, review of book on, 899
WEIL: Insul
Mathieu
Well's disease
Naftalin)
WEISS, Edward: *Practical Atlas on Kidney Disease*,
rev., 846
WEISSBACH, R. J.: Radiographic aspects of
gouty foot, 799
Welsh, Lillian, death of, 655
R.
WENYON
West Ir
ment:
WEST:
WESTO:
weavers, 180
WESTWATER, J. S. (and others): Laboratory and
clinical investigations on tuberculin purified
protein derivative and old tuberculin, 992 (O)—
Correspondence on, 1071
WEST-WATSON, W. N. (and C. J. YOUNG): Fall-d
splenectomy in acholuric jaundice, and relation
of toxæmia to haemolytic crises, 1205 (O)
WHEELER, H. G.: George Buckmaster and William
Wright, 650
Thomas Kennedy, obituary notice of, 150
WHITBY, L. E. H.: *Medical Bacteriology*, third
edition, rev., 624
WHITE, Edward: Health resort, 692
J. G.: Surgery of sympathetic nervous system,
293
Sara E., obituary notice of, 653
WHITEHOUSE, Sir Beckwith: Law relating to abor-
tion, 408
WHITELOCKE, Hugh: Excision of patella, 539
WHITSED, Juliet de Kay: *Scientific Caring for
Institutions*, etc., rev., 1104
WHITWELL, J. R.: Squatting position in defæca-
tion, 264
Whooping-cough, notification of in London, 807
prophylaxis against, 459
treated by ether, 919
Who's Who, 1938, 74
WHYTE, D.: Complete prolapse of rectum, 722
Wiener *Klinische Wochenschrift*, new editors of, 1104
WIESNER, B. P.: Medical aspects of decline of
population, 472
Wilcocks, Charles: Tuberculosis in Tanzania
Territory, 1107
WILES, Philip: Physical education, 748
WILKIE, James: *Dissection and Study of Sheep's
Brain*, rev., 349
Wilkinson, Lieut.-Col. Edmund, obituary notice of,
1077, 1239
John F. (and Benjamin Portnoy): Intra-
dermal test for vitamin C deficiency, 324 (O)—
Vitamin C deficiency in peptic ulceration and
haematemesis, 554 (O)
W. Camac: Dosage of tuberculin, 921—
Tuberculin in diagnosis, 1234
Will, effect of delusion on, 428
Legacy to provide amusement, 821
WILCOX, Sir William: Uræmia, 694—Gout, 788—
Typhoid fever, its clinical aspects, 1085 (O)—
Leading article on, 1109—Correspondence on, 1176
Williams, Arnold, Winkfield, obituary notice of, 315
Bryan: Use of pronosil in obstetrics, 29
Bryan: Pregnancy and labour after repair of
prolapse, 1121
C. D. (and J. V. LAMPSON): Note on epidemic
dysentery, 119 (O)
Dawson, Memorial Lecture, 1322
Emrys (and D. J. HARRIS): Unusual tuber-
culous appendix, 277 (O)
Herbert J.: Early occurrence of high blood
pressure, 703
Pearse: Bacillary dysentery, 141
Tom A.: Treatment of psychoneuroses, 42
WILSON, A. T. Macbeth: Psychological factors in
organic disease, 1171
John Cowan, obituary notice of, 150
T. I. (and J. M. M. JAMES): Transfusion
with stored blood, 1207 (O)—Correspondence on,
1337

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LIST OF ILLUSTRATIONS

SPECIAL PLATES

PAGE

Abortion, Analysis of 350 Cases of (R. G. Cooke) ..	facing 1062	Bronchiectasis, Pathogenesis of (P. P. Lee Lander and Maurice Davidson) ..	1014
Appendix, Unusual Tuberculous (D. J. Harries and Emrys Williams) ..	inset between 294 and 295	Buckmaster, George Alfred ..	44
Breasts, Bilateral Axillary (M. Christie) ..	facing 799	Butler, Harold Branson ..	48
Bronchiectasis, Pathogenesis of (P. P. Lee Lander and Maurice Davidson) ..	facing 1063	Carcinoma of Palate (John R. Nuttall) ..	840
Calcium and Phosphorus Deficiencies in Poor Human Diet (W. E. Gaunt, J. T. Irving, and W. Thomson) ..	facing 798	Chambers, James ..	1312
Cancer, Spontaneous Disappearance of (Digby Chamberlain) ..	inset between 526 and 527	Choleystectomy, Modified (Cecil F. Tucker) ..	338
Chloroma, Case of (H. Barsoum) ..	inset between 294 and 295	Clubbing, Familial, of Fingers and Toes (D. R. Seaton) ..	615
Chondrification of Patellar Ligament, Unusual Case of (J. M. Turner) ..	facing 29	Clubbing of Fingers and Toes associated with Congenital Lung Cyst (E. Montuschi) ..	1310
Cleptia, Hetero-lateral, of Right Kidney (R. Campbell Bogg) ..	inset between 1062 and 1063	Court, Sir Josiah ..	421
Empyema Cavities, Healing of (P. R. Allison) ..	inset between 294 and 295	Crawford, Sir Raymond ..	651
Epididymitis, Block Anaesthesia for Insertion of Radium to (Phyllis F. L. Daplyn) ..	inset between 526 and 527	Crichton-Browne, Sir James ..	231
Foot, Fragment of Needle in (J. P. Hastings) ..	inset between 1322 and 1323	Crutch Pad, Non-slip Rubber ..	1384
Fracture of Neck of Femur (H. A. Brittain) ..	inset between 798 and 799	Dental Emergencies in General Practice (G. G. Exner) ..	1376
Fracture of Neck of Femur. Another Method of Inserting Smith-Petersen Pin (H. B. Roderick) ..	inset between 28 and 29	Dionne Quintuplets ..	104
Gestation, Extra-uterine: Live Child (F. Stabler) ..	inset between 798 and 799	Dislocation of Eyeball as Complication of Oxycephaly (J. Sherne) ..	565
Gold Therapy, Complications of (T. H. Boon) ..	facing 799	Disseminated Sclerosis, Surgical Treatment of by Sympathectomy and Ganglionectomy (C. F. Koch and Eugene de Savitsch) ..	1254
Haemopneumothorax, Spontaneous (J. Maxwell) ..	inset between 798 and 799	Drip Feed for Divinyl Ether ..	1054
Hearing Aids in General Practice (F. J. Clemenson) ..	facing 1114 and 1115	Empyema Cavities, Healing of (P. R. Allison) ..	252
Hyperostosis Frontalis Interna (T. de Leheczky and A. Orbán) ..	inset between 1062 and 1063	Ethyl Chloride Anaesthetic Mask and Holder ..	733
Hyperparathyroidism, Case of (A. W. Fawcett) ..	facing 295	Extension Apparatus, Simple ..	677
Keratoplasty (T. H. S. Tizzard) ..	inset between 1322 and 1323	Foreign Bodies in Intestinal Tract ..	514
Lung Cyst, Congenital, Clubbing of Fingers and Toes associated with (E. Montuschi) ..	inset between 1322 and 1323	Fracture of Neck of Femur treated by Oblique Osteotomy (T. P. McMurray) ..	331
Lymphoid Tissue of Alimentary Canal (H. Gordon Thompson) ..	facing 28	Furnival, Percy ..	1076
Osteochondritis, Ischio-pubic (George D. F. McFadden) ..	inset between 1322 and 1323	Gastroscopy, Position of Patient in (Mermon Taylor) ..	891
Ovarian Dermoid, Rupture of (K. L. James) ..	facing 1322	Heberden Society's Medal ..	1375
Physiology and Pathology of Mental and Emotional States (F. A. Pickworth) ..	facing 294	Hill, Surgeon Vice-Admiral Sir Robert ..	900
Pneumonia, Lobar: Sulphuretic Abscess; Duodenal Fistula: Recovery (Sir A. J. Hall, G. S. Simpson, and J. L. A. Grout) ..	inset between 1062 and 1063	Keratoplasty (T. H. S. Tizzard) ..	1307
Pneumothorax (A. Morton Gill) ..	facing 527	King, Sir Frederic Truby ..	421
Pregnancy, Case of Abdominal (Ronald Reid) ..	inset between 1322 and 1323	Laurie Drip Bulb, Modified ..	1105
Pregnancy and Lactation Changes in Fibro-adenoma of Breast (Charles F. Geschlechter and Dean Lewis) ..	facing 526	Lipoma simulating Goltre ..	207
Prosthesis, New (A. Wynn Green) ..	facing 1323	Magnifier for Small Operations ..	339
Ribs, Abnormality of (W. A. Bellamy) ..	inset between 294 and 295	Mattress and Blankets for Fowler's Position ..	1264
Skull Bones, Persistent Overmoulding of causing Fits in an Infant (G. C. Gordon) ..	facing 29	Mental and Emotional States, Physiology and Pathology of (F. A. Pickworth) ..	264
Thymus, Malignant Tumour of (R. G. Prosser Evans) ..	facing 799	Nasal Sinusitis in Childhood (James Crooks) ..	915
Tuberculosis, Chronic Disseminated (F. A. H. Simmonds and W. Pagel) ..	facing 29	Needle, Suture ..	247
Tuberculosis in Infants (Dorothy Price) ..	inset between 294 and 295	Oedema, Instrument for Detection of ..	75
Tumour, Superior Pulmonary Sulcus (J. L. Ryce) ..	inset between 1322 and 1323	Ophthalmic Testing Unit, Portable ..	781
Tumours, Hereditary Bone, in Mice (F. C. Pybus and E. W. Miller) ..	facing 1322	Otitis Externa, Treatment of (F. C. W. Capps) ..	954
Wart, Plantar (R. M. B. MacKenzie) ..	inset between 526 and 527	Otitis Media, Treatment of (Mykes Formby) ..	1011, 1065

ILLUSTRATIONS IN THE TEXT

Acetylcholine, Clinical Aspects of Transmission of Effects of Nervous Impulses by (Francis R. Fraser) ..	1240, 1293
Aneurysm, Saccular, of Left Common Iliac Artery (D. P. Burkitt) ..	1051
Baldon, Francis Joseph ..	1396
Banister, John Bright ..	981
Bartholomew Close, Newbury ..	403
"Billousness" and "Wind Round the Heart" (Sir Arthur Hurst) ..	663
Blood Transfusions (H. F. Brewer) ..	241
Box Mask for Oxygen Administration (J. Argyll Campbell) ..	1261
Boycott, Arthur Edwin ..	1133

Bronchiectasis, Pathogenesis of (P. P. Lee Lander and Maurice Davidson) ..	1014
Buckmaster, George Alfred ..	44
Butler, Harold Branson ..	48
Carcinoma of Palate (John R. Nuttall) ..	840
Chambers, James ..	1312
Choleystectomy, Modified (Cecil F. Tucker) ..	338
Clubbing, Familial, of Fingers and Toes (D. R. Seaton) ..	615
Clubbing of Fingers and Toes associated with Congenital Lung Cyst (E. Montuschi) ..	1310
Court, Sir Josiah ..	421
Crawford, Sir Raymond ..	651
Crichton-Browne, Sir James ..	231
Crutch Pad, Non-slip Rubber ..	1384
Dental Emergencies in General Practice (G. G. Exner) ..	1376
Dionne Quintuplets ..	104
Dislocation of Eyeball as Complication of Oxycephaly (J. Sherne) ..	565
Disseminated Sclerosis, Surgical Treatment of by Sympathectomy and Ganglionectomy (C. F. Koch and Eugene de Savitsch) ..	1254
Drip Feed for Divinyl Ether ..	1054
Empyema Cavities, Healing of (P. R. Allison) ..	252
Ethyl Chloride Anaesthetic Mask and Holder ..	733
Extension Apparatus, Simple ..	677
Foreign Bodies in Intestinal Tract ..	514
Fracture of Neck of Femur treated by Oblique Osteotomy (T. P. McMurray) ..	331
Furnival, Percy ..	1076
Gastroscopy, Position of Patient in (Mermon Taylor) ..	891
Heberden Society's Medal ..	1375
Hill, Surgeon Vice-Admiral Sir Robert ..	900
Keratoplasty (T. H. S. Tizzard) ..	1307
King, Sir Frederic Truby ..	421
Laurie Drip Bulb, Modified ..	1105
Lipoma simulating Goltre ..	207
Magnifier for Small Operations ..	339
Mattress and Blankets for Fowler's Position ..	1264
Mental and Emotional States, Physiology and Pathology of (F. A. Pickworth) ..	264
Nasal Sinusitis in Childhood (James Crooks) ..	915
Needle, Suture ..	247
Oedema, Instrument for Detection of ..	75
Ophthalmic Testing Unit, Portable ..	781
Otitis Externa, Treatment of (F. C. W. Capps) ..	954
Otitis Media, Treatment of (Mykes Formby) ..	1011, 1065
Pains, Lower Abdominal, of Cervical Origin (James Young) ..	167
Pains, Referred, arising from Muscle (J. H. Kelgren) ..	326
Pin, Swallowed, and Round-worm, (R. Walsh) ..	79
Plaster Forceps ..	1160
Plymouth and District ..	32, 618, 852
Polyp, Snare for removing ..	1167
Proctoscope for Injection of Haemorrhoids ..	899
Quinsy and Retropharyngeal Abscess (R. Scott Stevenson) ..	1323
Radiography, Rapid, for Smith-Petersen Operation ..	599
Saline Infusions (Hamilton Bailey) ..	291
Shipway Apparatus, Modified ..	1105
Simmons, Harold ..	596
Speculum, Induction ..	818
Split for Indwelling Catheters ..	741
Stanton, Sir Thomas ..	312
Strangulation, Internal, through Aperture in Mesentery (John A. Katy) ..	671
Telling, Walter Henry Maxwell ..	1074
Thyrototoxicosis, Clinical Problems of (Peter McEwan) ..	1019
Tonsillectomy (Lionel Colledge) ..	1275
Tumours, Hereditary Bone, in Mice (F. C. Pybus and E. W. Miller) ..	1301
Venepuncture, Easy Method of (Leon Feinson-Muldaun) ..	45
Westminster Hospital Medical School: New Building ..	1117

INDEX TO THE EPITOME FOR VOLUME I, 1938

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Eye, Ophthalmia, and Vision, etc.

The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A

AALFJØR, V.: Pseudo-uraemia of prostatic hypertrophy, 46.
Abortion, ophthalmic indications for, 326
— phlegmasia alba dolens following, 232
— treatment of, 57
ABUDEL, R.: Lipoid nephrosis in pregnancy, 304
Acetonuria and menstruation, 423
Actinomycosis, diagnosis and treatment of, 229
— of lungs, 412
— study of, 434
ADAMS, D.: Carcinoma of colon, 394
Addison's disease, atypical, 511
ADLER, E.: Meningo-encephalitic complications of tubercle, 24
ADLER-MÜNSCH, J.: Thyroid, pituitary, and ovary, 273
Adrenal deficiency, 284
Adrenaline inactivation, 285
ADRIAN, A.: Cerebellar manifestations in chronic alcoholism, 352
Agranulocytosis, constitutional factor in, 507
— due to protosil, 103
— due to pyrimidin, 330
— leukemic blood for, 49
— treatment of, 337
AGOSTINI, J. A.: Effect of thorotrast on liver and therapy, 291
AIDS, 19
— therapy of traumatic shock, 525
Alcoholism, chronic, cerebellar manifestations in, 352
ALEXANDER, O.: Fractures of carpal scaphoid, 201
Alexander-Adams operation, 77
Allergy, insulin, 420
Alopecia areata, Grenz rays for, 441
— traumatic marginal, 425
ALSTAD, S.: Regional jejunitis, 228
ALSTAD, G.: Protosil in pregnancy, 281
ALSTAD, G.: Detection of vitamin B₁₂ deficiency, 218
— Sex frequency of gastric ulcer, 312
ALT, L.: Transvenous and intravenous pyelography, 192
ALT, L.: Phthisis, 457
— in Helsingfors, 310
— treatment of, 204, 522
Anaemia of pregnancy, 366
Anaesthesia in cerebral surgery, 72
— closed circuit gas-oxygen, 74
— cyclopropane, 222
— divinyl ether, 527
— epidural, 361
— ether, respiratory failure during, 231
— evipan, 234
— evipan sodium, rectal, 530
— in obstetrics, 76
— local and intravenous, 73
— nitrous oxide, history of, 529
— nitrous oxide, new apparatus for administration of, 323
— pantocain spinal, 526
— peridural, 223
— prolonged, with intravenous eunarcin, 235
— Schrecher's spinal, 531
— spinal, in China, 362
— and intravenous, 73
— use of, 237
Anesthetics by rectum, 530
Analgesia, local, 445
— obstetrical, with rectilin, 364
— in obstetrics, 76
ANDERSEN, T. Thune: Aetiology of epidemic hepatitis, 81
ANDERSON, L. R.: Convalescent serum in scarlet fever, 530
— N. P.: Epulis granulomatosa, 278
ANDREI, G.: Allergic skin reactions in undulant fever, 216
Angina pectoris and coronary disease, 265
— trichlorethylene in, 339
ANVER, H.: Subtotal gastrectomy for duodenal ulcer, 435

ANSON, B. J.: Air cells of petrous bone, 318
Antuitrin S test for diagnosis of pregnancy, 405
Anus: treatment of anal fissure, 25
Aorta, experimental atherosclerosis of, 178
Apoplexy, hypertensive, causation of, 560
— utero-placental, 480
Appendectomy, Jayle's incision for, 269
Appendicitis, asymptomatic, 166
— haematuria in, 247
APPLEMAN: Filial keratitis, 153
Arachnoiditis, spinal, surgical treatment of, 350
— traumatic, 207
AREDEL, F.: Utero-placental apoplexy, 480
ARGANARAZ: Phakokerisis, 472
ARON, M.: Serological reaction in cancer, 241
Arteriography, cerebral, 188
Artery: early symptoms of arterial obliteration, 125
Arthritis and focal infections, 341
— gonococcal, synovial fluid in, 430
— gonorrheal, 10
— irradiation of sympathetic ganglia for, 343
Arthrogoniography, technique of, 498
ASCHENASY, A.: Latent benzolism, 547
Ascorbic acid and gelatin, 333
— synthetic, antiscorbutic limitations of, 79
ASK-UPHAME, E.: Gastric acidity in cancer of stomach, 164
Asphyxia, intra-uterine, treatment of, 502
ASTAROV, N.: Alcoholism, 19
Asthma, bronchial, treatment of, 110
— high altitude treatment of, 70
Atherosclerosis, experimental aortic, 178
ATKINSON, F. E. B.: Niemann-Pick's disease, 405
Atophan intoxication, fatal, 156
Auricle, left, visualization of, 342
AVELLONE, U.: Erysipelas in infancy, 407
Avitaminosis. See Vitamin deficiency
AYER, D.: Primary melanoma of leptomeninges, 205
AYRES, S.: Epulis granulomatosa, 278

B

Babies, over-weight, delivery of, 38
BACH, F.: Pyrosis, 510
Bacilli, anaerobic, effect of sulphamylamide on, 569
Bacillus, tuberculi, inhibitory action of iron on, 100
Bacillus friedländeri, causing pneumonia, 240
Bacteriemia, staphylococcal, 255
BAER, M.: Otitis media and vitamin C, 446
BAGNOLI, F.: Expiratory index in tuberculosis, 23
BAHLS, G.: Fate of bone tissue in bone grafts, 240
BAIR, W. A.: Adrenaline inactivation, 255
BAIRD, J. M.: Optic neuritis, 470
Bakers' eczema, 277
BASTAL, A. L.: Cod-liver oil for tuberculous pharyngitis, 490
BARDCHI, F.: X-ray treatment of leukaemia, 71
BARNES, R.: Vestibular dysfunction following excision of rectum, 165
BART, C.: Lipoid nephrosis in pregnancy, 304
BAUDACH, F.: Actinomycosis of lungs, 412
BAUDACH, E.: Agranulocytosis, 337
BAILEY, W.: Hyperinsulinism, 221
BEACH, E. W.: Divinyl ether anaesthesia, 527
— S. J.: Benzene in cycloplegia, 475
BEATTI, S. B.: Value of pitressin, 189
BECH-MORELLI, C.: Early diagnosis of pregnancy, 78
BECKMANN, P.: Errors of interpretation of sedimentation rates, 350
BÉCÉRE, C.: Sterility due to chronic genital infections, 327
BEDMAN, J. A. P.: Experimental aortic atherosclerosis, 178
BELLIS, A.: Total telerradiotherapy for blood diseases, 346
BELTRAMETTI, L.: Endocarditis lenta, 393
BENVENUTI, M. and A.: Tuberculosis and dementia praecox, 210
Benzedrine in cycloplegia, 475
— properties of, 145, 149
Benzolism, latent, investigation of, 547
Benzyl benzoate treatment of scabies, 129
BERGER, J.: Respiratory failure during ether anaesthesia, 231—Staphylococcal septicaemia, 250
BERNARD, J.: Kymographic study of Kienbock's phenomenon, 187
— nictitric, 94
— 131

BETLACH, C. J.: Intravenous morphine, 236
BIETTI, G.: Retinitis punctata albescens, 409
BINGER, A. E. H.: Pemphigus, 371
BISCH, E.: Reinfection with syphilis, 219
BLACKMAN, H.: Vasomotor rhinitis, 250
BLACHE, L.: Thrombopenia, 452
BLICE, R. A.: *Brucella melitensis* meningitis, 403
BLACKBERRY, P. E.: Meningococcal meningitis, 413
Bladder, dysfunction of following excision of rectum, 165
BLINDEL, P. C.: Anal fissure, 85
BLISS, F. G.: Sulphanilamide in streptococcal infections, 466
BLEGGAD, N. R.: Laryngeal tuberculosis, 173
Blood diseases, total telerradiotherapy for, 346
— leukaemic, for arrhythmocytosis, 49
— pressure in diptheria, 42
— high, basal metabolism in, 456
— and heart failure, 543
— study of, 161
— sedimentation rate, influence of gold therapy on, 391
— rates, errors of interpretation of, 350
— transfusion, bleeding and, for intestinal infections, 297
BLOOMBERG, E.: Rickets resistant to vitamin D therapy, 261
BIOTTA, F.: Local vaccine treatment of nasal suppuration, 113
BIRNELL, P.: General effects of x-ray therapy, 344
BOESOV, I.: Alcoholism, 19
BÖCK, J.: Treatment of squint, 476
BÖCKMANN, O.: Prolonged anaesthesia with intravenous eunarcin, 235
BONACCOESI, A.: Benign tumours of knee, 464
BONARREDO, N.: Copper in pulmonary tuberculosis, 315
Bone grafts, fate of bone tissue in, 240
Bone-marrow in pregnancy, 97
— in pulmonary tuberculosis, 369
— petrous, air cells in, 318
BOFFE, M.: Treatment of delayed union of fractures and non-union, 205
BORK
BORE
acuity, 444
— W. E.: Dinitrophenol cataract, 302
BOERTINI, E.: Hysterosalpinzography in ectopic pregnancy, 175
BOITNE, W.: Analgesia and anaesthesia in obstetrics, 76
BRAIN, R. T.: Virus diseases in dermatology, 279
BRANHAM, S. E.: Cerebrospinal fever in U.S.A., 64
BRAUN, H.: Tension of fontanelles, 239
Bread, vitamin B in, 242
Breast, sarcoma of, 66
— tuberculous of, 373
BROCKHUIS, A.: Succinic acid in diabetic acidosis, 378
Bronchiectasis, lobectomy for, 144
Bronchitis, *Haemophilus influenzae* and, 307
Bronchopneumonia in infancy, 257
— neonatorum, for, 440
BROWNING, W. H.: Bronchial asthma, 110
Brucella abortus infection, 111
BRUNER, K.: Malarial treatment of gonorrhoea, 295
BRUNER, C.: Thoracoplasty, 439
BRUNER, H.: Phlegmonous encephalitis, 559
BUC, F.: Allergic skin reactions in undulant fever, 216
Bucher's disease, hyperadrenism and, 351
BUTLER, K.: Pneumothorax in bullous emphysema, 546
BUTLER, J.: Pneumothorax in bullous emphysema, 546
BUTLER, K.: Rickets resistant to vitamin D therapy, 261

C

Caesarean section for extensive venous thrombosis
CAIZONE, G.: Ascorbic acid and gelatin, 333
CALUS, W.: Intradermal test for trichinosis, 567
CANNOPETROS, J.: Infantile erythroblastic anaemia, 404

- GENSTER, V. A. Hepatic function in skin diseases, 250
GONORRHOEA, M. D.: Basal metabolism in hyperplasia, 486
GERMAR, W. D.: X-ray sickness, 52
GIBERT, P.: X-ray therapy of enlarged tonsils and adenoids, 345
Gierke's disease, case of, 253
GILLESPIE, James B.: Periodic paralysis, 112
GILES, H.: Reconstruction of external ear, 183
GILLES, L.: Local vitamin A for radiodermatitis, 523
Gland, Bartholin's, epithelioma of, 303
Glands, abdominal lymphatic, tuberculosis of, 184
— sebaceous, activity of, 276
Glaucoma, infantile, 151
GLOCKER, J.: Diphtheria carriers, 147
Gold therapy, intrapleural, in phthisis, 487
— treatment and blood sedimentation, 391
GOLDEN, R.: X-ray therapy of rheumatic heart disease, 193
GOLDSCHMIDT: Obstetrical analgesia with rectidin 364
GOLDSTEIN, A. E.: Gangrene of scrotum, 68
GOLZ: Schistosoma, 133
GONPERT, J. L.: Agranulocytosis due to protozoil, 103
Gonococcal infections, fever therapy in, 277
Gonorrhoea, chemotherapy of, 463
— female, treatment of, 146
— malarial treatment of, 296
— and menstruation, 18
— non-specific treatment of, 145
GOODHART, R.: Vitamin B for alcoholic polyneuritis, 554
GORDING, R.: Focal infections and arthritis, 541
GORTLITZER, V.: Manganese chloride in tuberculous meningitis, 556
GOTTLEIN, C.: Regional jejunitis, 228
GOTTSON, H.: Dermatitis atrophicans lipoides diabetica, 426
GOVAERTS, P.: Avitaminosis B, in alcoholic polyneuritis, 512
GOZANO, M.: Neuromyelitis optica, 212
GRAFFAGNINO, P.: Epidural anaesthesia, 261
Grafts, rubber, activity of, 48
GRAM, H. C.: Mandelic acid in urinary infections, 419
GRANT, F. C.: Trigeminal neuralgia, 292
Graves's disease, carbon dioxide baths in, 251
GREENE, H.: Urethral prolapse, 427
Grenz rays for alopecia areata, 441
GRIFITHS, W. J.: Insulin resistance, 353
GROEN, J.: Agranulocytosis due to protozoil, 103
GROSSMAN, H. P.: Disciform degeneration of macula, 155
GRÜS, A.: Agranulocytosis due to pyrimidin, 330
GULDBERG, G.: Alcohol determination at necropsy, 431
GRUS, P.: Oesophageal perforations, 320
GUREVITCH, E. B.: Diagnosis and treatment of stryngomyelia, 56
- H**
- HAAGEN, E.: Pelittacosis, 506
HAAS, A.: Perthe's disease and osteochondritis dissecans, 293
HABERKORN, R.: Pneumonia, 83
Haematemesis and melena, 28
— of splenic origin, 334
— of, 492
— of, 494
— of, 496
HAEKEL, P. O.: Sulphanilamide in streptococcal infections, 466
HAEGEN, E.: Biological assay of liver extracts, 123
HALDHO, H.: Nitrous oxide, 523
HALLANDER, H.: Leucocyte count in pleurisy of artificial pneumothorax, 265
HALLEN, L.: Encephalomyelitis following rubella, 246
— L. G.: Epidemic of trichinosis, 538
HALPERN, K. C.: Diphtheria immunization, 2
HAMADA, H.: Peranal antidiabetic immunization, 177
HAMBUROER, F.: Misconceptions of hilar tubercles, 423
HANSEN, B.: Vitamin C content of milk, 40
HANSEN, P.: Urticaria from inhalation of milk protein, 503
— S.: Injection treatment of varicose ulcers, 45
HARRITZ, F.: Cancer of lungs, 122—Hodgkin's disease, 181
— E. I.: Thrombosis and embolism after herniotomy, 556
HARDY, M.: Effect of tympanic lesions on hearing acuity, 444
HARFORD, C. G.: Intracranial inclusion bodies, 21
HARVEY, A. McC.: Paroxysmal tachycardia, 220
HAY, J.: Anterior poliomyelitis, 63
HAY, E.: Delivery of over-weight babies, 33
HAZARD, R.: Acute aniline poisoning, 514
Head injuries and sexual activity, 206
Heartbeat acuity, effect of tympanic lesions on, 444
— electrochemical theory of, 169
Hemorrhages in acute haemorrhagic nephritis, 402
— damage after diphtheria and rheumatism, 456
— disease, rheumatic, x-ray treatment of, 193
— failure and hyperplasia, 543
- Heartburn, aetiology and treatment of, 510
HECKER, N. J.: Cryptorchidism and hypogonitalism, 376
HEIDMAN, F. R.: Chol and influenza vaccines, 411
HEIMMEYER, L.: Pernicious anaemia, 522
HEIMANN, Franz: Vitamin C in childhood, 399
HELLER, F. F.: Lipstick dermatitis, 131
HELMOLD, J. P.: Tuberculosis in medical students, 332
Hemeralopia and gastric ulcer, 434
Hemiplegia, radiotherapy of, 329
HENRIET, J.: Novocain infiltration of pelvic sympathetic, 565
Hepatitis, chronic, in young persons, 267
— epidemic, aetiology of, 51
— of, 51
— of, 51
Herniotomy, thrombosis and embolism, 550
HERTZBERG, G.: Diabetes mellitus and tuberculosis, 414
HERZOG, A.: Transvesical and intravenous pyelography, 192
HEYERHILF, S. A.: Treatment of cancer, 497
HILL, M.: Vesical dysfunction following excision of rectum, 165
HINTS, E. A.: Hereditary factor in essential hypertension, 82
Histidine and oxygen consumption, 139
HOEDEKE-JOERGENSEN: Glandulo-cystic hyperplasia, 357
HO, WAYNE Y. H.: Loss of taste after mastoidectomy, 32
Hodgkin's disease, in Norway, 181
HOTTKANS: Follicular hormone in urinary incontinence, 16
HOFFMANN-WULFING, H.: Antirachitic action of irradiated yeast, 115
HOLM, J.: Tuberculosis in medical students, 332
HOLMGREN, I.: Angina pectoris and coronary disease, 263
HOLST, J.: Lobectomy for bronchiectasis, 144
HOLTZ, P.: Treatment of abortion, 57
Hormone, follicular, in urinary incontinence, 16
— therapy in urinary diseases, 9
— in cryptorchidism, 109
Hormones, oestrogenic in atrophic thinitis, 442
— in, 442
— of elbow-joint, 461
— of, 461
HOWAT, R. K.: Perinatal cross-section, 194
HOWARD, J. C.: Biological measurement of x-rays, 495
Hydatid disease, diagnosis of, 269
Hydrocephalus, thrombophlebitis causant, 207
HYLAND, C. R.: Convalescent serum in scarlet fever, 260
Hyperadrenalism and Buerger's disease, 331
Hyperemesis gravidarum, 447—Liver therapy in, 449
— and Vitamin C, 324
Hyperplasia. See Blood pressure, high
Hyperplasia, endometrial, curettage for, 58
— experimental, of endometrium, 193
— glandulo-cystic, treatment of, 337
— of, 337
— of, 491
Hysterectomy and preservation of ovaries, 137
Hysteropexy for genital prolapse, 69
Hysterosalpingography in ectopic pregnancy, 175
- I**
- IANADA, R.: Encephalitis epidemics in Japan, 323
Iritis, regional, 47
Ishida, G.: Constitutional factor in agranulocytosis, 507
Immunization, peranal diphtheritic, 177
Inclusion bodies, intranuclear, 21
Insulin allergy, 420
— hyperinsulinism, 221
— resistance, 353
— shock treatment, 497
— treatment, 497
Intestinal infection, 497
— obstruction due to gall-stones, 463
Intestine, small, malignant tumours of, 551
— of, 551
— of, 551
Intercalated, 100
Ishida, G.: Constitutional factor in agranulocytosis, 507
Islet, 499
- ISBUTCH, F.: Caesarean section for extensive venous thrombosis, 21
ISELIN, H.: Acetonuria and menstruation, 425
IAR, G.: Ascorbic acid and gelatin, 233
- J**
- JABLONSKI, K.: Cystographic diagnosis of placenta praevia, 482
JACHA, A.: Blocking recurrent laryngeal nerve, 29
JACOBY, P.: Blood clots in cancer of uterus, 563
JACOTIDES: Menopausal eye lesions, 201
JAFFE, B. M.: Gangrene of scrotum, 68
JAKMAN, E.: Spinal and intravenous anaesthesia, 73
Jaundice, toxic, following Pentothal, 260
- Jejunitis, regional, case of, 228
JEQUIER, R.: Acute aniline poisoning, 514
JERVIS, G. A.: Excretion of phenylpyruvic acid, 91
JOCHIMS, J.: Fresh-air treatment of pneumonia, 27
Joint injuries, infiltration treatment of, 571
JOHNS, N.: Vitamin B for alcoholic polyneuritis, 554
JOES, M. E.: Effect of thorotrast on liver and spleen, 51
JULIUS, W.: Hormonal regulation of red blood cells, 60
- K**
- KARLSENBERG, G.: Peritonitis and post-partum menstruation, 264
KAPLAN, I. I.: X-ray treatment of sterility, 153
KAPIS: Fractures of neck of femur, 291
KARE, J. W.: Pneumococcal and pulmonary tuberculosis, 436
KASAKOV, M. M.: Pseudithrosis of shoulder, 58
KATZ-GALATZ, T.: Danger of urethral instillations of oil, 69
KAYE, G.: Anaesthesia in cerebral surgery, 72
KEEFE, C. S.: Synovial fluid in gonococcal arthritis, 439
KEHRE, E.: Hyperemesis gravidarum, 447—Tetany and osteomalacia, 534
KEISTERT, U.: Epidemic of streptococcal infections, 545
KEMEN, A.: X-ray treatment of rheumatic diseases, 155
Keratitis, flarial, 153
— herpetic, vitamin B, in, 316
KRAHL, A. M.: Salmonella infection of wild rats, 320
Kidney, function of after trauma, 395
— squamous-celled carcinoma of pelvis of, 256
KIELBOEK, E.: Dosage of vitamin D, 329
Kienbock's phenomenon, kynocarpic study of, 187
KILLIAN, H.: Cyclopropane anaesthesia, 232
KISCH, F.: Intermittent claudication, 455
KISS, P. V.: Blood pressure in diphtheria, 42
KLAE, E.: Pernicious anaemia, 542
KLIPPEL-FEIL syndrome, cases of, 495
KNAPPER, N.: Fatal atophan intoxication, 156
— Knee, benign tumours of, 464
— tuberculosis of, 299
Knee-joint injuries and arthroplasty, 498
KNIP, J.: X-ray therapy of prostatic hypertrophy, 535
KNOTT, W.: Prevention of post-operative thrombosis, 519
KOCH, F.: Gas gangrene, 517
KOLB, O.: Age and fertility, 566
KOSTKE, K. H.: Curettage for endometrial hyperplasia, 58
KOTIKOV, H. U.: Treatment of rickets, 274
KRAS, E.: Peridural anaesthesia, 233
Kraurosis of vaginal cul-de-sac, 176
— vulvae, follicular hormone in, 195
KREIS, J.: Surgical treatment of acute mastitis, 336
KUCHMAN, K.: Cyclopropane anaesthesia, 232
KULENKAMPF, E.: Thrombectomy, 549
KUNZ, J.: Prostatic pelvic osteomyelitis, 455
KUTNER, E.: Electrochemical theory of hearing, 169
KVLIN, E.: Pituitary implantation, 46
Kytography: study of Kienbock's phenomenon, 187
- L**
- LABBY, D. H.: Experimental aortic atherosclerosis, 178
LABRIEDT, M. A.: Kraurosis of vaginal cul-de-sac, 176
Labour in elderly multiparae, 136
Lactation, reticulocyte count during, 197
— calpain and, 438
LANARI, E. L.: Effect of thorotrast on liver and spleen, 51
LANG, M.: Late effects of infantile rickets, 286
LANZA, G.: Bone marrow in pulmonary tuberculosis, 269
Larynx, abscess of, 321
— subglottic, case of, 170
— tuberculosis of, 173
LAST, E.: Grenz rays for alopecia areata, 441
LA

- CANANAS, A.: Malaria in Italian East Africa, 142
 Cancer of ampulla of Vater, 202
 — of cervix, radium treatment of, 305, 363
 — of colon, 301
 — gastric, early diagnosis of, 458
 — genito-urinary, treatment of, 341
 — laryngeal, x-ray treatment of, 31
 — of lung, 6, 122
 — of male urethra, 457
 — and neuralgia, 26
 — non-specificity of "anti-cancer serum," 568
 — of penis, 357
 — primary liver, in liver fluke disease, 435
 — pulmonary, and pneumoconiosis, 536
 — serological reaction in, 241
 — of small intestine, 551
 — squamous-celled, of renal pelvis, 356
 — stomach, gastric acidity in, 164
 — and peptic ulcer, 416
 — subglottic, of larynx, 170
 — of tongue, lip, and cheek, 223
 — treatment of, 497
 — of uterus, blood changes in, 563, 564
 — See also Sarcoma
 Carbohydrate metabolism, light therapy and, 317
 Carbon dioxide baths in Graves's disease, 251
 Carcinoma. See Cancer
 Cardiospasm, and "cardiodilator," 524
 Cardiovascular disease and gas masks, 22
 Carlinona, V.: High altitude treatment of asthma, 70
 Cartilage, articular, atrophy of during immobilization, 270
 — systemic affections of, 308
 CASS, E. L.: Divergent strabismus, 15
 CASTELLANOS, A.: Treatment of threadworms, 89—
 Intestinal infections, 397
 Cataract, black, 300
 — diatrophophol, 302
 — and vitamin C, 152
 CATHALA, J.: Acute aniline poisoning, 514
 CATHILL, F. W.: Meningococcal meningitis, 413
 CERVIX, radium treatment for cancer of, 305, 365
 CHAB, C. Y.: Traumatic stricture of urethra, 87
 CHARAKIS, J. C.: Myelography, 474
 CHARONNIER, A.: Jayle's incision for appendiceotomy, 269
 CHASE, W. H.: Hypertensive apoplexy, 560
 CHATON, M.: Epithelioma of Bartholin's gland, 303
 Chemotherapy, complications of, 294, 295
 — of normal skin, 505
 CHESSE, J.: Pneumonia due to *B. friedländeri*, 243
 CHICK, H.: Nicotinic acid in dietary deficiency, 388
 Children's diseases, hormone therapy in, 9
 CHIORAZZO, G.: Haematocytosis of splenic origin, 334
 CHIRKIS, V. K.: Retinitis of pregnancy, 154
 CHRISTENSEN, A. Mörch: Myelitis following rheumatic fever, 513
 CHRISTINI, E.: Nailing limb fractures, 518
 CHRYSTAL, L.: Paraffinoplasty and paraffinomata, 85
 Circulatory disease, skin lesions due to, 128
 CLAOUÉ, C.: Paraffinoplasty and paraffinomata, 85
 CLARK, G. N.: Tuberculosis of abdominal lymphatic glands, 184
 Claudication, intermittent, work-test in, 455
 CLAY, G. E.: Optic neuritis, 470
 Cod-liver oil for tuberculous pharyngitis, 490
 COHEN, M.: Safe period, 481
 — M. E.: Rate of blood flow in schizophrasia, 354
 COLCHER, A. E.: Relief of gastric mucosa, 190
 COLLETT, S.: Recent pulmonary cavitation treated conservatively, 217
 Colitis, chronic non-specific ulcerative, 41
 COLLINS, W. S.: Peripheral vascular disease, 373
 COLLINS, D. G.: Haematuria in appendicitis, 247
 COLLIER, J. D.: Oestrogenic hormones in atrophic rhinitis, 442
 Colon, carcinoma of, 304
 COLT, G. H.: Tuberculosis of abdominal lymphatic glands, 184
 Complement-fixation reaction in tuberculous monkeys, 20
 COSMOZIER, M.: Tumour-like shadows in silicosis, 55
 — M.: Dupuytren's contracture, 314
 — of ampulla of Vater, 202
 — treatment of, 516
 COSSAR, B.: Multiple eucaudromatoma, 450
 COSTET, T.: Closed circuit gas-oxygen anaesthesia, 74
 COTTE, G.: Cotte's operation, 401
 COURTOIS, C.: Vesical dysfunction following excision of rectum, 165
 COUTARD, H.: X-ray therapy of laryngeal carcinoma, 31
 CROCE, G.: Oesophagus, 293
 CROHN, B. D.: Respiratory infections and gastric ulcer, 354
 Cryptorchidism: Hormone therapy of, 100—And hypogonadism, 378
 CURSCHMANN, H.: *Brucella abortus* infection, 111
 Cycloplegia, benzidine in, 476
 D
 DAEIS, F.: Intra-abdominal radium for cancer of cervix, 365
 DAGGS, R. G.: Sulphur and lactation, 483
 DAHL, B.: Berner's haemorrhages into fourth ventricle, 94
 DAHL-IVERSEN, E.: Glandulo-cystic hyperplasia, 357
 DAHLHEIM, L. G.: Hyperemesis and vitamin C, 324
 D'AMBROSIO, R.: Bronchio-pulmonary radiating shadows, 347
 DANIEL, C.: Post-inflammatory tubal patency, 503
 DARRACH, W.: Subdeltoid bursitis, 396
 DAVIDSON, A.: *Brucella abortus* infection, 461
 DAVIES, H.: Tuberculosis on tubercle bacilli, 100
 DE AZCUEAGA, S.: Arthropneumography, 498
 DE BAKKE, M.: Surgical treatment of coronary disease, 516
 DEGLMANN, T.: Leukaemic blood for agranulocytosis, 49
 DELAHAYE, G.: Respiratory failure during ether anaesthesia, 231
 DELHEIM, L.: Irradiation of pituitary, 54
 DELILLE, P. A.: Hypovitaminosis C in tuberculosis, 429
 Delirium tremens, treatment of, 557
 Dementia praecox. See Schizophrenia
 DEMIREAU, J.: Closed circuit gas-oxygen anaesthesia, 74
 Dermatitis, actinic, porphyria and, 422
 — atrophic, lipodermatitis, 426
 — lipstick, 2 cases of, 131
 — vitamin A for radiodermatitis, 523
 Dermatology, virus diseases in, 279
 — See also Skin
 DESAUX, A.: Activity of sebaceous glands, 276
 D'ESQUERES, J. R.: Constitutional factor in agranulocytosis, 507
 DE SOUZA, T.: Uterine sarcoma, 238
 DE TAKATS, GÉZA: Sympathectomy, 417
 DE VRIES, S. I.: Agranulocytosis due to prontosil, 103
 DE WESSELOW, O. L. V.: Insulin resistance, 353
 Diabetes, juvenile, protamine insulin treatment of, 256
 — liver diet in, 245
 — mellitus and tuberculosis, 414
 — succinic acid in diabetic acidosis, 378
 Diathermy and short-wave therapy, 272
 DICKIE, L. E. N.: Cryptorchidism and hypogonadism, 376
 Dietary deficiency, 388
 DI NEPI, A.: 132
 DIXON, R.: 559
 — administration of, 545
 — 177
 — blood pressure in, 42
 — carriers, 147
 — heart damage after, 466
 — immunization, 2
 — infectious mononucleosis and, 199
 DI PRAMPERO, A.: Monteggia's lesion, 224
 Diverticula, urethral, 107
 DI VITO, L.: Phrenic evulsion, 116
 DIXON, R. W.: Sphenoidal sinus, 30
 DOBERER, J.: Cardiospasm, 524
 DOMINICH, H.: Renal function after trauma, 395
 DONAHUE, L. D.: Sarcoma of prostate, 483
 DÖRNER, J. R.: Treatment of intra-uterine asphyxia, 502
 DO VALLE, J. R.: Hormonal control of vas deferens and vesiculae, 451
 DRAZANGIC, P.: Haemorrhage in extra-uterine pregnancy, 439
 — 359
 — 154
 DUREM: Irradiation of sympathetic ganglia for arthritis, 343
 Dupuytren's contracture, 314
 DURYEE, A. W.: Scleroderma, 134
 DUZINGS, A. J. M.: Tubal pregnancy, 196
 E
 Ear: analysis of 73 cases of aural vertigo, 443
 — analysis of lesions on hearing acuity, 444
 — of, 183
 EBERHARD, B.: Neosalvarsan for bronchopneumonia, 440
 Eclampsia, incidence of, 349
 Eczema, bakers', 277
 Eczemas, distinction between, 423
 EGE, R.: Biological assay of liver extracts, 138
 Elbow-joint, resection of, 461
 ELDAN, A.: Sulphanilamide treatment of meningococcal infection, 229
 — caring, 169
 — limitations of synthetic ascorbic acid, 79
 Embolism, pulmonary, deaths from, 106
 — and thrombosis, 288, 550
 — Obstetrical analgesia with rectidon, 364
 EMBERT: Obstetrical analgesia in Japan, 323
 — 559
 — uterine haematoma, 492
 — tubercle, 246
 — two cases of, 459
 — Str. viridans, 393
 Endometriosis, 479
 Endometrium, connective tissue, 479
 — experimental hyperplasia of, 193
 — plastic replacement of, 118
 ENRIQUE, R.: Thoracoplasty, 439
 Enuretic, intravenous, prolonged anaesthesia with, 235
 Exocranial complications of petrous suppuration, 31
 Expiratory index in tuberculosis, 23
 Eye, foreign bodies in, 477
 — lesions, menopause, 301
 — optic neuritis, 470
 F
 FALKENFLETH, G.: Tuberculosis and pregnancy, 17
 Fallopian tubes: post-inflammatory tubal patency, 503
 FAVORY, A.: Ophthalmic indications for abortion, 326
 FERR, A.: Fracture of base of skull, 7
 FELDWEGER, P.: Local and intravenous anaesthesia, 74
 Femur, fractures of neck of, 291
 FERRARA, M.: Bronchio-pulmonary radiating shadows, 347
 Fertility and age, 566
 FLETCHER, F.: Fever therapy in gonococcal infections, 377
 — treatment of, in U.S.A., 64
 — 513
 — scarlet, convalescent serum in, 259, 269
 — therapy in gonococcal infections, 377
 — typhus, vaccination against, 389, 410
 — undulant, allergic skin reactions in, 216
 — nervous complications of, 289
 — with tetrad vaccine in, 126
 FINALY, R.: Sebaceous gland infection, 531
 FINESINGER, L. E.: Rate of blood flow in schizophrenia, 384
 FISCHGOLD, H.: Irradiation of pituitary, 54
 Fissure, anal, treatment of, 86
 Fistula, bronchogenic, 501
 Fluid, cerebrospinal, sugar in, 501
 FÖRDER, V.: Anaemia of pregnancy, 366
 FÖRDER, J.: Congenital torticollis, 188
 FOMIN, G. B.: Diagnosis and treatment of syphilis, 56
 Fontanelles, tension of, 239
 Forceps, scalp, 59
 Foreign bodies, intraocular, 477
 FORSMAN, J.: Non-specific treatment of gonorrhoea, 145
 FORT, A.: Hormone therapy of cryptorchidism, 109
 FOSSEL, M.: Haematogenous ovarian infection, 511
 FORD, G. S.: Carcinoma of penis, 357
 FOX, M.: Convalescent serum in scarlet fever, 259
 Fracture of base of skull, 7
 Fractures of carpal scaphoid, 201
 — conservative treatment of, 227
 — of long bones, treatment of, 159
 — n

- Phlegmasia alba dolens after abortion, 282
Phrenectomy in pulmonary tuberculosis, 116
Pneumonia interpleural gold therapy in, 487
PIAGGIO-BLANCO, R. A.: Diagnosis of hydatid disease, 309
PIASCOKA-ZEYLAND, E.: Tuberculosis of bovine origin in Poland, 159
PIKEP, P.: Delirium tremens, 557
PISCUSSES, L.: Light therapy and carbohydrate metabolism, 317
PIVELLI, L.: Liver diet in diabetes, 245
Pituitary implantation, 46
— irradiation of, 53, 54
Placenta praevia, cystographic diagnosis of, 482
Placental extract in measles prophylaxis, 416
PLATZ, J.: Vaginal stenosis, 345
Plasma exudate following artificial pneumothorax, 170
Pleurisy, pleural effusion after, 370
PLIMMER, R. H. A.: Comparison of human and cow's milk, 283
Pneumococcal and gastritis, 392
— and pulmonary carcinoma, 536
Pneumonia due to *B. Friedländeri*, 243
— fresh-air treatment of, 27
— lobar, prognosis of, 104
— serum treatment of, 358
— treatment of, 83
— z-ray treatment of, 521
Pneumonia, 44—And varicella, 406
Polycystic ovaria vera treated with acetylphenylhydrazine, 338
Polyneuritis, alcoholic, avitaminosis B₁ in, 512
— vitamin B for, 554
Poradenitis, venerea, 102
Porphyrin and actinic dermatitis, 422
PORTO, L.: Hormonal control of vas deferens and vesiculae, 451
POSTMA, C.: Bakers' eczema, 277
PORTUGUES, E.: Evipan anaesthesia, 234
POWELL, E. V.: X-ray treatment of lobar pneumonia, 521
PRANKES, J. R.: Bakers' eczema, 277
PRANGES, A. De H.: Problems of refraction, 13
Pregnancy, anaemias of, 366
— antuitrin S test for diagnosis of, 403
— bone-marrow in, 97
— cervical, 99
— after Cotte's operation, 119
— early diagnosis of, 78
— ectopic, hysterosalpingography in, 175
— extra-uterine, haemorrhage in, 336
— lipid nephrosis in, 304
— pneumothorax in, 409
— prouton in, 231
— retinitis of, 184
— tubal, observations on, 196
— and tuberculosis, 17
Pronosis, acranolysis due to, 103
— in pregnancy, 231
— See also Sulphanilamide
Prostate, enlarged, pseudo-uremia of, 463
— z-ray therapy of, 552
— hypertrophy of, 313
— post-operative changes, 182
— sarcoma of, 488
Pruritis vulvae, aetiology and treatment of, 156
— alcohol injections for, 450
Pseudarthrosis, two kinds of, 124
Pseudarthrosis of shoulder, 8
— treatment of, 226
Psittacosis, laboratory examinations for, 506
Psoriasis, treatment of, 297
PUGLIATI, V.: Blood vessels in senile uterus, 325
PUGLIATI, V.: Menstruation and gonorrhoea, 15
Pyelography, transvesical and intravenous, 192
Pyrosis, aetiology and treatment of, 510
RADEFMARLE, G. G. J.: Traumatic arachnoiditis, 207
Radiography, profile, of shoulder-joint, 500
Radium, intra-abdominal, for cancer of cervix, 365
— therapy of bovine skin in, 159
Ra
— 4
RADLO, P.: Vaccination against typhus fever, 410
RAFFAEL, G.: Malaria in Italian East Africa, 142
RAPIN, M.: Nitrous oxide, 523
RAPPORT, M.: Cardiac changes in nephritis, 402
RAVAGIONI, F.: Oophorax, 203
RAVARD, R.: Constitutional factor in acranolysis, 7
Rectum, for obstetrical analgesia, 264
Rectum, vesical dysfunction following excision of, 165
REH, M.: Gestation after Cotte's operation, 119
REH, M.: Problems in, 13
REH, M.: Follicular hormone treatment of, 213
REID, W. C.: Family history of tuberculosis, 453
REINHART, W.: Active diphtheria immunization, 543
REINWEIN, H.: A typical Addison's disease, 511
REIN, O.: Thoracoplasty, 439
RESNITZKY, E.: Carbon dioxide baths in Graves's disease, 231
Respiratory infections and gastric ulcer, 354
Reticuloocyte count in lactating mothers, 197
Retinitis, anaplastic, pathogenesis of, 123
— of pregnancy, 15
— punctata abscesses, 469
Rheumatic diseases, z-ray treatment of, 185, 193
Rheumatism, heart damage after, 456
Rhinitis, atrophic, oestrogenic hormones in, 442
— vasomotor, treatment of, 520
RIBE, J.: Pelvic neuralgia, 425
RIBERO, R.: Traumatic marginal alopecia, 425
RICHARD, G.: Complications of chemotherapy, 295
RICHARDS, G. E.: Giant-cell tumours of spine, 375
RICKETS, increase in, 262
— infantile, late effects of, 256
— resistant to vitamin D therapy, 261
— treatment of, 274
RIGLER, R.: Adrenal deficiency, 284
RIVORE, J.: Urethral diverticula, 107
ROBERTSON, J. B.: Mineral residues in silicotic lungs, 160
RODERT, M.: Sterility, 532
ROHE, F.: Measles prophylaxis with placental extract, 418
ROMIGER, E.: Increase in rickets, 262
ROSENOW, E. C.: Cold and influenza vaccines, 411
ROSENTHAL, S. K.: Electrical reactions of skin, 275
RÖSSE, L.: Familial syphilis and tuberculosis, 244
ROUVEILLE, H.: Atrophy of articular cartilage during immobilization, 270
ROUSSEAU, H.: Dosage of vitamin D, 539
Rubella, meningo-encephalitic complications of, 24
RUBIN, M. I.: Cardiac changes in nephritis, 402
RUBINO, A.: Hernia of nucleus pulposus, 48
RÜHL, A.: Heart failure and hyperpnea, 543
RUSSO, F.: Bone-marrow in pregnancy, 97
RYSBERG, E.: Nitrous oxide, 523
RYLANDER, H.: Insulin shock treatment of schizophrenia, 333
S
SAILER, S.: Sarcoma of breast, 65
SALMONELLA infection of wild rats, 329
SALTMAN, F.: Pernicious anaemia, 310
SANSBY, J. Martin: Milk bottles, 390
SAPHIRSTEIN, H.: Complications of chemotherapy, 294
Sarcoma of breast, 65
— of prostate, 453
— uterine, 225
SCHALETZBRAND, G.: Multiple sclerosis, 558
SCHEHL, E.: Sculp forcers, 59
SCHNEIDER, A.: Daily vitamins, 257
Schizophrenia, cerebral lipid reactions in, 121
— insulin shock treatment of, 325, 353
— rate of blood flow in, 334
— and tuberculosis, 170
SCHLOSSBERGER, H.: Poradenitis venerea, 102
SCHMIDT, J.: Nephrolithiasis, 248
SCHMIDT, V.: Mononucleosis infectiosa and meningo-encephalitis, 540
SCHMIDT, E.: Lupus erythematosus, 50
SCHINABEL, T. G.: Fever therapy in gonococcal infections, 377
SCHNEIDER, E.: Bilateral stellate ganglionectomy, 460
SCHNITZER, M. T.: Primary melanoma of leptomeninges, 203
SCHOLTZ, H. G.: Diathermy and short-wave therapy, 272
SCHUBERT, H.: Auricular thrombosis in mitral stenosis, 101
SCHUCHTER, M.: Vitamin B in bread, 242
SCHREIBER, H. T.: Lupus erythematosus, 50
SCHROEDER, F.: Prolonged anaesthesia with intra-venous eunarcin, 235
SCHTUMPER, W.: *Leptospira canicola*, 485
SCHTROEM, A.: Cervical pregnancy, 66
Scleroderma, investigation and treatment of, 132, 134
Sclerosis, disseminated, treatment of, 381
— multiple, causation of, 558
Scurvy, cancer of, 63
Schreib's spiral anaesthesia, 531
Sedator: apparatus for administration of nitrous oxide, 52
SEGE, R.: Blocking recurrent laryngeal nerve, 29
Septicæmia, staphylococcal, following whitlow, 250
SELLENG, E.: Orthopaedic principles, 459
SELZMAN, E.: Alcohol test of a hepatic function, 365
Sexual activities, head injuries and, 296
SHAEMLAN, A.: Antuitrin S test, 405
SHELLEY, H. J.: Asymptomatic appendicitis, 166
SHIRAIISHI, S.: Reticuloocyte count in lactating mothers, 197
SHKOLNIK, P. B.: Diagnosis and treatment of strychnine, 56
Shock, traumatic, alcohol therapy for, 525
SHOJI, Y.: Black catarrh, 399
Shoulder, pseudarthrosis of, 8
Shoulder-joint, profile radiography of, 500
SHWARTZMAN, G.: Respiratory infections and gastric ulcer, 354
SIEGERT, F.: Squamous epithelium in corpus uteri, 263
SIEGL, J.: Aseptic meningitis and anterior poliomyelitis, 44
— Bronchopneumonia in infancy, 257
SIMPSON, H. W.: Treatment of psoriasis, 297
Simodai for obstetrical analgesia, 364
Silicosis, tumour-like shadows in, 55
SILVA, L.: Cataract and vitamin C, 152
SILVERMAN, D.: Chemotropism of normal skin, 505
SIMON, F. W.: Mineral residues in silicotic lungs, 160
SINGLETON, A. C.: Giant-cell tumours of spine, 375
SINUS, carotid, syncope, 93
— cavernous, infections due to nasal furuncles, 105
— sphenoidal, anatomical study of, 30
Sinuses, carotid, irradiation of, 499
SKAJIA, K.: Radium treatment of cancer of cervix, 365
Skin conditions, benign, radium therapy of, 555
— diseases and liver, 250
— electrical reactions of, 275
— lesions due to circulatory disease, 123
— normal, chemotropism of, 505
— reactions, allergic, in undulant fever, 216
— See also Dermatitis
Skull, fracture of base of, 7
Sleep, alcoholic, 19
— physiology of, 211
SMITH A. H.: Vitamin A in ocular disturbances, 150
— K. E.: Polycythæmia vera, 333
SNELL, A. M.: Undulant fever, 126
SNEELMAN, A.: Surgery of tricephalic neuralgia, 561
Sodium thiosulphate, detoxicating action of, 127
SOEHR, E.: Direct therapy for spinal injuries, 335
SOHMER, H.: Local vitamin A for radiodermatitis, 523
SOHMER, G.: Pseudarthroses, 124
SOULIGNAC, Scleroderma, 123
SPINDLER, J.: Phlegmasia alba dolens after abortion, 282
Spine, direct extension for injuries to, 335
— giant-cell tumours of, 375
SPINK, W. W.: Synovial fluid in gonococcal arthritis, 430
SPITZ, M.: Branchiogenetic fistula, 249
Spleen and liver, interrelationship of, 61
Spondylitis, tuberculous, post-mortem changes in, 432
SPROOTT, J.: Blood changes in cancer of uterus, 563
SPRAY, R. S.: Sulphanilamide and pathogenic anaerobes, 569
Sprue, non-tropical, 1
STÄBLE, A.: Early diagnosis of pregnancy, 78
STÄHLER, H.: Leucorrhoea and vitamin deficiency, 117
STÄHLER, H.: Non-tropical sprue, 1
STEIN, F.: Safe period, 483
— R. O.: Grenz rays for alopecia areata, 441
STEINERT, R.: Essential hyperpnea, 161
STEINMANN, J.: Cavernous sinus infections due to nasal furuncles, 105
Stenosis, laryngeal, treatment of, 34
— mitral, aortic thrombosis in, 101
— pulmonary, 331
— pyloric, and chronic pancreatitis, 258
— vaginal, 248
Sterility due to chronic genital infections, 327
— due to occlusion of Fallopian tubes, 532
— follicular hormone treatment of, 213
— z-ray treatment of, 155
STERN, R. O.: Cerebral tumours, 114
— V.: Habitual hyperthermia, 515
STEVES, J. M. M.: Gold therapy and blood sedimentation, 391
STEVENS, B. W.: Carcinoma of penis, 357
STEVENSON, G. T.: Vitamin A assay, 537
STIEB, E.: Head injuries and sexual activities, 296
STOKES, W. H.: Intraocular foreign bodies, 477
Stomach, cancer of, gastric acidity in, 164
— and peptic ulcer, 415
— relief of gastric mucosa, 190
STROTE, E.: Transmissible myeloid leukaemia in mice, 215
Strabismus, divergent, 15
— treatment of, 476
STRACHAN, A. S.: Mineral residues in silicotic lungs, 160
STRANDBERG, O.: Lupus of nose and throat, 120
STRASSMANN, P.: Plastic replacement of endometrium, 116
Streptococcal infections, epidemic of, 548
Strophanthin therapy, 163
STRUMER, A.: Eczema, 423
STUX, Herbert: Anterior poliomyelitis and varicella, 406
Succinic acid in diastolic blood pressure, 299
Sulphanilamide in cerebrospinal fever, 395
— and pathogenic anaerobes, 569
— in streptococcal infections, 466
— toxicity of, 16
— treatment of meningococcal meningitis, 553
— See also Pronosis
Sulphur and lactation, 483
Suppuration, nasal, local vaccine treatment of, 113
— puerous, exocel complications of, 33
Surgery, cerebral, anaesthesia in, 72
SUSSEX, M.: Early symptoms of arterial obliteration, 125

- Leukaemia, mixed, case of, 103
— transmissible myeloid, in mice, 216
— x-ray treatment of, 71
LEVY, R. J.: X-ray therapy of rheumatic heart disease, 103
LEWIS, R.: Virus diseases in dermatology, 279
LIAN, C.: Pulmonary stenosis, 331
Lichen planus, diagnosis of, 132
LAUREL, V. S. M.: Sulphur and lactation, 483
Light therapy and carbohydrate metabolism, 317
LINSTRÖM, L.: Pernicious anaemia, 310
Lipoidium: dermatitis atrophicans lipoides diabetica, 426
LUSCHITZ, A.: Experimental hyperplasia of endometrium, 105
Lipstick dermatitis, 2 cases of, 131
Liver: alcohol test of hepatic function, 368
— diet in diabetes, 246
— extracts, biological assay of, 139
— fluke disease, primary liver carcinoma in, 435
— and skin diseases, 280
— and spleen, interrelationship of, 61
— therapy in hyperemesis gravidarum, 449
LIVRAGA, P.: Carcinoma of lung, 6
Lobectomy for bronchiectasis, 141
LÖNN, H.: Paradenitis venerea, 102
LOLLI, G.: Alcohol test of hepatic function, 368
LOMEL, E.: Thrombosis and embolism, 288
LONGO, A.: Pneumothorax in pregnancy, 409
LOWDES, J.: Comparison of human and cow's milk, 283
LÜCHSINGER, R.: Laryngeal stenosis, 34
LÜCKE, H.: Gas masks and cardiovascular disease, 22
LUDWIG, H.-H.: Morphology of duodenal perforation, 99
Lumbago, rheumatic and traumatic, 372
Lung: allergic pulmonary phenomena, 266
— broncho-pulmonary radiating shadows, 347
— cancer of, 6, 122
— pulmonary stenosis, 331
— silicotic, mineral residues in, 160
Lunes, actinomycosis of, 412
— early cavitation of, treated conservatively, 217
LUNN, V.: Detection of vitamin B₁₂ deficiency, 218
Lupus erythematosus, gold and bismuth treatment of, 50
— of nose and throat, 130
LÜSCHER, E.: Double abductor paralysis, 445
LYON, D. Murray: Family history of tuberculosis, 453
- McADAMS, W. R.: Benzidine in cycloplegia, 475
McALPINE, M. R.: Polycythaemia vera, 333
MACCALLAN, A. F.: Prevention of blindness in tropics, 298
MCNUTT, J. R.: Osteomyelitis of vertebrae, 494
MACRAE, A.: Congenital vitreous veils, 471
— T. F.: Nicotinic acid in dietary deficiency, 388
Macula, disciform degeneration of, 155
MADERNA, C.: Exudative lymphatic erythroderma, 135
MAGATH, T. B.: Undulant fever, 126
MAGGI, N.: Hyperadrenism and Duerger's disease, 351
MAGNIN, J.: Tumour-like shadows in silicosis, 55
Malaria in Italian East Africa, 142
Malarial treatment of gonorrhoea, 296
MALINSKY, A.: Chronic constrictive pericarditis, 225
MALLET, L.: Total telerradiotherapy for blood diseases, 346
MALTEN, H.: Insulin allergy, 420
Mandelic acid in urinary infections, 419
Manganese chloride in tuberculous meningitis, 556
MANKIEWICZ, E.: Testosterone and female genital tract, 39
MANN, I.: Congenital vitreous veils, 471
MARBAIX, F.: Filaria keratitis, 153
MARCHEL, G.: Total telerradiotherapy for blood diseases, 406
- MELANOIMA, primary, of leptomeninges, 208
MELOT, G.: Irradiation of carotid sinuses, 499
Ménière's disease, analysis of 73 cases of, 443
— treatment of, 319
Meningitic conditions, diagnosis of, 504
Meningitis, aseptic, and anterior poliomyelitis, 44
— in treatment of disseminated sclerosis, 381
— *Brucella melitensis*, case of, 403
— meningocecal, epidemic of, 413
— sulphanilamide treatment of, 553
— tuberculous, manganese chloride in, 556
MENNE, F. R.: Experimental aortic atherosclerosis, 178
Menopause: eye lesions, 301
Menstruation and acetonuria, 428
— and gonorrhoea, 18
— post-partum, and peritonitis, 264
— and safe period, 481
MERMINGAS, K.: Conservative treatment of fractures, 227
MERTINS, P.-S.: Chronic otitis media treated with urea, 174
MESSERLI, Francis M.: Vitamin C in childhood, 399
Metabolism, basal, in hyperpnea, 486
MEULENGRAFT, E.: Haematemesis and melana, 28
- MILK, 283
cells, 60
MILKÓŠ, A.: Voluntary nystagmus, 478
— congenital ataxodystrophy, 416
— en planus, 132
— m, 390
— comparison of human and cow's, 283
— human, vitamin A and carotene in, 120
— protein, urticaria from inhalation of, 508
— vitamin C content of, 40
MILLER, E. A.: Primary carcinoma of male urethra, 457
MIMOUN, G.: Surgery of trigeminal neuralgia, 562
MING-TING, Y.: Spinal anaesthesia in China, 362
MISTAL, O. M.: Pleural effusion after pleurolysis, 370
MLEJNEKY, P.: X-ray treatment of leukaemia, 71
MOMSEN, H.: Hormone therapy in children's diseases, 9
MONACO, V.: Phrenic evulsion, 116
Monkeys, tuberculous, complement-fixation reaction in, 109
— ulcerative, 540
— colitis, 41
Monteggia's lesion, 224
MONTEIRO, A.: Laryngeal abscess, 321
MONTIGNAUT: Irradiation of sympathetic ganglia for arthritis, 343
MOONNIK, M. W.: Lengthening of nasal septum, 35
MORACA, G.: Mikulicz's metaphyseal osteodystrophy, 416
MORO: Irradiation of sympathetic ganglia for arthritis, 343
Morphine sulphate, intravenous administration of, 236
Morphology of duodenal perforation, 99
MORRISON, L.: Primary liver carcinoma in liver fluke disease, 435
Mortality in first ten days of life, 401
MORTIMER, H.: Oestrogenic hormones in atrophic rhinitis, 442
MÜHLE, E.: Liver therapy in hyperemesis gravidarum, 449
MULDER, J.: *Haemophilus influenzae* and bronchitis, 307
MÜLLER, K.: Strophanthin therapy, 168
— L. R.: Physiology of sleep, 311
MUNRO, D.: Encephalography of subdural haematomata, 492
MUSGER, A.: Radium therapy of benign skin conditions, 555
Myalgia, acute epidemic, 222
Myasthenia gravis, 5 cases of, 252
Myelitis following rheumatic fever, 513
- NAGER, 406
NANDER, 109
NARDON, 463
Nasal se
Neck:
Necropsy, alcohol detoxication
NEKOLA, J.: Blood changes in cancer of uterus, 564
NELSON, P. M.: Vitamin A assay, 537
Neosalvarsan for bronchopneumonia, 440
Nephritis, acute hemorrhagic, cardiac changes in, 402
Nephrothiasis, 248
Nep
Ner
Nervous system:
NEUBER, E.: Actinomycosis
NEUMANN, H. O.: Thyroid tumours of ovary, 80
NEUMARK, S.: Exfoliative erythroderma from male fern, 421
Neuralgia, acute epidemic phrenic, 544
— facial, surgery of, 205
— trigeminal, surgery of, 292, 561, 562
Neuralgias, pelvic, 26
Neuritis, optic, 470
Neurorhinitis optica, case of, 212
- NICKERSON, D. A.: Malignant tumours of small intestine, 551
NICOD, J. L.: Chronic pancreatitis and pyloric stenosis, 258
NICOLAYSEN, J.: Lumbago, 372
Nicotinic acid in dietary deficiency, 388
NIEHANS, P.: Prostatic hypertrophy, 313
Nieman-Pick's disease, 405
NISSEN, N. J.: Sugar in cerebrospinal fluid, 504
NITZLUSSE, J.: Vitamin B₁₂ in herpetic keratitis, 316
NORDLANDER, O.: First and second vaccination, 357
NORGAARD, E.: Diagnosis of von Recklinghausen's disease, 140
Nose and throat, lupus of, 130
NOUVEL, J.: Complement-fixation reaction in tuberculous monkeys, 20
NOVAES, J. L.: Cataract and vitamin C, 152
NOVAR, J.: Endometriosis, 36—Antefixation of uterus, 385
Novocain infiltration of pelvic sympathetic, 563
Nucleus pulposus, hernia of, 48
NYFELD, A.: Mononucleosis infectiosa and meningoencephalitis, 540
NYLUND, C. E.: Vitamin A and carotene in human milk, 120
Nystagmus, voluntary, 478
- O
OBRASOTOSOV, G. D.: Alcohol therapy of traumatic shock, 525
OCHSNER, A.: Surgical treatment of coronary disease, 516
Ocular disturbances, vitamin A in, 150
Oedema, allergic, 12
Oesophagus, changes in of aortic origin, 191
— perforation of cervical portion of, 320
Oestroglandol in kraurosis vulvae, 195
Oil, danger of
OLITSKY, P. K
OLIVECRONA, 319
Ophthalmia, haematogenous, 533
Orbital suppuration of nasal origin, 171
Orchitis, post-vaccinal, 509
ORLOV, P. P. F.: Nervous complications of undulant fever, 289
ORNSTEIN, I.: Lipoid nephrosis in pregnancy, 304
- Osteomyelitis, chronic, and pyloric stenosis, 258
— pyogenic pelvic, 5
— of vertebrae, 494
Osteosynthesis for fracture of femoral neck, 113
Otitis media, chronic, treated with urea, 174
— and vitamin C, 446
Otitis media labyrinth in, 322
- Oxygen consumption and histidine, 139
- P
PANKE, H.: Scalp forcep, 59
PAPANIKOLAOU, B.: Pleural exudate following artificial pneumothorax, 179
PARADISO, F.: Gierke's disease, 253
Parafinoplasty and parafinomata, 85
Paralysis, double abductor, 415
— infantile. See Poliomyelitis
— periodic, boy with, 112
PARODI, L.: Hyperadrenism and Duerger's disease, 351
PASTORE, P. D.: Osteomyelitis of frontal bone, 223
Patella, fractured, operative treatment of, 67
PATELLA, R. J.: Subdeltoid bursitis, 399
PATTERSON, R. L.: Orbital suppuration of nasal origin, 171
PAUTIQUE: Orbital suppuration of nasal origin, 171
PAUL, L. W.: Value of pituitrin, 189
PAULIAN, D.: Rare forms of neurosyphilis, 379
PAULSEN, H.: Chronic mastopathy, 141
PAUSSE, A. V.: Treatment of threadworms, 89
Pelvis, pyogenic osteomyelitis of, 5
Pempig, fatal case of, 371
Pempig, virus in, 421
— vulgaris, 421
Penis, carcinoma of, 357
Pentothal, toxic jaundice following, 369
Pericarditis, chronic constrictive, 225
Perineum, cross-section of for perineal rupture, 191
Peritonitis and post-partum menstruation, 264
PERKOTSKY, G.: Early diagnosis of renal tuberculous, 83
PERLES: Latent benzolism, 547
PERRET, P.-E.: Autohaemotherapy in hypertension, 467
PERRICONE, F.: Tuberculous tonsillitis, 377
Perrhe's disease and osteochondritis dissecans, 201
PETERSEN, N.: Properties of benzidine, 147
PETIT-DITAILLIS, D.: Surgery of focal neuritis, 205
PETRESCU, T.: Traumatic prolysis, 555
Phakosia, 472
Pharyngitis, tuberculous, eosinophilic, 450
PHILIPS, H. J.: Non-specificity of "antibacterial serum," 563
Phenylpyruvic acid, excretion of, 91

BRITISH MEDICAL JOURNAL

JOURNAL OF THE



SATURDAY JANUARY 1 1938

PRINCIPAL CONTENTS

History of the Prevention of Puerperal Fever p. 1	Leading Articles p. 22
Lymphoid Tissue of the Alimentary Canal 7	Correspondence 41
Modern Treatment of Diabetes 11	Surgery in General Practice: Treatment of Burns and Scalds .. 27
Persistent Overmoulding as Cause of Fits in an Infant 14	Health of the School Child 35
Chronic Disseminated Tuberculosis 15	Plymouth Annual Meeting 32
Fracture of Neck of Femur 16	Reviews 19
	Weekly Table of Infectious Diseases 52
	Photogravure Plate at Middle Opening

WITH SUPPLEMENT AND EPITOME

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JANUARY 1 1938

TABLE OF CONTENTS

ADDRESSES AND PAPERS

The History of the Prevention of Puerperal Fever. MILES H. PHILLIPS, M.D., F.R.C.S.	1
The Lymphoid Tissue of the Alimentary Canal. H. GORDON THOMPSON, M.D., F.R.C.S. (With Plate)	7
The Modern Treatment of Diabetes Mellitus and the Use of Zinc Protamine Insulin. F. GRAHAM LESCHER, M.D., M.R.C.P.	11
Persistent Overmoulding of the Skull Bones causing Fits in an Infant. G. C. GORDON, M.B. (With Plate) ...	14
Chronic Disseminated Tuberculosis. F. A. H. SIMMONDS, M.B., and W. PAGEL, M.D. (With Plate)	15
Fracture of the Neck of the Femur. H. B. RODERICK, M.D., F.R.C.S. (With Plate)	16

SURGICAL SERIES

Treatment of Burns and Scalds. PHILIP H. MITCHNER, M.D., F.R.C.S. 27
--

CLINICAL MEMORANDA

Unusual Case of Chondrification of the Patellar Ligament. J. M. TURNER, F.R.C.S. (With Plate).....	17
A Swallowed Pin and a Round-worm. R. WALSH, M.B., B.Ch. (Illustrated) ..	18
Recurrent Hydatid Cyst. DOUGLAS A. K. BLACK, M.B., Ch.B.	18

OBITUARY

George A. Buckmaster, D.M., F.R.C.S.	48
Charles Sanders, M.B.	49
C. E. Jones-Phillipson, F.R.C.S.Ed.	50
James McKay, M.D.	50
Harry Holmes, M.B.	50

GENERAL ARTICLES AND NEWS

Annual Meeting, Plymouth, 1938 : Plymouth Yesterday and Today (Illustrated)	32
Croydon Typhoid Inquiry	30
Health of the School Child	35
MEDICAL NOTES IN PARLIAMENT—	
Tuberculosis Services in Wales.....	50
Ophthalmic Benefit	50
Leprosy Incidence and Treatment 50	
Typhoid in ss. Strathaird.....	51
Treatment of Prisoner in Barlinnie Prison	51
Mortality of War Pensioners	51
UNIVERSITIES AND COLLEGES	47
MEDICAL NEWS	53

LEADING ARTICLES

The Immunity of London	22
Maternal Mortality in the U.S.A.	23
Dominion Graduates at Oxford	24

ANNOTATIONS

A Weekly Epidemiological Survey.	24
The Cerebrospinal Fluid	25
Industrial Dermatitis	25
Co-operation between Physician, Surgeon, and Dentist.	26
The Trudeau Foundation	26

SUPPLEMENT

Out-patient Departments

OPHTHALMIC MEDICAL PRACTICE
NOTES OF THE WEEK
INSURANCE MEDICAL SERVICE WEEK BY WEEK
THE VOLUNTARY HOSPITALS
CORRESPONDENCE
POSTGRADUATE NEWS
DIARY OF SOCIETIES AND LECTURES
MEETINGS OF BRANCHES AND DIVISIONS
THE B.M.A. LIBRARY
NAVAL, MILITARY, AND AIR FORCE APPOINTMENTS
Association Notices: Vacancies and Appointments; Diary

REVIEWS

Organic Nervous Diseases in Young People	19
Encyclopaedia of Medical Practice.	19
The Cosmetic Art	20
Biological Measurement	20
Atlas of Bacteriology	21
Notes on Books	21

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS	52
EPIDEMIOLOGICAL NOTES	53

CORRESPONDENCE

Immunization against Typhoid. ERNST M. FRAENKEL, M.D.	41
Periodicity of Recurrences in Cancer. J. H. DOLGAS WEBSTER, M.D.	41
Lipoids and Cancer. J. THOMSON SHIRLAW, M.D.	42
Treatment of Psychoneuroses. TOM A. WILLIAMS, M.B.; E. FRETSON SKINNER, M.D.	42
Autophytic Dermatitis. J. N. MARSHALL, M.D.	44
Strangulation of Herniated Ovary. DUNCAN FITZWILLIAMS, F.R.C.S.	44
Rupture of the Aorta. R. W. SWAYNE, M.B.	44
An Easy Method of Venepuncture. L. FEINSON-MULDWIN, M.R.C.S.	45
Ether Convulsions. A. M. BARFORD, M.D.	45
The Problem of the Final M.B. B.S.Lond. MAJOR GREENWOOD, D.Sc., F.R.S.	45
Applying for Hospital Posts. HAMILTON BAILEY, F.R.C.S.	46
West London Post-Graduate College. MAURICE SHAW, M.D.	46
Who Owns X-Ray Negatives? WALTER ASTEN, M.D.	47
Auguste Forel and His Work	47

REPORTS OF SOCIETIES

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE: Leprosy.	36
LIVERPOOL MEDICAL INSTITUTION: Bronchogenic Carcinoma	37
SOCIETY OF MEDICAL OFFICERS OF HEALTH: Public Health Services and Industrial Hygiene.	38
MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY: Adler's Contribution to Psychological Medicine	39
NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.	39

LOCAL NEWS

ENGLAND AND WALES—Vital Statistics for 1936.	40
Science and Social Service.	40
Midwives and Cases of Contracted Pelvis.	40
Physical Education and Training.	40

LETTERS AND ANSWERS

Frumenty	53
Painful Tongue	54
Incapacitating Diarrhoea	54
Income Tax	54
Subcutaneous Emphysema during Labour	54
Herpes and Varicella	54

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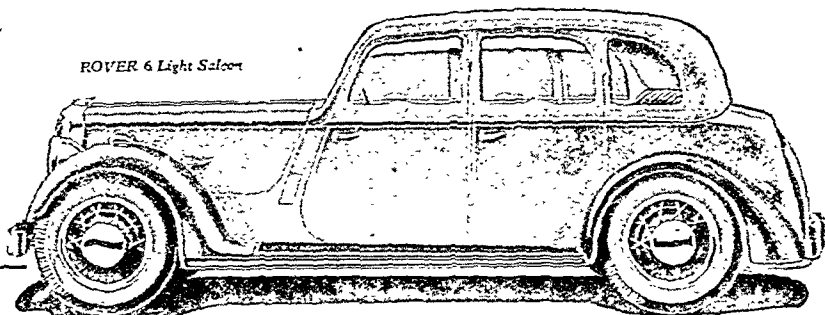
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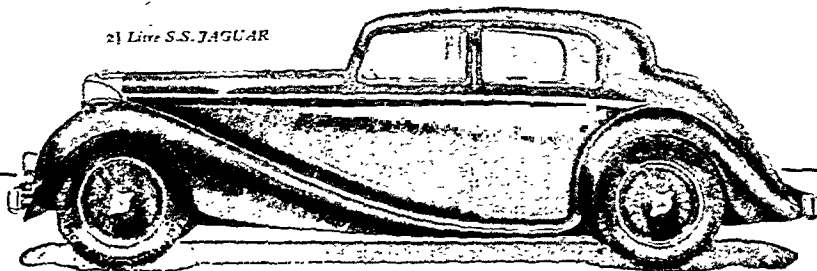
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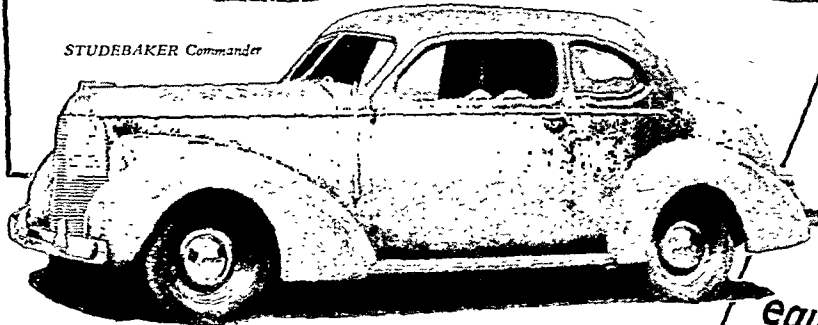
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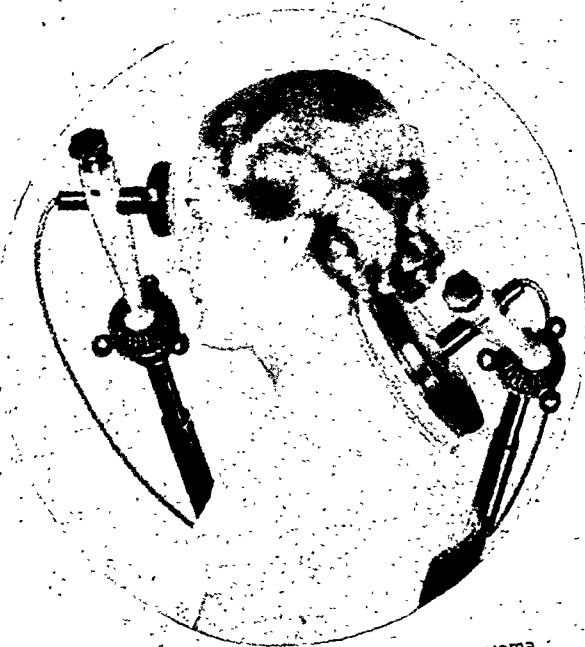
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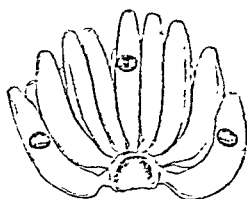
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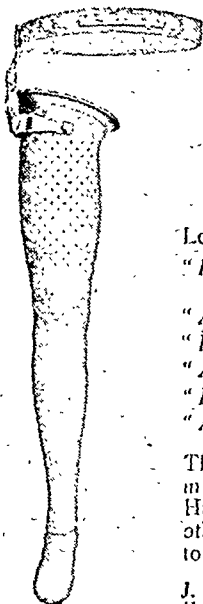
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Physicians, particularly pediatricians, will recognise the value of the new B.D.H. vitamin preparation Radiostoleum Emulsion with Vitamin C. This is a palatable and easily-digested emulsion and contains in one fluid drachm (1 teaspoonful) 6000 international units of Vitamin A, 1200 international units of Vitamin D and 200 international units of Vitamin C. The administration to infants, whether breast-fed or bottle-fed, of Vitamins A

and D in the form of an oil and Vitamin C in the form of orange juice sometimes presents difficulty. This is obviated by the use of Radiostoleum Emulsion with Vitamin C which can be given direct from a spoon or mixed with the feed.

Samples for clinical trial are available on request.

Radiostoleum Emulsion with Vitamin C is issued in bottles containing 4 fl. oz. at 2/6 per bottle.

THE BRITISH DRUG HOUSES LTD. LONDON N.1

the scientific contraceptive

MIL-SAN is a bland, non-injurious, spermicidal jelly independent of variable physiological conditions of moisture or temperature. Since there is nothing to melt, dissolve or foam, MIL-SAN is immediately effective.

The formula of MIL-SAN is based on biological principles in harmony with the natural chemical and bactericidal balance of the vagina. Its spermicidal efficiency is due to: (a) A low pH secured by the reinforcing action of several acids which ensures the immediate immobilization and death of spermatozoa, despite the buffering action of the seminal fluid; (b) A low surface tension which causes the jelly to spread rapidly and to penetrate the rugae of the vaginal and cervical mucous membrane; (c) A degree of viscosity which ensures that it shall adhere to the cervix and upper vaginal tract and fornices, forming a chemical barrier preventing the penetration of spermatozoa into the os uteri.

The method of applying the jelly is simple, hygienic, and proof against carelessness. Each application of 7 c.c. is contained in a specially

made strong glass tube sealed at one end with a cork, at the other by a hard wax plug. In use the cork is removed, a bulb fitted behind the wax plug and the tube inserted. Compression of the bulb forces the wax plug down the tube and ejects the contents. The empty tube, which is thrown away, proves the application and ensures the quantity. There is nothing to fill, nothing to clean. Each application is hygienic and complete.

MIL-SAN does not deteriorate and is not affected by climatic conditions.

There are no contra-indications to the use of MIL-SAN with a dependable condom or a properly fitted occlusive pessary. It is only by such combined use that the consequences of misuse of one or other of the methods can be minimized and the maximum practicable security obtained.

Literature setting out the ingredients and full particulars, together with a box of specimen tubes for examination, are sent on request to members of the medical profession.



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THE WORLD-RENOWNED

NATURAL MINERAL WATER

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PRIMARY DYSPEPSIAS:

Hyperpepsia — Intermittent hyperchlorhydria.

Hypoepsia and aepsia — Dyspepsia arising from disturbance of neuromotility.

Intermittent pyloric stenosis, not of organic origin.

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Arthritic dyspepsia.

Toxic dyspepsia (gastro-hepatic).

Dyspepsia due to enteroptosis.

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URINARY GRAVEL.

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Congestion due to excessive or improper feeding.

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The diabetes of fat people. Arthritic obesity. Uricæmia and gout. Rheumatic gout.

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CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the SOLE AGENTS

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Samples free to Members of the Medical Profession

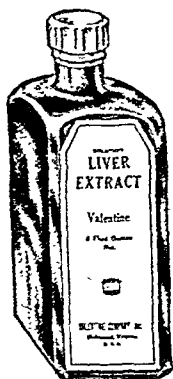
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helps to compensate for the constant drain by the foetus upon the reserves of the expectant mother.

It is a valuable roborant during convalescence following parturition and exerts a definite galactagogic action on the mammary glands of the nursing mother. Specimens for clinical trial free on application. Lactagol Ltd., Mitcham, Surrey.

**Expectant and
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A Simple Aqueous Extract of Liver.

Alcohol has not been used either for Fractionation of the Active Principle or as a Preservative.

Contains Whipple Fraction as well as Cohn-Minot Fraction.

Its potency is attested by eight years of Clinical Use in cases of Pernicious Anaemia.

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Since few people can stop working because of chilblains some effective local treatment is essential. Sphagnol soothes and cools chilblains with the first dressing. And concerning Sphagnol's effectiveness, a doctor has written: "I found the preparations you sent me remarkably good, especially the ointment, which

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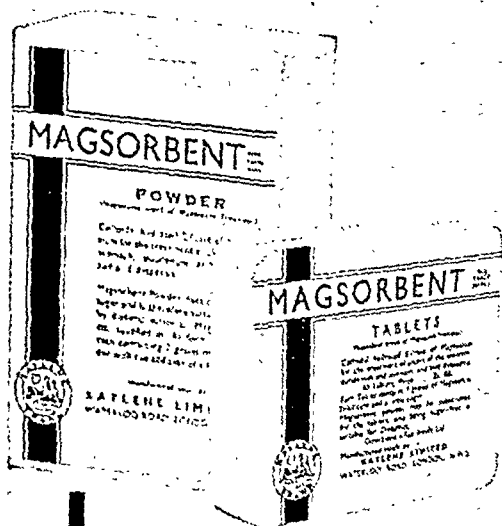
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THE ORIGINAL BRAND OF SYNTHETIC HYDRATED MAGNESIUM TRISILICATE

The safe and effective **ANTACID** for the treatment of CHRONIC PEPTIC ULCER, HYPERCHLORHYDRIC DYSPEPSIA and ACID FERMENTATION.



- ACIDITY—COMPLETE CONTROL
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The REDUCED PRICES of MAGSORBENT POWDER are as follows: 2oz. 1/6; 5oz. 3/-; 16oz. 8/9; 3lbs. 23/-.

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ETHER SOLUBLE TAR PASTE

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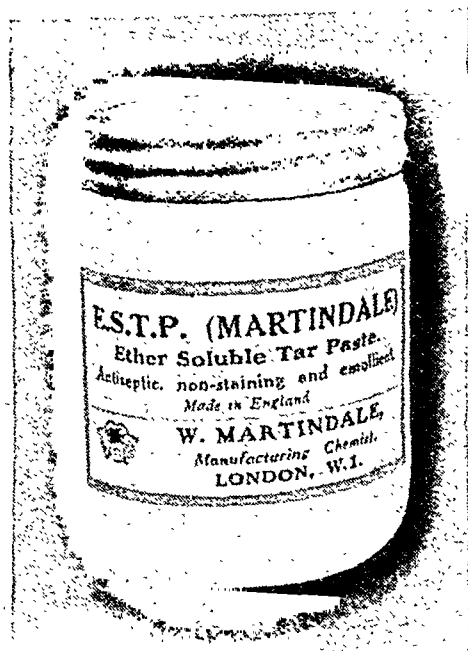
**ECZEMAS, PRURITUS,
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PRESCRIBE AS

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Issued in 2, 4 and 8-oz. pots

Literature and clinical samples on request.



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Oral Vaccine for the prevention of Colds and Influenza

Since Genora brand Oral Vaccine was introduced to the Medical Profession last Winter, extensive clinical and laboratory tests have shown that it establishes a high degree of immunity against colds and influenza; the oral vaccine has also proved successful in the treatment of chronic bronchitis and similar respiratory infections.

This vaccine contains hæmolytic streptococci, in addition to other organisms incriminated in the causation of coryza and influenzal infections. It has been found that the ingestion of the oral vaccine against colds and influenza also develops immunity to diseases caused by hæmolytic streptococci.

Particulars concerning Genora brand Oral Vaccine will be found in the new brochure on Vaccine Therapy which has recently been published by Genatosan Ltd. This booklet also gives information regarding a wide range of vaccines administered by hypodermic injection and the standard types of Local Immunity Products. A copy of the brochure will gladly be supplied to any physician on request.

GENATOSAN LIMITED

VACCINE DEPARTMENT, LOUGHBOROUGH, LEICS.

OVALTINE

IN NUTRITIONAL CRISES

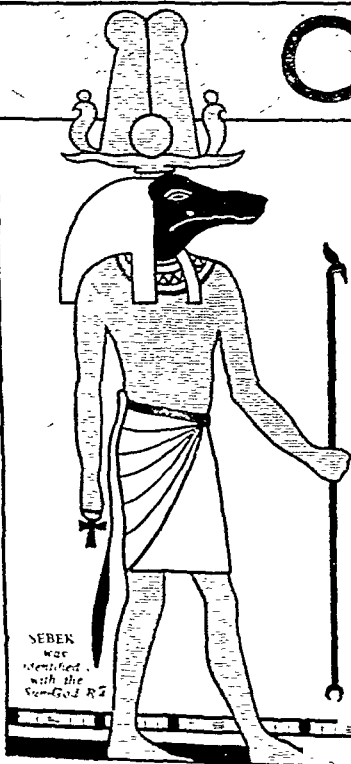
WHILE the average adult is able to maintain a healthy existence on the ordinary everyday diet, there are certain periods in the life of each individual when an increased demand for the vital food elements arises. Outstanding examples are the period of adolescence, the pregnant and nursing states and the stage of convalescence after severe and lowering illnesses.

"Ovaltine" is an eminently satisfactory adjunct to the ordinary dietary at all such times. Composed of fresh, full-cream milk, eggs and malt extract in proportions adjusted to meet physiological requirements, it provides, in an agreeable form, calcium, phosphorus, vitamins and other important food elements.

"Ovaltine" is a metabolic stimulant and digestive which assists the assimilation of other foods and promotes general good health. It can, therefore, be taken regularly with advantage in place of tea, coffee, or other beverages. A noteworthy feature is its delightful taste which is appreciated by people of all ages.

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RHEUMELIM

COMPOUND EFFERVESCENT PIPERAZINE GRANULES.

RHEUMELIM has been found in clinical tests to give excellent results in the treatment of Osteo or Rheumatoid—Arthritis, Gout, Sciatica, and allied conditions. It is an effervescent, granular preparation containing piperazine which is well known as an analgesic in rheumatic conditions.

PER BOTTLE 4/6
(Special Discount to the Medical Profession)

Obtainable
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ENGLAND

STREPTOCIDE

(*p*-aminobenzenesulphonamide Evans)

For oral administration

The value of Streptocide in Puerperal Fever
is fully described in a report to the
Therapeutic Trials Committee

(*Vide Lancet*, 27th November and 4th December, 1937)

Other indications include

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Tonsillitis. Streptococcal Sore Throat
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Streptocide is issued in tablets as follows:

	0.5 grm. (7½ grains approx.)	0.25 grm. (3½ grains approx.)
In bottles of 25 Tablets ...	2/3	1/9
" 100 " ...	7/9	5/6
" 250 " ...	18/-	12/6

Please indicate the strength desired when prescribing

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'PANOPEPTON'

A Food for the Sick

Which measures up in the present day science and concept in nutrition—established as a resource of especial value by the extensive experience of clinical test.

'PANOPEPTON' is the entire substance of beef muscle as brought into hydrolysed solution in contact with gastric mucosa juice. This in combination with the substance of wheat berry as converted into solution by pancreas gland tissue juice.

'PANOPEPTON' presents for the nutrition of the sick these basic food materials in the form in which they are set free and elaborated in the normal digestive scheme.

'PANOPEPTON' is a food—agreeable—grateful, even to the very sick, requires no preparation.

Supplied in 12-oz. bottles.

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BRAND

MEDICATED COD LIVER OIL



A new preparation consisting of Vitamin tested Cod Liver Oil, Creosote, Chloroform and Cinnamon Oil having nutritive, demulcent, expectorant and antiseptic properties. Excellent results have been obtained in the treatment of infections of the lungs and bronchi; particularly in chronic bronchitis, bronchiectasis, tuberculosis and chronic coughs of a similar nature.

THE DOSE IS ONE TABLESPOONFUL TWO OR THREE TIMES DAILY
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 DISCOUNT TO THE MEDICAL PROFESSION.
 Sample sent on request . . .

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OR FROM THE
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The Weaning Period —



After 6 months the child can deal with starch, and this is best introduced as Allenburys No. 3 Malted Food.

- (1) Prepared from roasted wheat and malt. Contains partly converted starch in the form of sugars and dextrins, together with albuminoid constituents of wheat.
- (2) Calcium and phosphorus present in ample amount.
- (3) Available iron 4 parts per 1,000,000 reconstituted.
- (4) Vitamin D. + + +

Allenburys No. 3 Food makes a thickened food and may, if the physician favours this method, be used to modify cow's milk in earlier infancy.

Descriptive literature and clinical sample will be sent on application.


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Telephone:
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Telegrams:
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A range of new purées

*Uniformity and
high nutritive
qualities
now available
for general
prescription*

	PROTEIN	4.8
	CARBOHYDRATES	6.8
	CALCIUM	0.012
	PHOSPHORUS	0.023
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	VITAMIN B.	V.GOOD
	VITAMIN C.	V.GOOD
	VITAMIN G.	FAIR
	CALORIES PER OZ.	170

A typical example of the high nutritive values retained in Heinz Strained Foods. (Figures show percentages on the wet basis)

Vegetable and fruit purées, rich in mineral salts, vitamins and other soluble nutriment, constitute the perfect diet for infants and cases of nutritional anaemia.

But despite the wide approval shown by physicians, and a growing appreciation of this dietary by mothers, progress has hitherto been slow, owing to the practical difficulties encountered in home preparation.

The use of vegetables not truly fresh, mechanical losses through oxidation when boiling, and inefficient sieving out of the harsh fibres, inevitably impair the quality of the home-produced preparation.

Now, with the marketing of a range of strained foods by H. J. Heinz Co. Ltd., vegetable and fruit purées containing all necessary dietetic values are available in convenient bulk and form.

Heinz Strained Foods are prepared with all the advantages of the best factory method. The vegetables are specially grown in those areas where soil and climate combine to produce the best; they are harvested when they are just right, and cooked within a few hours of being garnered.

First, the ingredients are scrupulously cleaned. Cooking by light steam pressure in vacuum containers follows, leaving the contents perfectly disposed for comminution by extrusion, and at the same time ensuring retention of the essential juices and mineral constituents. Fine sieving having removed all fibres of a harsh or irritant nature, the purée is then adjusted to an acceptable consistency and sealed in vacuo, the sealed containers being immediately subjected to sterilization under constant conditions of time and temperature.

The purées thus offered are uniform, convenient and of the highest possible nutritive content.

NOTE: Glass containers are not used owing to the deleterious effect of light on the value and palatability of the purées

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SPINACH
TOMATOES
CARROTS
VEGETABLE SOUP
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GREEN BEANS
MIXED GREENS
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CEREAL
APRICOTS AND
APPLE SAUCE

★ Fully explanatory literature and samples gladly sent on request.

H. J. HEINZ COMPANY LIMITED, HARLESDEN, LONDON, N.W.10

Early diagnosis and treatment in Diphtheria

FOR DIAGNOSIS

BRAHDY "RAPID CULTURE" TUBES *Lederle* permit identification of *Ci. diphtheriae*; if present, *four hours* after the culture is taken, as compared with the 18 to 36 hours required for Loeffler cultures. The four-hour incubation period does not permit an overgrowth of contamination organisms, which do not grow well on this medium.

The technique is simple and convenient and the organisms grow with characteristic morphology.

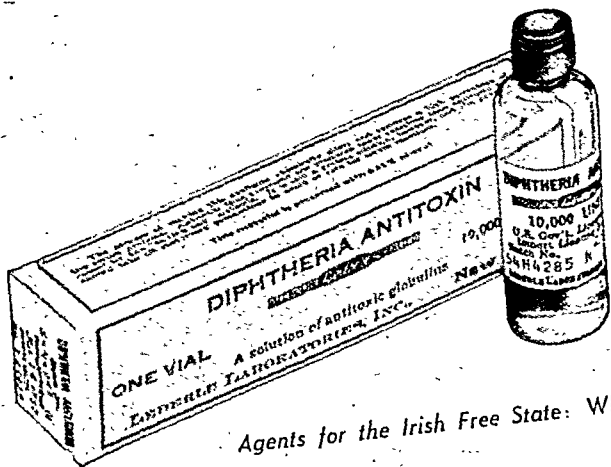
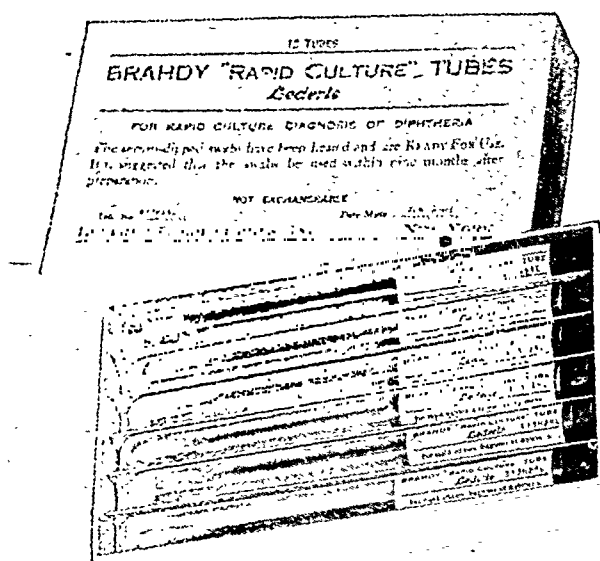
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DIPHTHERIA ANTITOXIN "GLOBULIN MODIFIED" *Lederle*, the recently announced antitoxin which is characterised by—

- its low protein content.
- its high concentration.
- its low viscosity.
- its lowered property of inducing serum disease.

The earlier in the disease antitoxin is given, the more certain and rapid is its effect. The first injection should be large enough to control the disease. One large dose given early is more efficient than the same amount given in divided doses.

The increased potency and reduced protein content of the *Lederle* product has resulted in a greater ease of administration of adequate dosage and, of the greatest importance, a measurable lowered property of inducing serum sickness.



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B.D.H. VACCINES AND SERA

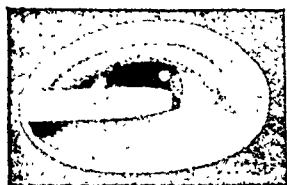
An Announcement

The British Drug Houses Ltd. have pleasure in announcing that their new laboratories for the preparation of vaccines and sera are now complete.

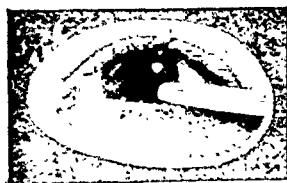
As a result of their very recent construction, these laboratories are equipped to meet all the demands and modern advances of immunological science; in consequence, in the preparation of the B.D.H. Vaccines and Sera the most recent methods are employed, and the products supplied comply in every instance with the requirements of the Therapeutic Substances Regulations. Physicians are able, therefore, to prescribe these new B.D.H. products with the same confidence that they place in the established B.D.H. preparations.

An illustrated brochure indicating both the completeness of the laboratory equipment and the range of vaccines and sera available has been distributed; any member of the medical profession who has not received a copy is invited to apply for one.

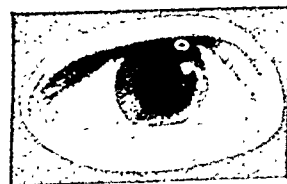
THE BRITISH DRUG HOUSES LTD. LONDON N.1



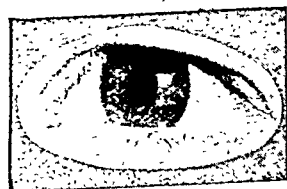
COCAINE—With 1% cocaine solution, an average of 173 seconds elapse before the touch of a wooden applicator on the eye-ball is no longer felt.



BUTYN—With a 1% solution of Butyn, (Abbott), an average of only 63 seconds elapse before the touch of a wooden applicator is no longer felt.



COCAINE—With 1% cocaine solution the duration of anaesthesia is no longer than that obtained with 1% Butyn solution. Note the dilatation.



BUTYN—With 1% Butyn solution, anaesthesia persists for approximately as long as when 1% cocaine is used. Note absence of dilatation.

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RAPID • PROFOUND

Among local anaesthetics—including cocaine—which are effective on intact mucous surfaces, Butyn is unique in its ability to produce rapid, profound and prolonged anaesthesia. Butyn is widely used and is recommended for topical application in operative procedures on the eye, nose and throat, as well as for use in genito-urinary work. ● Butyn 2% Solution, the most widely used preparation of the drug, has proved to be as effective clinically as a 5% solution of cocaine. Used in the eye, Butyn does not affect the accommodation nor ocular tension. Neither does it cause drying of the conjunctiva as does cocaine. Two or three drops of the 2% Solution in the eye are sufficient for the removal of impacted foreign bodies or for the relief of pain due to abrasion of the cornea.

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ABBOTT LABORATORIES LTD.,
WADSWORTH ROAD, PERIVALE, MIDD.
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New York Chicago Mexico City Buenos Aires
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BUTYN

2% SOLUTION



PLEASE SEND LITERATURE ON BUTYN TO

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Perfect Control
 PROMINAL IN EPILEPSY



'PROMINAL'

TRADE MARK METHALONYL BRAND

Clinical trials of this drug in thousands of cases of epilepsy have shown that its fit reducing effect is even better than that of 'Luminal': its toxicity is 30% lower.

The hypnotic effect of 'Prominal' is minimal, and secondary reactions are seldom met with.



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Treatment of acute rickets with natural vitamins A & D



1 A wild ass fed with mare's milk plus vitamin A, calciferol, yeast extract and bone meal.

2 Acute rickets is evident and the animal can only walk with difficulty and with the aid of splints.

3 Crookes' Halibut Liver Oil is substituted for calciferol. The animal can walk without splints and the fetlocks are straightening out.

4 Improvement continued and the animal was transferred from London to the country—complete cure.

Note also the marked improvement in general condition.

CROOKES' PURE HALIBUT LIVER OIL

COLLOSOL BRAND (Regd)



4. COMPLETE CURE

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IN "SECONDARY" ANAEMIAS

In anaemias of the microcytic type, the response to 'Lextron' brand liver-stomach concentrate with iron and Vitamin B complex is rapid. When he prescribes 'Lextron' the physician is assured that his patient will receive all the materials essential to blood regeneration in anaemias of this class.

'Lextron' brand liver-stomach concentrate with iron and Vitamin B complex is supplied in bottles of 42, 84, and 500 'Pulvules' brand filled capsules.

Prompt Attention Given to Professional Inquiries

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PRODUCERS (HULL) LTD., ST ANDREW'S DOCK, HULL, ENGLAND

After Influenza Pneumonia and other Acute Infections

The general action of 'Bynin' Amara is manifested by increased tone of the nervous, muscular and cardiovascular systems. It stimulates the digestive organs, improves the flagging appetite, corrects anæmia and aids nutrition generally.

The marked asthenia and nervous depression which are prominent features of the post-influenzal state, yield rapidly to its influence. A course whenever there is any indication of lowered resistance is a valuable safeguard against infection.

'BYNIN'
the effective tonic



In bottles at 2/-, 3/6, 6/6 and 12/-

Descriptive literature and clinical trial sample on application.

AMARA

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Telephone: 3201 Bishopsgate (12 lines) Telegrams: "Greenburys Beth London"

CHILBLAINS

(in the thin hypotonic scrofulous type of patient) constitute an indication for the administration of "Halibol"-Calcium Capsules.

Each capsule of this preparation has the following contents:

Vitamin A—8,000 international units	} The amounts in about 3 fluid drachms of good standard cod-liver oil.
Vitamin D—2,000	
(1 milligram of Calciferol)	
Calcium Sodium Lactate—5 grains	

The vitamins are provided in the form of 0.2 c.cm. (about 3 minims) of "Halifool" (specially prepared halibut-liver oil with irradiated ergosterol). "Halibol"-Calcium Capsules, moreover, meet the demand for a convenient prophylactic preparation to be administered during pregnancy. Deficiency of vitamin D, which is liable to occur in pregnancy, leads to osteomalacia and probably to dental caries. Vitamin A is necessary for correct growth. The use of "Halibol"-Calcium is indicated also in menorrhagia, purpura, rickets, marasmus, tuberculosis, and other debilitating diseases.

Descriptive Literature will be sent on request.



Halibol Calcium

Allen & Hanburys Ltd., London, E.2

Telephone: 3201 Bishopsgate (12 lines)

Telegrams: "Greenburys Beth London"

ACNE and ROSACEA

Intense and rapid sulphur action is obtainable from an improved form of sulphur, effective in remarkably small quantities.

Fissan Brand Sulphur Powder is a fine dispersion of minute sulphur particles in a free and mobile state in an improved powder base with high absorbent capacity.

Clinical evidence attests the valuable properties of the preparation and emphasises the freedom from toxic effect.

A brochure with further information and numerous prescriptions is available on request to:—

FISSAN DEPARTMENT,
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Post-operative Emergencies

TRADE MARK **'HYPOLOID'** BRAND **'INFUNDIN'** TRADE MARK

PITUITARY (POSTERIOR LOBE) EXTRACT

Initiates peristalsis and generally gives prompt relief in post-operative atony and intestinal paresis. Invaluable in cases of low blood-pressure, and in post-operative retention of urine.

10 International Units per c.c.

(Original Strength)

0.5 c.c. boxes of 6 ampoules. 2.6

0.5 c.c. " " 25 " 9.6

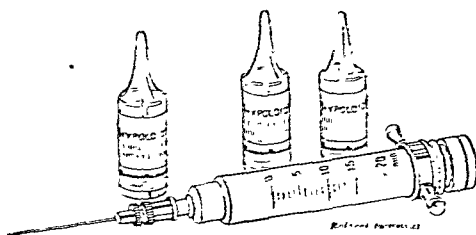
1.0 c.c. " " 6 " 4.-

1.0 c.c. " " 25 " 14.3

5 International Units per c.c.

0.5 c.c. boxes of 6 ampoules. 2.3

1.0 c.c. " " 6 " 3.-



TRADE MARK **'HYPOLOID'** BRAND

ACETYLCHOLINE BROMIDE

A stable solution. Contracts paralytic ileus after laparotomy. Relieves post-operative gas distension and severe constipation.

0.1 gramme (gr. 1-1/2 approx.)
in 1 c.c.

Boxes of 10 ampoules
6.3 per box

London Price to the Medical Profession



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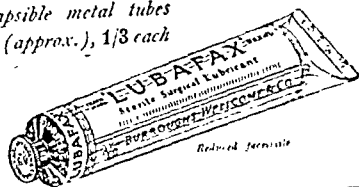
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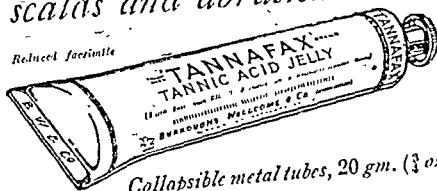
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LONDON SATURDAY JANUARY 1 1938

THE HISTORY OF THE PREVENTION OF PUERPERAL FEVER*

BY

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This title having proved too ambitious a one for a lecture of an hour's duration, I have found it necessary to restrict my subject to a theme which can be indicated by the following words from Geoffrey Chaucer's *Canterbury Tales*—the words, written in 1389, with which the Manciple admonishes the drunken cook:

"Hoold cloos thy mouth man
Thy cursed breeth infecte wole [will] us alle."

Consideration of the study of the development of a therapeutic or a prophylactic measure will often be found to strengthen our intention to employ the measure in question.

The Principle of Contagion

The history of the prophylactic measure which I shall later on advocate may be held to begin about the middle of the nineteenth century. At that time a fundamental principle, that of contagion, was at last accepted by most of the leading obstetricians of the day. This theory had been long since suggested by Alexander Hamilton, in 1781, demonstrated by Alexander Gordon, in 1795, and more recently supported by Oliver Wendell Holmes, in 1843. It suits my purpose to cite only one of these converted authorities, one who had already conferred a great boon on parturient women by the introduction of chloroform.

In the discussion which followed a paper on puerperal fever read by Dr. Arneth of Vienna before the Medico-Chirurgical Society of Edinburgh on April 16, 1851, Dr. James Y. Simpson said: "But in this country we do not believe that the disease is usually propagated directly from individual to individual, but indirectly, through the medium of a third person; and that person generally the medical attendant or nurse." In the same speech Simpson confesses that in 1836, when he had his first experience of puerperal sepsis in his own practice, he had "no full and proper belief in the contagious propagation of puerperal fever." Otherwise, he leads us to infer, he would not have gone from active participation in necropsies in two cases of fatal puerperal sepsis to four cases of midwifery, all of which became infected.

It should especially interest a Manchester audience, and particularly those who are members of the staff of St. Mary's Maternity Hospital, to hear or recall that Simpson had been not a little influenced by reading an account of an outbreak of puerperal sepsis in the district maternity practice of the Manchester Lying-In Charity—the forerunner of the present-day St. Mary's Maternity Hospital. Simpson had read of this in a letter published in the *London Medical Gazette* in 1832—under the heading "Is Puerperal Fever Infectious?"—by Dr. John Roberton.

* The Lloyd Roberts Memorial Lecture, delivered at St. Mary's Maternity Hospital, Manchester, on November 10, 1937.

Dr. Roberton was appointed to the hospital staff in 1827, and he was the last member to bear the title of man-midwife, this being changed to surgeon in 1828. His letter had been written in response to a communication to the *Gazette* by Dr. William Campbell, and it is advisable to quote directly from it, as Simpson, apparently trusting to memory, is inaccurate in not a few of the figures he gives. Dr. Roberton begins thus:

"Sir,

"The letter of Dr. Campbell on puerperal fever, which appeared in the *Medical Gazette* of December 10, has recalled my attention to certain facts in my possession, calculated to throw some light on the query which heads this communication.

"On the question of infection" (Dr. Campbell observes) "I am as much as ever impressed with the belief that unless the practitioner has been engaged in the dissection of the bodies of those who have fallen victims, the disease cannot be conveyed by him from females labouring under it to others recently delivered; but if he have been so engaged, I have strong reasons for believing that he may be the means of propagating it." My experience," Roberton comments, "is not in unison with this conclusion. On the 4th of January last [1831] a meeting of the medical officers of the Manchester Lying-in Charity was summoned in consequence of a great mortality having occurred, during the four preceding weeks, among the patients of one of the midwives. The circumstances we found to be these: Mrs. A. B., a midwife in great practice among the patients of the Charity, had on the 4th of the preceding month delivered a poor woman, who soon died with symptoms of puerperal fever. From this date to the 4th of January inclusive—exactly one month—this midwife delivered thirty women residing in different parts of an extensive suburb, of which number sixteen caught the disease, and all of them ultimately died. These were the only cases of puerperal fever which had for a considerable time occurred in Manchester. The midwives, commonly twenty-five in number, deliver, on an average, ninety women per week. Now of this number delivered during the month in question, none had puerperal fever except the patients of Mrs. A. B. Yet all this time this woman was crossing the other midwives in every direction, scores of the patients of the Charity being delivered by them in the very same quarters where her cases of fever were happening. . . .

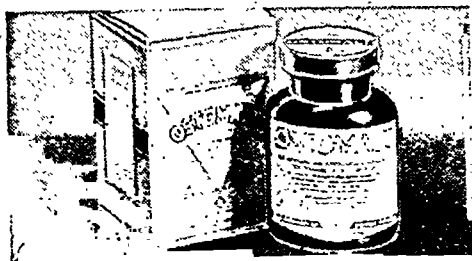
"The decision of the medical officers of the Charity was to the effect that Mrs. A. B. should abandon her practice for a short period, and go into the country."

Dr. Roberton concludes:

"The fact that sixteen cases of puerperal fever occurred in one month in the practice of a single midwife, while the patients of the other midwives were exempted from the disease, leads naturally to the conclusion that this midwife was the medium of communicating (I take not upon myself to say in what manner) the malady from one woman to another—from one affected with the fever to another in health."

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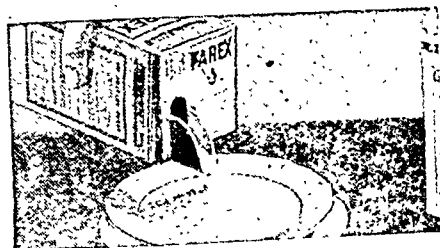
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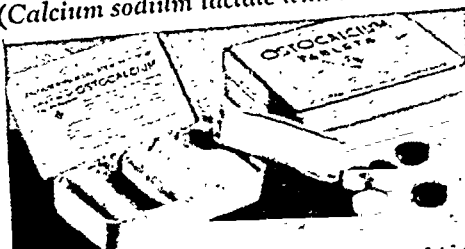
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addition to streptococci it includes staphylococci, the colon bacillus, pneumococci, the gonococcus, the bacillus of diphtheria, of tetanus, of typhoid even, the *Bacillus aerogenes capsulatus* of Welch, and the *Bacillus pyocyaneus*.

The Introduction of Antiseptics

The discovery of bacteria was quickly followed by Lister's introduction, in 1867, of the chemical antiseptic with which microbes in septic wounds or on the skin of the patient or the hands of the surgeon could be rendered inert. Lister, employing the method with meticulous care, was soon able to revolutionize surgical operative practice. Certain obstetricians—and one must mention Hayes of the General Lying-in Hospital, London, and Tarnier of Paris—convinced of the identity of surgical and puerperal sepsis, introduced antiseptics into their midwifery practice, with a striking reduction in the occurrence of infection in the maternity hospitals they controlled. However, we must not forget that many years previously Robert Collins of the Rotunda (in 1829) and Semmelweis in Vienna (in 1847) had used a solution of chloride of lime to destroy the unknown virus of infection.

The use of antiseptics soon became the first line of defence in the campaign against puerperal sepsis, and so it remains to this day. Many forms have been introduced since the days of Lister's carbolic acid. The search for the ideal antiseptic has a story of its own, which some consider is not yet complete; many others are perfectly satisfied with the one of their choice.

Although the incidence of puerperal sepsis has been greatly diminished, the dread disease has by no means been eliminated. Sporadic cases are of not infrequent occurrence, and even epidemics occur in hospital as well as in private practice. Puerperal sepsis is still one of the chief causes of puerperal mortality. Some authorities maintain that this is only the consequence of the neglect or the inefficient use of the antiseptic ritual. Others, doubting this simple solution of a grave problem, have with infinite pains searched more and more deeply into the life-history of the microbes chiefly concerned, and particularly into their habitat—the lair in which they must be destroyed or between which and the woman in labour an effective barrier must be set up. Since Pasteur's day it has been recognized that streptococci cause the great majority of the serious and fatal infections. They have been intensively studied by devoted specialists, and gradually the complexity of the nefarious clan has been revealed. Streptococci are subdivided according to the way in which they grow: some are haemolytic, others have no action on blood, while others will only grow in the absence of oxygen. Of the haemolytic strains only one group (Group A) is capable of causing severe infection in human beings, and this group is further subdivided by intricate serological means into about twenty-five distinct types. Some half of these known types have been found to play a causative part in puerperal infections.

The history of these investigations is beyond my purpose and, indeed, my powers. I have chosen to attempt to unravel the story of the tracking of the villain to his chosen lair and the provision of a means to intercept him at its exit. I refer, of course, to the human throat and the surgical face mask.

The source of the problematical virus had for long been a matter of speculation, the most favoured being decomposing animal matter associated with necropsies and dissections, cancers, and surgical wounds, especially where

midwifery cases and cases of general disease were housed under the same roof. Semmelweis and Holmes both laid down rules of conduct against these dangers. The means of conveyance were debated: clothes, the hands, the atmosphere were accused.

Charles Meigs, the anti-contagionist already quoted, ridiculed the idea: he tells of

"another friend of mine who had been chased, so to speak, by a series of such cases, seventy in all, left the city, was absent many days, and on returning, shaved his head, got a new wig, new clothes, new gloves, new pencil. He went into a bath, was washed clean, dressed himself, and then visited and assisted a woman in labour who was seized next day and died." If the man "was poisonous," says Meigs, "how was he so? Everything except the man was new. He could not have carried the atmosphere of his last patient's chamber with him to the country, keep it about him like an invisible cloud," and "then carry it into the last patient's chamber to destroy her with exhalations more pestiferous than the breath of Cacus."

By the irony of fate Meigs's satirical flights of imagination had brought him near the truth: the "new pencil" wetted by the lips might have infected the doctor's fingers: the "exhalations more pestiferous than the breath of Cacus" may well have conveyed virulent streptococci. In fact this was so; for Meigs's friend was no other than the unfortunate Dr. Rutter of Philadelphia, who within five years had ninety-five cases of puerperal infection in his practice, with eighteen deaths. It is known that he suffered from ozaena due to chronic rhinitis.

Many years later, in 1924, two outbreaks of pyrexia at the Portsmouth Municipal Maternity Hospital were proved to be associated with the presence of a pupil midwife who suffered from atrophic rhinitis and in whose nose haemolytic streptococci were found.¹

Relation of Streptococcal Sore Throats to Puerperal Fever

The discovery of microbes gradually led to the eclipse of mere conjectures; theories could henceforth be scientifically tested. The comment of Dr. John Clarke (1793)—that "it is a curious circumstance that before the attack of the epidemic of lying-in women at Paris in the year 1746, in the month of January, there had been an epidemic low fever, with an ulcerous sore throat"—has thus been illuminated by the discovery that certain members of Group A of the haemolytic streptococci can be much more readily found in human throats at the time of year when puerperal sepsis is most prevalent. Alexander Gordon, who wrote in 1795 on the "Epidemic Puerperal Fever of Aberdeen (1789-92)," prepared a set of tables showing the simultaneous prevalence of "inflammatory sore throat." Fleetwood Churchill (1849) speaks of the "epidemic season," between November and May, and shows that the eighteenth century writers on puerperal sepsis—Leake, Armstrong, Campbell, Hey, Joseph and John Clarke—all agreed that the "puerperal fever prevails most during the winter and spring months."

Although streptococcal sore throats are most prevalent from October to May, demanding specially careful precautionary measures in surgical and midwifery practice, they may occur at any season, and so the same precautions are actually always desirable. In my quest for the discoverer of this source of contagion I arrived at a paper by W. Hübener (1898) based on experimental work carried out at the Breslau Surgical Clinic of Professor Mikulicz. Hübener begins by referring to the pioneer work of

¹ *British Medical Journal*, 1924, 2, 623.

The modern conception of a carrier had not of course been considered in those days. Within the last few years I myself have taken a small part in the investigation of two similar epidemics in the practices of one only of each of two groups of midwives—both of whom had clean records for several years. In each epidemic it was clear that some of the patients were infected during the puerperium and not at the labour. In each instance haemolytic streptococci were found in the throats of the midwife, and both were cured by removal of the diseased tonsils.

Simpson came to the conclusion that the unfortunate midwife in question must have been, unlike the other midwives, "connected with some form of that morbid principle or virus to which pathologists give the name contagion." No one at that time had any conception of the nature of that virus. Some even held it could never be known. Charles Meigs of Philadelphia, a bitter opponent of Oliver Wendell Holmes's views, wrote in his *Treatise on Obstetrics*, 1856:

"The student will naturally be desirous to learn, if childbed fever be really a contagious disease, what the principle of that contagion is; and I apprehend that here he shall have to rest content with the sound of the word contagion, a word which, being interpreted, means communicable from person to person, or by individual to individual. This is the whole meaning of the word; for, as to how, and the what, no man hath yet obtained the least definite notion, since no man hath known or can know what a miasm or a contagion is. Miasm and contagion are words, nothing more: they represent no precise material idea of the mind."

Dr. Robertson's account of the Manchester epidemic had been previously cited by Oliver Wendell Holmes (1843).

The High-pressure Sterilizer

It is also of great interest to record that John Robertson played a small part in an investigation which led to the invention of the high-pressure sterilizer, so essential to modern aseptic technique. Dr. William Henry, the famous physicist (1775-1836), also of Manchester, was making experiments on sterilization by heat, at the request of a cotton importer, in the hope of preventing the introduction of plague in cargoes of Egyptian cotton landed at Manchester. Dr. Henry (1831) states that "the most important point to be ascertained, and that on which the utility of the inquiry hinges, is whether temperature below 212° Fahrenheit is capable of destroying the contagion of fomes." To test the effect of different temperatures, for varying periods of time, Henry made use of fresh vaccine lymph. Among others, Dr. John Robertson, "one of the surgeons of the Manchester Lying-In Hospital," supplied Dr. Henry with the vaccine lymph. The double-jacket steam sterilizer was devised as the direct result of these experiments.

Thus this powerful means of destroying the cause of contagion was invented and in use thirty years and more before it was proved that the actual fomes were the micro-organisms of Anthony van Leeuwenhoek, microscopic protozoa which he had discovered—in water in 1675, and, in 1681, in material from the human mouth. It was ignorance as to the nature of these fomes—of the "precise material" of Charles Meigs, of the body or substance which could be conveyed by a third person from one patient to another—that had long delayed the wide acceptance of the theory of contagion. The final acceptance had been actually based on circumstantial evidence alone.

Years were to elapse before the elusive and, as it proved to be, microscopic malefic object was discovered,

although, one is amazed to find, the transcendent brain of William Harvey had in 1651 used the term "fomes" and had conceived the idea of "seeds of epidemic and contagious diseases" which "propagated to a distance through the air," and "in a hidden fashion silently multiplying themselves by a kind of generation . . . spread destruction far and wide among man and beast."

Skoda of Vienna, inspired by the theory of Semmelweis that poisonous animal matter was introduced by the hand of the accoucheur into the genital tract, suggested to Semmelweis in 1849 that the problem should be investigated by experiments on animals. By means of a brush at first, later a syringe, exudate from a case of endometritis, or pus from an abscess, was introduced into the vagina and uterus of rabbits recently delivered. Later the post-mortem appearances were studied, but in the absence of microscopical examination nothing of real value was learnt.

The Indictment of Bacteria

It was Louis Pasteur who initiated the investigations which were to lead to the indictment of bacteria or microbes as the long-desired *materia peccans* of contagion. The study of diseases of grapes, of silkworms, of cattle, had fired his imagination to "arrive at the knowledge of the causes of putrid and contagious diseases" in human beings. After investigating septic cases in the surgical wards of hospitals he studied cases of puerperal infection in the Maternité, finding in certain of them "a microbe in the shape of chain or chaplet, which lent itself very well to culture."

The description by Monsieur Roux of an occasion (March 11, 1879) on which Pasteur proclaimed this discovery is well worth recalling to our minds. "One day, in a discussion on puerperal fever at the Academy, one of his most weighty opponents was eloquently enlarging upon the causes of epidemics in lying-in hospitals: Pasteur interrupted him: 'None of those things cause the epidemic; it is the nursing and medical staff who carry the microbe from an infected woman to a healthy one.' And as the orator replied that he feared that microbe would never be found, Pasteur went to the blackboard and drew a diagram of the chain-like organism, saying, 'There, that is what it is like!'"

He had found streptococci in the lochia of dying patients and had cultivated them from the blood, taken both before and after death. This was a discovery which must have undermined the opposition of any remaining anti-contagionists, and one can appreciate the satisfaction with which Oliver Wendell Holmes, writing to Dr. Chadwick in 1883 on the contagiousness of puerperal fever, is able to boast: "But I shrieked my warning louder and longer than any of them, and I am pleased to remember that I took my ground on the existing evidence, before the little army of microbes was marched up to support my position."

The new science of bacteriology thus arose, and was ardently pursued by a rapidly increasing army of investigators in all civilized countries. Other organisms were discovered, isolated, and proved to be the cause of rarer types of puerperal infection, most of which were much less severe and less frequently fatal than that caused by the streptococcus.

It is impossible, and really unnecessary for my purpose, to review the story of the discovery of these various organisms. This was admirably done by Arnold W. W. Lea (1910), also a member of the surgical staff of St. Mary's Hospital. The list he gives still stands: in

Side hospital. The epidemic ceased abruptly and we have had no trouble in this regard since.

"I immediately instituted rules and regulations regarding talking on obstetric cases (such as averting the face when talking over a patient so as not to spit upon her, keeping the hands away from the face and mouth while on duty so as not to infect them with saliva, not to attend a labour case if suffering from a head cold or sore throat, etc.), but I do not remember that I insisted on masks.

"The first record that I have of the use of masks is in 1907 while I was preparing the third edition of my book on obstetrics for nurses, which was published in 1908. There is a picture in this book of the doctor aiding the parturient to bear down, and he wears a face mask."

The first protection used by DeLee was "a thick scarf of cheese-cloth." Finding that spittle could be driven through the mesh of this he used thick towelling, and this again he fortified with a four-inch square of adhesive plaster during epidemics of colds or if he himself had a sore throat and had to continue at work.

Kanter and Pilot (1924) appear to have published the first account of a bacteriological investigation of the likelihood of droplet infection in obstetrical practice. It was carried out in the extern department of the Presbyterian Hospital, Chicago. They found "no evidence to support auto-infection from vaginal streptococci," but concluded that "droplet infection from attendants is possible and that the use of masks during delivery and the exclusion of those having sore throats from the delivery room and from attendance on puerperal women is clearly indicated."

Delay in the Use of the Mask

Apart from its use in Caesarean section there has been an astonishing delay in the employment of the face mask in hospital and, even more so, in domiciliary midwifery practice. It is sad to reflect that its adoption or more rigid use in this or that institution, on this or that maternity district, has so often been and still is the direct consequence of an epidemic, more or less rapidly controlled, in the hospital itself. "It would appear that some even await the stimulus of legal proceedings.

Investigation into Hospital Epidemics

Many such epidemics have been laboriously investigated by bacteriologists especially skilled in the recognition of the various types of streptococci. It is only in this way that the origin or the originator of the epidemic or of the sporadic case can be detected and indicted with a degree of probability almost amounting to certainty. The first of these thoroughly investigated epidemics was that which occurred in the Sloane Hospital, New York, in January and February of 1927. Of 163 delivered women twenty-four (15 per cent.) developed haemolytic streptococcal infections; eight of these died. It was fully reported in the August number, 1928, of the *American Journal of Obstetrics and Gynaecology* by Professor B. P. Watson and Dr. Frank Meleney. A complete bacteriological examination of the hospital failed to demonstrate haemolytic streptococci in the air, on the floor or walls, in the operating room, in dressings, supplies, or water. The only place where streptococci were found, other than in the infected patients, was in the nose and throat of certain doctors, nurses, and members of the domestic staff. In the summary of these papers it was laid down that it is "important to exclude streptococcal carriers from maternity hospitals and to insist on complete masking by all in attendance on parturient and puerperal women." Thus one result of

this epidemic was the much more rigid masking of both mouth and nose.

The Sloane Hospital Report aroused widespread interest in a source of infection which, as we have already seen, had been suspected by a few for years but had never before been strongly attested. The report was reviewed and warmly welcomed by Professor DeLee in the section of obstetrics of "The Practical Medicine Series" for 1928. At last he had powerful scientific support for the complete masking of mouth and nose, which he had already been employing and advocating in midwifery practice—against much opposition—for no less than twenty years.

In June, 1929, Nixon and Wright reported two fatal cases of pneumococcal septicaemia during the puerperium from University College Hospital, London. The second patient was a hospital "district nurse." By serological tests it was found that the throat of one of her attendants (who was suffering from a severe "cold") yielded pneumococci of the same type—Type I—as the vagina, uterus, and blood of the woman. This is, I believe, the first case recorded in which the bacteriological evidence attained such a degree of probability. As a consequence face masks, which had been used at deliveries within the hospital since early in 1927, were made compulsory on the district.

Just one more instance of a compelled change of policy. In the early months of 1936 one of the most famous maternity hospitals in the world, the Rotunda (see Annual Report), experienced an epidemic of streptococcal sepsis; four out of fourteen cases ended fatally. This coincided with a severe outbreak of streptococcal throats among the hospital staff and in the city. A full investigation was made, and among the conclusions we read: "Up to this time masks had not been used in the maternity department, but this epidemic and the knowledge of the mode of origin decided a change of policy."

Other Investigations

Many similar investigations have been made since 1928. It is impossible to enumerate or analyse them. However, I believe that all authorities would wish to give a special recognition to the work of Dr. Leonard Colebrook. In a chat with Professor DeLee in Chicago last autumn I was asked to convey the Professor's personal gratitude to "the Colebrooks" for their work on the sources of infection in puerperal sepsis. Dr. Leonard Colebrook has summarized this work; referred freely to that of others; and given his own conclusions in *The Prevention of Puerperal Sepsis*, published in 1936. This should be carefully studied by everybody—midwife, accoucheur, and administrator—concerned for the safety of childbirth.

In 1925 puerperal sepsis was the chief subject for discussion at the British Congress of Obstetrics and Gynaecology, held in London. The possibility of droplet infection was not even mentioned. Professor Whitridge Williams, who took part in the discussion, was impressed by the fact that in a series of streptococcal infections in his service 30 per cent. of the patients had had spontaneous labours without even a vaginal examination: this is a generally accepted proportion. He thought that all bacteriological evidence pointed to the rarity of endogenous auto-infection—all recent work has supported this view. After stating that there must be "some form of external infection which escaped recognition" he drew attention to the possibility of parturient women conveying the organisms on their fingers to the vulva or vagina. This is a danger well recognized by the supporters of

Flügge, reported in 1895. Flügge had not only proved that the micro-organisms found in the human mouth might be pathogenic, but had demonstrated the "surprising and extraordinarily important fact" (to use Hübener's own words) "that when speaking, coughing, and sneezing a spreading about of the mouth and nose secretions takes place. Even at a distance of several metres he had shown that agar plates were covered with colonies after somewhat louder and livelier speaking." Flügge urged the exclusion from aseptic operations of all persons suffering from acute catarrh.

Mikulicz, searching for an "absolutely germless" surgical technique and at this time experimenting with sterilized thread gloves, was deeply concerned by this newly recognized source of infection. He immediately set to work to parry it. In July, 1897, he described the "Mundbinde" (mouth bandage) which he was using for this purpose. This is, I believe, the first publication on the subject. The material used was the finest mull, "sterilized of course," he says, and "fastened to the similarly sterilized operation-gown."

Although Mikulicz claimed that he had quickly become accustomed to their use and "could breathe through them as easily as a lady who in the street wears a veil," we find that he had asked Hübener to search, by experiment, for a comfortable as well as a secure means of protection. In his lengthy paper Hübener describes his method of experimentation. An assistant whose mouth had been thoroughly rinsed with a diluted culture of *B. prodigiosus* spoke and coughed, at varying distances and angles, over appropriately arranged agar plates. The green colour of the prodigious colonies made it easy to distinguish the germs "spoken out from the oral cavity" from those deposited from the air.

Evolution of the Face Mask

These experiments led to the gradual evolution of a metal frame—a modified Esmarch chloroform mask—with spectacle ear-pieces, carrying a double layer of close-meshed mull. As evidence of the exhaustive character of these pioneer experiments it must be noted that Hübener demonstrated that the mask should be held at a distance of a few centimetres from the mouth, and this not for comfort only but to increase its efficiency as a filter. This is a requirement which is ignored in most types of mask, but it can be easily achieved by giving a snout-like projection, by means of a stiffened dart on each side of the simple oblong of folded gauze so much in use.

Concurrently with the investigations of Mikulicz and Hübener the problem was being studied in Paris. The famous surgeon Paul Berger read a paper "On the Use of a Mask in Operating" before the Surgical Society of Paris on February 22, 1899. He began with the statement: "For several years I have been worried as to the part that drops of liquid projected from the mouth of the operator or his assistants may exercise on the outbreaks of infection which one still sees from time to time under conditions of surgical asepsis which are apparently satisfactory." Berger's suspicions had been aroused by the association of a short series of cases of suppuration in clean operations with an assistant who was suffering from an alveolar abscess. The same mishaps occurred several months later, when he himself was suffering from a dental periostitis. His attention directed to the point led him to notice that drops of saliva were projected from the lips of the operator or his assistant even when isolated words, orders in monosyllables, were given.

Aware of Flügge's discovery of the presence of pathogenic bacteria in the saliva, he had set to work to find a means of "shielding his operation wounds from this cause of contamination," even before Mikulicz had published his paper. In October, 1897, he began to wear a rectangular compress of six layers of gauze, sewn at its lower edge to his sterilized linen apron (he had a beard to safeguard) and the upper border held against the root of the nose by strings tied behind the neck. His investigations appear to have been purely clinical, but in the course of fifteen months he convinced himself that he had markedly diminished the incidence of sepsis after clean operations. His paper ends thus:

"It is exactly because I realize that perfection in the carrying out of operations aseptically must not concern itself with any one point but with all, and must neglect no detail, that I have been so anxious to insist on a precaution, the use of which has contributed not a little to improve my operative results. I do not blind myself to the fact that this is too great a shock to custom for it to receive a much more favourable welcome than that accorded by the German surgeons to an analogous communication by Professor Mikulicz."

His surmise was correct: in the discussion that followed a Monsieur Terrier scoffed at the proposal, saying, "I have never worn a mask, and quite certainly I never shall do so." However, in time surgeons did adopt the precaution, and probably the first English surgeon to insist, in a textbook, on the use of the face mask was that master of operative technique Berkeley Moynihan in his *Abdominal Surgery* (second edition, 1906). He pours ridicule on the scoffers "who claim to be satisfied with their results."

Berkeley and Bonney in their *Textbook of Gynaecological Surgery*, first issued in 1911, after testing by experiment the validity of the danger, stated their conviction that the surgeon and his staff should wear masks. Yet in their work *Obstetrical Emergencies*, even in the third edition of 1921, they do not mention the possibility of droplet infection. This illogical position was indeed shared by all, or nearly all, of us who have during the last twenty years practised both gynaecology and midwifery.

The Pioneer in the Use of the Mask

In seeking the pioneer in the use of the mask in obstetric practice I have come to the conclusion that Professor Benjamin DeLee (known at the moment to the American lay press as "Number One Obstetrician, U.S.A.") is entitled to the credit for this.

Let me tell the story in DeLee's own words, from a recent letter:

"I cannot say just when I first started to use face masks in obstetric practice. I believe it was certainly at the same time, or even before, the surgeons used them.

"Just about the turn of the century we had a small epidemic of puerperal infection among the mothers and the babies at the Chicago Lying-in Hospital Dispensary, the home service, which of course was astonishing.

"On investigation I found that one of the interns, who liked to teach and demonstrate to the students while he was delivering the women, had a slight salivation and little tiny droplets of saliva were present frequently at the corners of his mouth. All of the cases that got sick were handled by this particular intern, and one mother and one baby died of streptococcus infection.

"I made a careful study of this intern's nose and throat and found a short-chain streptococcus. I relieved him from service and gave him a position in the laboratory of a South

of time that has led me to confine myself to this one danger.

The history of the discovery of infections by other organisms—staphylococci, the gonococcus, pneumococci, the *Bacillus coli*, the bacillus of Welch, etc.—and the special precautions required to anticipate and thwart each one of them, are of great interest and importance. It would be folly to neglect them while concentrating on one special danger. The most complete surgical technique is essential in really safe midwifery practice. New knowledge may lead to its modification, and it may be that a future Lloyd Roberts lecturer will find this paper of mine useful in composing his own on "The Rise and Fall of the Obstetrical Face Mask."

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A report by the Food Council to the President of the Board of Trade on its inquiry into the costs and profits of retail milk distribution in Great Britain has now been published by H.M. Stationery Office, price 9d. The main objects of the inquiry were to examine the extent and the causes of the differences between the financial results, per gallon of milk sold, of various businesses; to ascertain whether retail milk distributors are, on the whole, making an unduly high rate of net profit or rendering unnecessarily expensive services; and to consider the possibility of eliminating any such services and achieving generally a more economical retail distribution of milk. In its conclusions the Council suggests possible lines of action by which a reduction might be made in the average margin covering the expenses and profit of the distributor, in order to achieve a reduction in the retail price of milk.

THE LYMPHOID TISSUE OF THE ALIMENTARY CANAL*

BY

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(WITH SPECIAL PLATE)

The lymphoid tissue of the alimentary canal consists of the tonsillar and pharyngeal ring, the Peyer's patches, the vermiform appendix, and the solitary follicles of the large intestine, but in order to come to a proper understanding of these lymphoid foci a few words about the lymphatic system as a whole are necessary.

It is the accepted belief now that in vertebrates the lymphatics form a closed tube system and do not communicate with the tissue spaces, with the serous cavities such as the peritoneal and pleural cavities, or with the ventricles of the brain or the central canal of the spinal cord. The lymphatic capillaries form dense networks in most of the tissues of the body; these unite to form larger vessels, and the largest, the right and left thoracic ducts, empty their contents into veins and contribute various-sized lymphocytes to the blood stream. Moreover, as Drinker and Field (1933) point out, care must be taken to distinguish between true lymph obtained from lymph vessels; tissue fluid, the fluid in the region outside blood and lymph capillaries in the cellular interspaces; and plasma, the unclotted fluid of the blood, which differs markedly from lymph and tissue fluid in protein content and to a less degree in salt content. As Drinker and Field say, "the three fluids should not be confused with one another or with blood serum as is frequently done—particularly by immunologists uninoculated with a physiological conscience."

Moreover, as Maximow (1935) asserts:

"The lymphatic networks are distinguished from the blood capillaries by ending blindly in rounded or swollen ends. This is best seen in the mucous membrane of the small intestines; where a network of lymphatic capillaries or a single blindly ending vessel, the central lacteal, extends in the lamina propria up to the end of the villus. The lymphatic capillaries form expanded networks of considerable size round the solitary and aggregated lymphatic follicles of the intestine. They consist of a single layer of flat endothelial cells. The larger lymphatic vessels have valves and slightly thickened walls containing elastic fibres, smooth muscle, and interlacing collagenous fibres."

Maximow concludes his description of lymphatic capillaries and vessels with the important statement. "As the lymphatics form a closed endothelium-lined system of tubes the tissue juice must pass through the endothelial cytoplasm to reach the lumen of the lymphatics."

But the lymphatic system does not consist only of lymphatic vessels. These have associated with them collections of lymphoid tissue known as lymph nodes—sometimes called lymphatic glands—and also lymphoid follicles, the latter being solitary or aggregated follicles according to whether they are single or gathered into groups.

I do not propose to refer further to the lymph nodes, although their internal structure is very similar to the collections of lymphoid tissue elsewhere, but I wish to

* A lecture given at the Henry Lester Institute of Medical Research, Shanghai.

the theory of droplet infection, and special precautions are laid down to thwart it: precautionary advice; a mask for the woman known to have an infected throat; careful and repeated cleansing of their hands; and, in my own practice, a double clove-hitch on the wrists to prevent the hands of the woman in twilight sleep from wandering to the vulva.

As the experts at this congress were oblivious to the droplet danger it is not surprising that the current textbooks on midwifery contained no reference to it. And yet it would seem that, thinking logically, there is the same necessity for rigid aseptic technique in obstetric as in surgical practice. In the seventh edition (1912) of Hirst's *Obstetrics* the mask is considered necessary in major but not in minor surgery, and not in making obstetrical examinations and manipulations. This fallacious view has been held to a ridiculous extent. I have recently seen a gynaecologist wear a mask in an operating theatre whilst repairing a perineal tear of thirty years' duration, but disdain its use when suturing, in a labour room, a tear sustained ten minutes previously. Thus most of us acted less than ten years ago.

The English textbooks on midwifery were late in drawing attention to the danger. One of the best-known did not refer to it in 1925 in its sixth edition. In the seventh edition of 1931, however, we read that the human throat is the chief habitat of the haemolytic streptococcus, and that masks completely covering mouth and nose should be worn by all who are in attendance on labour and by nurses during the puerperium.

It will be asked: Is there evidence of benefit from the rigid use of these, together with other rational precautions, such as early detection and exclusion with appropriate treatment of attendants who have infected air passages and the immediate investigation and segregation of lying-in women at the onset of pyrexia? It is obvious that the masks must be efficient and that they should be in position before the hands are sterilized and before instruments and other appliances are removed from the sterilizer and laid out ready for use—preferably, indeed, before the labour room is entered.

I believe there is convincing evidence from several maternity hospitals where for the last five years or more there has been thorough bacteriological control of the work of the hospital—both indoor and outdoor. Comparison of the results in these two departments has yielded unexpected figures of great significance.

Dr. Joan Rose of the Elsie Inglis Hospital, Edinburgh, in a second report (1936) on "Bacteriological Control," says: "Observations on the incidence of haemolytic streptococci in lying-in women have been continued over a period of six years. The figures for the past three years show that while the general morbidity in hospital and on districts remains low, the pyrexial rate associated with these organisms is higher on the district than in the hospital."

Dr. R. G. Douglas (1937) states that all these precautions—and he lays great stress on efficient masking—have been rigidly employed at the New York Lying-in Hospital since September, 1932. He shows that the incidence of streptococcal pyrexia was two and a half times as frequent in the home as compared with the hospital deliveries. The same result has been obtained in comparable conditions in the practice of the Jessop Hospital, Sheffield, under the control of two whole-time bacteriologists.

The Report of the Obstetric Registrar of University College Hospital, London, for 1936 records that whilst

two cases of haemolytic streptococcal infection occurred in 348 district deliveries there were no cases among the 1,034 deliveries in the hospital itself.

Dr. Leonard Colebrook reports that during the last five years the risk of developing a haemolytic streptococcal infection has been 30 to 40 per cent. higher for any booked case delivered in her own home than it is for similar booked cases delivered in Queen Charlotte's Hospital, and this in spite of the hospital having to deal with many already infected emergency cases. He continues: "I am sure that whereas the risk of sepsis in well-conducted maternity hospitals is growing less and less, we shall never have adequate control over the manifold dangers of familial infection in the overcrowded houses of the poor. I am glad, therefore," he adds, "to see the tendency for more hospital deliveries, and I think we should encourage and facilitate that movement."

Air-borne Infection in Dust

These results have led Colebrook and others to revive investigations into the possible danger of air-borne infection in dust. That the atmosphere was the chief vehicle of contagion was believed by many a hundred years and more ago. The belief was substantiated when Pasteur showed that the air was populated with microbes which caused putrefaction and fermentation. John Tyndall, the physicist, devised beautiful experiments and apparatus to demonstrate the presence of germ-laden dust in the atmosphere, and thus upset the theory of spontaneous generation. Lister attempted to counter the danger by the use of the carbolic spray, within the range of which surgical operations and even childbirth were conducted. Further bacteriological investigations drew attention away from this to other more frequent sources of infection. But it is our duty to leave no possible source of danger unheeded.

The most recent work on air-borne infection has been carried out by William and Mildred Wells (1936) of Harvard University. The experiments are ingenious and the results impressive. In an air-conditioned room with an air centrifuge respiring at the human rate "sneeze-powder" was projected at will among a group of graduates. Bacterial samples of the air were collected by the centrifuge into blood-agar tubes. These workers demonstrate that "it would seem obvious that under conditions of crowding in enclosed rooms we are breathing one another's nasopharyngeal flora, as we once drank each other's intestinal flora in our water supplies." In searching for means to effect air sterilization they have found that germs are killed by ultra-violet rays. Floodlights emitting these rays are now in use in a corridor of the Children's Hospital, Cambridge, Massachusetts, and in the number of the *Journal of Thoracic Surgery* for October, 1936, there is a picture of an operation being conducted within the range of a battery of these lamps.

Charles White, the founder of St. Mary's Maternity Hospital, keenly alive to the dangers of "the foul and disagreeable air" of many hospital wards, strongly advocated ventilators and "every other assistance for clearing the wards of foul air." He would no doubt be delighted with the modern American air-conditioned hospital ward.

Conclusion

I fully realize that I should be doing a great disservice to a cause which I have much at heart if I left the impression that it is only against streptococcal infections, and in particular against the droplet danger, that I advocate precautionary measures. It is largely a matter

Now in all these places there appears to be a special relation to bacterial infection.

The tonsillar lymphoid ring, as we may call it, is at the entrance to the pharynx, where the path of the food and the path of the inspired air cross one another: in other words, the point where the maximum possible combined air-borne and food infection may occur.

The Peyer's patches begin where the curbing antibacterial action of the gastric juice and the bile begins to lose its power and micro-organisms begin to multiply. The Peyer's patches become more marked in the lower part of the ileum, until in some animals, such as the pig, there is to be found an enormous Peyer's patch about six feet long in the lower portion of the ileum next to the ileo-caecal valve.

The vermiform appendix with its lymphoid tissue is situated at the apex of the caecum at the point where there is probably the greatest stagnation of broken-down food-stuffs and where bacteria are most able to multiply. It is a fact that over 50 per cent. of the contents of the caecum of the rabbit is composed of bacteria.

The solitary follicles of the large intestine, again, are in the place where there is marked fermentation and bacterial action.

Thus we see that in all of these places there is apparently a special relation to bacterial infection. Of course it may be a coincidence, but it is certainly very suggestive.

The Lymphoid Ring of the Throat and Nose

Now let us consider the lymphoid ring at the back of the throat and nose. Here the bacteria are taken in by respiration and food. They are for the most part swallowed and are then destroyed by the acid gastric juice, but before entering the oesophagus they have incorporated with them the salivary corpuscles, which are the lymphocytes discharged by the lymph follicles of the tonsils. Digby suggested that the tonsils and adenoids by inviting a direct local infection possibly protected the body as a whole by conferring a general immunity, and it is true that pathogenic bacteria have been found in the lymphoid tissue of the tonsils and have been traced from this point of entry to the lymph nodes of the neck. But although I am not an immunologist I would suggest that possibly the tonsils act also in a somewhat different way, that the discharged lymphocytes or salivary corpuscles react to the bacterial toxins and supply a dose of immune bodies which are swallowed and absorbed by the alimentary canal and help to establish immunity in this manner. Associated with the tonsillar lymphoid tissue are small glands with ducts opening between the folds. During the act of deglutition the ring of lymphoid tissue is contracted, there is a discharge of mucus from the glands, while the lymphoid tissue contributes numerous lymphocytes to the food mass.

A few years ago it was the fashion for children to have their tonsils removed on the slightest pretext, and I remember that when I was a house-surgeon tonsillectomy for enlarged tonsils, not necessarily septic, was by far the most common operation in a large general hospital; but it is now coming to be realized that healthy tonsils must have some use, and that simple enlargement, so long as it is not causing obstruction to respiration, is due to the response of the body to some lack of hygiene or to some dietetic deficiency. It is now a fact that simple enlargement of the tonsils is fast disappearing in European countries, and therefore careful distinction must be made between slight tonsillar enlargements and septic tonsils which cause much ill-health. Layton (1936), surgeon in charge of the throat and ear department of Guy's Hospital,

writing in the *Lancet* in May of this year and speaking from clinical experience, says that in children under 5 to 8 years of age removal of the tonsils impairs resistance to infection—not to the specific diseases such as diphtheria or measles, but to that of general infections, leading to sore throat and colds, and the appearance of diffuse shotty glands in the neck. He further points out that later on, at 14 to 16 years of age, catarrhal deafness is distinctly more common in children who have been subjected to what he calls "flaying of the pharynx," where tonsils and adenoids are completely removed. Moreover, he points out that in the children of the poor living in less hygienic conditions the results may be very serious, and vary from a fading away of the child for no apparent reason to a chronic nasal catarrh which makes it seem as if the child is never free from a cold. He also adds that it is extremely difficult to cure an otitis media which occurs in a tonsillectomized child. All of these facts support the theory that the lymphoid tissue of the tonsillar ring is associated with the protection of the young subject from bacterial infections and that it is of value in the economy of the growing child.

Lymphoid Tissue of the Small Intestine

Turning next to the collections of lymphoid tissue in the small intestine, we must remember that these are associated with the alimentary canal on the one side and with subserous lymphatic vessels on the other. It has been argued that not only the lacteals but also the lymph follicles are associated with the absorption of fat, and that in the latter case this was largely the work of the lymphocytes; but Yoffey (1932) has reported, as the result of experimental work on dogs after feeding the animals on half a pound of lard and collecting the lymph over a period of eight hours from the thoracic duct, that although this was perfectly white and appeared to contain a large quantity of fat, in no case was the proportion of fat higher than 3 per cent., so this would account altogether for only 6 grammes absorbed via the lymph out of a total fat absorption of 226 grammes. Furthermore, even this small amount of fat was not absorbed by the lymphocytes, which in the thoracic duct are practically all (98 per cent.) small, with only the faintest suggestion of a cytoplasmic ring—and no fat could be demonstrated in the lymphocytes by histochemical methods.

I think we can therefore rule out the suggestion that the lymphoid follicles, either solitary or aggregated in Peyer's patches or the vermiform appendix, have any real function in connexion with the absorption of fats.

Relation to Bacteria

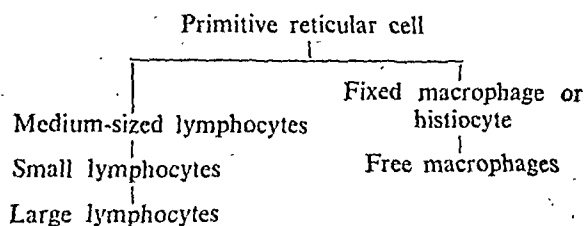
Passing on to the relation of the intestinal lymphoid tissue to bacteria, we find strong evidence of this. We have seen that there is a constant and steady discharge of lymphocytes in two directions: (1) into the alimentary canal, and (2) into the subserous lymphatics and so to the thoracic duct. It has not been possible to estimate the number of lymphocytes discharged into the bowel, but the number of those which pass into the blood stream from the lymphatic system as a whole through the thoracic duct is enormous.

Yoffey (1932) found that in a 10-kilogramme dog, on an average, 25 c.cm. of lymph could be collected hourly from the thoracic duct. This had a lymphocyte count of 10,000 to 11,000 per c.mm. The longest period over which lymph was collected was eight hours—this would give a daily lymphocyte output of 6,600,000,000. But the total lympho-

direct your attention to the follicular collections of lymphoid tissue to be found along the alimentary tract.

All lymphatic follicles are composed of a framework and free cells. The framework consists of reticular fibres and fixed cells, which may be flattened out, and correspond to the endothelial cells lining the ordinary lymphatic capillaries. In the lymphoid follicles they are sometimes called histiocytes, or fixed macrophages, because they may have phagocytic powers. As I have pointed out, the lymphatic capillaries form expanded networks round the solitary and aggregated lymphatic follicles of the alimentary tract, including the tonsils, but there is no evidence that these capillaries are continuous with the spaces in the lymphoid follicles in which the free cells are found. The free cells in the meshes of the framework consist of free macrophages and lymphocytes; the former are formed from the fixed macrophages and are highly phagocytic, while the latter are classified as small, medium, or large.

According to Maximow the primitive reticular cells give rise to the fixed and free macrophages, and also the medium-sized lymphocytes, which are the precursors of the large and small lymphocytes, the small lymphocyte being capable of development into the large, which then divides mitotically and produces small ones. Diagrammatically they may be represented thus:



The difference between the lymphoid follicles seen in the lymph nodes and those found in the lymphatic tissue of the alimentary tract is that the latter do not possess lymphatic sinuses and lymph is not filtered through them. They are provided, however, as mentioned before, with net-like plexuses of wide blindly ending lymph capillaries, which surround their outer surfaces except where the follicles come in close connexion with the epithelium of the alimentary tract.

The lymphoid follicles, both in the lymph nodes and in the lymphatic collections of the alimentary canal, consist of a superficial and a deep layer which tend to merge into one another. The superficial follicles comprise a compact mass of lymphocytes embedded in a cellular and fibrous reticulum, while the deeper layer has an outer dense mass of lymphocytes and a lighter-staining germinal centre. The latter is situated in the centre of the deeper follicle and passes through a series of cyclic changes, during which an intense new formation of lymphocytes is brought about through proliferation of pre-existing large lymphocytes and through transformation of the primitive reticular cells. The deeper follicles also include degenerating cells with a poor affinity for nuclear stains, which we have called debris cells because they appear to contain granular debris and crystals.

Another big difference between the lymphoid follicles in the alimentary canal and those in the lymph nodes appears to be this—that the stream of small lymphocytes which is the end-product of the lymphoid tissue of the alimentary canal flows in two directions, towards the lumen of the bowel (Special Plate, Figs. 1 and 2) and towards the subserous lymphatics (Fig. 3). The greater

part enter the lumen of the gut, whereas in the case of the lymph nodes it is towards the lymph sinuses and efferent lymph vessels and so on to the thoracic duct and the blood stream; and, moreover, it is a characteristic of the epithelium overlying the lymphoid follicles in the alimentary canal, no matter whether it is squamous or columnar, that it is constantly found to be infiltrated with lymphocytes. In other words, there is a definite flow of lymphocytes from the deeper follicles or germinal centres through the superficial follicles, then through the epithelium into the lumen of the alimentary canal. These lymphocytes are amoeboid but not phagocytic. Some macrophages and large lymphocytes are also discharged into the intestine, but these are few in number, for the macrophages and the large and medium lymphocytes mostly remain in the centre of the deeper follicles, forming the germinal centre.

May I request your attention to the lymphoid tissue of the alimentary tract as a whole: first, its development; secondly, its position.

Development of Lymphoid Tissue

It is an interesting fact that the development of the lymphoid tissue of the alimentary canal is associated with early life. For example, the lymphoid tissue of the tonsils first appears in the last month of foetal life, generally reaches its maximal development in childhood, and begins to atrophy about the age of 15. Digby (1919) has pointed out that the lymphoid tissue in the appendix of the rabbit is almost entirely developed just after birth.

In order to confirm this we made a series of microscopical sections of the vermiform appendix of small rabbits from the same litter at different times after birth (immediately after birth and seven days, fourteen days, and thirty days after), and the rapid development of the lymphoid tissue was clearly seen. Now the contents of the alimentary canal before birth are sterile, but soon after birth they become infected, and, as Digby says, "it would almost seem that it required the stimulus of bacteria in the alimentary canal to provoke the development of the lymphoid tissue."

I have pointed out on a previous occasion that in the lymphoid tissue of the rabbit's appendix there are normally found numbers of Gram-positive bacteria, and it seemed to be of interest to know how early in life these were present. In the section made just after birth and in seven-day specimens no organisms were seen. In the fourteen-day sections organisms were found on the epithelial surface, but none in the lymphoid tissue; but in the thirty-day sections they appeared both in the crypts and—although not numerous they were definitely present—in the lymph follicles. It would thus seem that the development of the lymphoid tissue begins slightly earlier than the appearance of the organisms, but that the two are definitely associated.

Position of the Tissue

Lymphoid tissue of the alimentary tract occurs in the following positions:

1. At the back of the mouth and nose, where there is an almost complete ring of lymphoid tissue consisting of the lingual, palatine, and pharyngeal tonsils.
2. In the lower part of the small intestine, as Peyer's patches.
3. In the caecum, as the vermiform appendix.
4. In the large intestines, as solitary follicles.

and deep follicles present. (Fig. 6). This work requires confirmation, but if this is forthcoming it is certainly suggestive as a possible reason for the decline in the protective mechanism of the organism against infection and also for the loss of immunity against bacterial infection in vitamin A deficiency.

Professor McCoy lectured recently upon "Immunity in Helminth Infections," and he stated that an immunity is developed in some way at present unknown while the worms are in the alimentary canal. He demonstrated that the development of this immunity could not be brought about after animals had been for two weeks on a vitamin A deficient diet and before there was time for the development of epithelial changes. May it not well be due to the effect of a lack of vitamin A upon the lymphoid tissue of the alimentary tract?

Commentary.

You may ask why a surgeon should venture into the sacred domain of bacteriology and dietetics; the answer is that I believe that just as you have a recognized department of medicine known as "preventive medicine," so there ought to be an endeavour to establish "preventive surgery." I visualize the time when the physician will try to prevent and even treat his typhoid cases, which after all are probably simply attacks on the lymphoid tissue of the Peyer's patches by *B. typhosus*, and the surgeon will try to prevent an attack of appendicitis, which is probably an attack of septic organisms on the lymphoid tissue of the vermiform appendix—possibly in both cases by a well-balanced diet or by vitamin therapy.

Anyhow, every advance in the science of medicine brings nearer the time when medical and surgical advice will be sought more for the prevention than for the cure of disease; for, as recently pointed out by Sir Robert McCarrison, Medicine is not simply concerned with the cure but still more with the prevention of disease, and we surgeons are quite willing and anxious to do our share in the discovery of means whereby we can beat our scalpels and forceps into forks, spoons, and chopsticks for the administration of a well-balanced diet.

I want to thank Drs. H. C. Hou, F. F. Tang, and Yu-ho for much helpful advice. Mr. Henderson for his painstaking efforts in assisting me in this piece of work, and Mr. R. V. Dent for the photomicrography.

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H. v. Heuss (*Med. Welt*, November 6, 1937) describes the effects of the "yellow-cross" poison gas, dichloro-diethyl sulphide. It is lipid-soluble and it impregnates the superficial layers of the skin, reaches the subpapillary blood vessels and their nervous plexuses, and since these plexuses are rich in lipoids it tends to accumulate there. The general clinical picture is somewhat similar to that of Addison's disease. The affected individuals are apathetic and adynamic; they suffer from vomiting and diarrhoea and they lose weight, and some cases may show pigmentation of the skin. The author, therefore, recommends for these cases extracts of suprarenal cortex in combination with glucose administered intravenously or intramuscularly.

THE MODERN TREATMENT OF DIABETES MELLITUS AND THE USE OF ZINC PROTAMINE INSULIN*

BY

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Until about fifteen years ago the treatment of diabetes mellitus in the young and middle-aged was generally unsatisfactory to the doctor, and often almost cruelly to the patient: carbohydrates, fats, and proteins were progressively restricted as the disease advanced, so that the unfortunate patient eventually existed in a state of semi-starvation, until coma and death released him from his sufferings, usually within two or three years from the time the diagnosis was first made. About the year 1922, however, with the introduction of insulin, the renaissance of the treatment of diabetes took place. Even then the policy was still to limit the patient's diet so that only a minimum dose of insulin was required: for it was then uncertain what the exact effect of insulin would be if given over a long period.

Modern Methods of Dieting

It has been only during the last few years that, as a result of the increasing knowledge of the effect of insulin, gradually more liberal carbohydrate diets have been allowed, and lately, unless the patient be overweight, 150 to 200 grammes or more of carbohydrate per day have been given, with a somewhat restricted amount of fat. It has not been found that the insulin has to be increased to any great extent on this account. I have a patient, a young woman, suffering from a severe toxic goitre with much wasting, together with true diabetes mellitus. On a diet of 300 grammes of carbohydrate with as much fat and protein as she likes, and with sufficient zinc protamine insulin to keep her free from glycosuria, she is improving; so much so that a subtotal thyroidectomy will be possible in the near future.

The advantages of an increased carbohydrate diet are:

1. Patients feel much fitter, both physically and psychologically, as the diet approximates to that of an ordinary healthy individual and is more correctly balanced.
2. Life is made easier for them. The modern diabetic can stay at an hotel, and with care is able to choose his food from the ordinary menu; the child can have his meals at the family table, provided he keeps within his fixed ration of carbohydrates, which is now a satisfying one.
3. The chances of hypoglycaemia occurring, which the diabetic dreads, are much lessened.
4. The occurrence of ketosis is much decreased.

5. It has been claimed that an increased carbohydrate diet with a relative decrease of fat lessens the incidence of arteriosclerosis, which is such a common complication of diabetes in later life. This, however, is too large a subject to be referred to any further here.

The simplest method of arranging the diet for a diabetic is, I find, the Lawrence line ration scheme. The number of black lines to be taken, each containing ten grammes of carbohydrate, is settled for each patient. At first this food is weighed, but later on the patient can guess the amount with sufficient accuracy. The number of the red lines containing fixed amounts of fat and

* The substance of the Presidential Address delivered before the Derbyshire Branch of the British Medical Association, June 23, 1937.

cytes in the circulation in this-sized animal averaged out at 2,000,000,000. It therefore appears, as he pointed out, that all the lymphocytes of the blood are replaced three times daily. He suggests that it is quite likely that the lymphocytes are concerned with the active growth processes of childhood, and that the lymphoid tissues act as a storehouse of primitive wandering mesenchymal cells to supply the various tissues as they are needed. He states his belief that the fundamental problem of lymphoid tissue is concerned more than anything else with the fate of the lymphocyte. What, then, is the fate of the lymphocytes manufactured in the lymphatic follicles of the alimentary canal?

In our own work one of the principal objectives was to discover whether we could confirm a definite migration of lymphocytes into the lumen of the alimentary canal. Accordingly a number of rabbits were operated upon, the vermiform appendix was separated from the apex of the caecum, which was closed with a purse-string suture, and the open base of the appendix was brought to the surface so that its secretion, if any, could be examined. In a previous lecture I reported that we had constantly found the ferment amylase present in the secretion of the appendix, so I will not refer to this again; but the point which I wish to emphasize is the fact that the secretion contained great numbers of lymphocytes, a few large macrophages, and some eosinophil cells. Thus there appears to be no doubt that there is a regular flow of cells from the lymphoid tissue into the lumen of the alimentary canal, and that these cells are almost entirely small lymphocytes. There was no evidence that the lymphocytes were acting as phagocytes, although numerous bacteria were present.

The Reaction to Pathogenic Bacteria

Our next effort was an endeavour to discover what was the reaction of the lymphoid tissue to pathogenic bacteria. For this purpose cultures of two kinds of bacteria were prepared for me by the Division of Pathological Sciences: first, bovine tubercle bacilli; and, secondly, *Staphylococcus aureus*. These organisms were chosen because we needed something which would be readily distinguished from the ordinary flora of the alimentary tract.

In a series of nine rabbits the appendix was obstructed and after a few days' interval the abdomen was reopened; part of the fluid secreted by the appendix was aspirated off and replaced by 1 c.cm. of the culture of tubercle bacilli. After a further interval, varying from five minutes to several days, the appendix was removed and examined, smears were taken, and sections cut of the appendiceal wall. It was found that the tubercle bacilli rapidly disintegrated from the contents of the appendix. In one case acid-fast debris was discovered in the deeper lymphoid follicles; and, in another, acid-fast droplets were present on the surface of the epithelium, suggesting that bacteriolysis had taken place. In a third, acid-fast droplets were found both in and just beneath the epithelium of the mucous membrane. In a fourth case, where the animal was allowed to recover, death took place three months later from generalized tuberculosis. I realize that the number of animals used was too small for any definite statement to be made, but the results are suggestive, first, that bacteriolysis takes place either in the lumen of the bowel or in the lymphoid tissue, and, secondly, that bacteria may pass rapidly through the lymph follicles: they may be phagocytosed by the macrophages, or if the infection is a heavy one may pass on into the subserous lymphatics and thus into the general circulation, giving rise to a generalized infection.

Turning to the injection of staphylococci, a culture of *Staphylococcus aureus* was prepared for me by Dr. Tang. The organisms were killed, and then injected into the lumen of the vermiform appendix, the sacculus rotundus of the caecum, and the small intestine opposite to a Peyer's patch, after these had been closed off from the rest of the alimentary canal. Six rabbits were used, and at intervals of from one and a half to fifteen minutes the appendix, sacculus rotundus, and Peyer's patch were removed for histological examination. In the case of the appendix, sections showed some of the organisms on the surface of the epithelium or passing down the crypts, some just beneath, between or associated with lymphocytes within the epithelial cells, some in the superficial and deep lymph follicles, and a few in the lymph spaces.

We had previously noticed that where bacteria were particularly thick upon the surface of the epithelium there appeared to be a moving out of the lymphocytes through or between the epithelial cells as if to resist, and yet there was in that locality no active phagocytosis, thus confirming the theory that any lymphocytic action must be by bacteriolysis, with the formation and discharge of granules (Fig. 4).

At the same time some bacteria could pass through or between the epithelial cells, enter the lymph follicles, and migrate to the deeper parts, where they are met by the macrophages, a second line of defence being formed by phagocytes. The sacculus rotundus and the Peyer's patch showed similar results, but not nearly so marked as in the case of the appendix.

We have previously noted that in the rabbit the lymphoid tissue of the alimentary canal is normally associated with the presence of Gram-positive bacteria, and our next effort was to try to find where these bacteria came from and whether there were any conditions which affected the amount of lymphoid tissue or the number of organisms present, and so lead to some theories as to the function of the lymphoid tissue or the reason for the presence of the bacteria.

Effect of Vitamin A Deficiency

Accordingly several batches of rabbits were put on to a vitamin A deficient diet. It was obvious that the numbers of organisms in the lymphoid tissue were markedly increased; and not only were they present in large numbers scattered throughout the deeper follicles, but they appeared to be massed in colonies as if they were multiplying locally. Especially was this the case in the lymphoid tissue of the vermiform appendix; it was so to a less degree in the sacculus rotundus, and to a still less degree in the lymphoid tissue of the Peyer's patch, situated a few inches from the ileo-caecal valve.

It was also noted that when the animals had been deprived of vitamin A their lymphoid follicles showed signs of atrophy, and in the later stages, when they had begun to develop signs of xerophthalmia, the lymphoid follicles were represented by only a very thin layer of leucocytes (Fig. 5). This was so marked that it was decided to see whether the readministration of vitamin A would cause a regeneration of the lymphoid follicles. A rabbit was therefore chosen which had been on a vitamin A deficient diet for several months and in which xerophthalmia was well developed. The animal was given a similar diet with the addition of carotene in oil for one week and then killed, and the appendix and other lymphoid organs removed. When the lymphoid tissue was examined it was found that the deeper follicles showed the characteristics of active regeneration, with both superficial

this is that the blood sugar cannot then be controlled during the night. I have not used this method.

The best treatment when a severe hypoglycaemic attack does occur consists of intravenous injections of dextrose, as the patient will be unable to swallow. Improvement will follow, but relapses are apt to occur, and several injections may be necessary before the patient is fully restored.

Conclusions Drawn from the Use of Zinc Protamine Insulin and High Carbohydrate Diets

As it is now some time since the appearance of the original papers describing the action of the less soluble insulins the publication of further information which may or may not support the claims made for them may be considered opportune.

My own experience with zinc protamine insulin is confined to twenty-five patients, all of whom, with the exception of the obese, are taking a high carbohydrate diet and have been carefully stabilized either in hospital or in a nursing home. They are attending the "follow-up department."

I have found it possible to keep all the mild cases of diabetes needing insulin well controlled, in good health, and free from symptoms on one dose of zinc protamine insulin, given once a day before breakfast. In the more severe cases the blood sugar was kept within normal limits during the later part of the day, and also during the night, with one dose each day. But its slow action was noted, and glycosuria invariably occurred after breakfast; this was abolished, however, with a dose of ordinary insulin given at the same time as the less soluble insulin. One case of glycosuria after dinner occurred in spite of a large dose of zinc protamine insulin. However, on adding "insulin retard" to the original dose this disappeared. Two of the patients suffered from hypoglycaemic reactions after exercise, and on this account their blood sugars had to be kept a little raised. They were given enough zinc protamine insulin to keep their blood sugars within normal bounds, and some soluble insulin was also given at the same time. No reactions have occurred since.

Only one patient in this series, a labourer, has suffered from a severe hypoglycaemic attack. He had been stabilized with 50 units of zinc protamine insulin and 12 units of soluble insulin. Some weeks after leaving hospital he was working on a morning shift, and was given a heavier job to do than usual. Soon afterwards he became unconscious and was admitted to hospital. He responded well to intravenous glucose, but relapsed a little later. However, after the third dose of dextrose he completely recovered.

All these patients appreciate the fact that they need only the one injection each day.

Method of Use of the Newer Insulins

When stabilizing a patient suffering from diabetes, and one who has never before received insulin, it is quite safe to begin with a daily dose of zinc protamine insulin of 20 to 30 units, or 30 to 40 in a more severe case. The injection is generally given shortly before breakfast, and this may suffice to control the disease in mild cases.

It is usually necessary, however, to increase the amount of insoluble insulin, and the simplest check at first is the state of the urine, providing the patient has a normal renal threshold for sugar; (an abnormal renal threshold is, I find, quite common in diabetes, even in the young).

The urine is tested every three hours, the patient being told to empty the bladder half an hour beforehand, this specimen being neglected. When the urine is sugar-free the blood sugar may have fallen too low; therefore some periodical blood-sugar estimations are necessary at this stage, the specimens being taken about three hours after the injection of soluble insulin and breakfast; about twelve hours after injecting zinc protamine insulin, when it should be working at its maximum force; and before breakfast next morning, when the effect of the insoluble insulin should nearly have worn off. A blood-sugar estimation is of little use unless its time relation to food and the dose of insulin is known.

One's aim in treating young and middle-aged diabetics is to keep them in good health, with a urine free from sugar and a blood sugar within normal limits. But there are some cases of diabetes—generally severe, especially in young people—in which it is impossible to keep the blood sugar within normal bounds without risk of hypoglycaemia; with these patients the blood sugar is very labile, and they may even alternate between hyperglycaemia and hypoglycaemia on the same dose of insulin. One must be content to let them continue with a somewhat raised blood sugar.

When it is thought desirable to change a patient over to zinc protamine insulin from soluble insulin it is safe to start with the same dose and number of units of the former as the patient was taking of the soluble insulin, but given in one injection. This can be increased if necessary, and a dose of soluble insulin added if there is any glycosuria after breakfast. But one certainly hesitates at present to change over to insoluble insulin the large number of diabetics who are well controlled and in good health with soluble insulin and who do not mind having two injections a day.

In cases of very severe diabetes where there is much ketosis, and also in cases of coma, it has been recommended that the patient should have a large dose of soluble insulin in order to get a quick response, and at the same time an injection of zinc protamine insulin, so that the insulin effect can be prolonged. I find, however, that the best plan is to treat these severe diabetics in the ordinary way with large and repeated doses of soluble insulin alone until the condition has improved, when they can be switched over to insoluble insulin if necessary.

Follow-up of Patients

On leaving hospital, where he has been thoroughly trained to manage his diet and to give himself insulin, the patient must be instructed to see his doctor at regular intervals, or to attend a follow-up department, which should be established at every hospital where diabetes is treated. It is well known that the severity of the disease fluctuates from time to time for better or worse: the sugar tolerance may improve; but after some infection or adverse circumstances, and quite often for no apparent reason, the disease may progress. Therefore the amount of insulin may need adjusting periodically. This is a little more difficult to manage with insoluble insulin than with the soluble. With the latter the patient can conveniently attend the follow-up clinic about three hours after his morning dose of insulin, and the blood sugar can be estimated. This gives an idea as to whether or not the dose is suitable. But the optimum time for estimating the blood sugar with zinc protamine insulin taken once a day is before the morning dose. Patients living near the clinic therefore come up periodically before breakfast and the morning dose of insoluble

protein can be neglected unless the patient is obese, the amount taken being left to him, according to his appetite. Thus there are no difficulties in calculating elaborate diets which many patients in the past never understood.

Action of Soluble Insulin

Insulin has a profound effect in lowering the concentration of the sugar in the blood. How this is done is, however, not quite understood. The time relations of its action and of its duration are fairly constant and do not depend on the size of the dose, though the extent of the fall of the sugar in the blood does. The blood sugar begins to fall within fifteen to thirty minutes after injection; the insulin then acts with its maximum force for three to six hours, and its effect has worn off by the end of eight to ten hours. Practically all young patients with diabetes mellitus, and about three-quarters of the middle-aged patients, need insulin.

Diabetes in young and middle-aged people can generally be controlled during the day with one, two, or even three injections of insulin, but in severe cases the glycosuria usually returns during the night, and ketosis may even occur; and if attempts are made to check the nocturnal glycosuria by increasing the amount of insulin there is a great danger of hypoglycaemia occurring when the patient is asleep.

The New Insulins

It has for some time been realized that for these cases of diabetes in which the glycosuria cannot be controlled for twenty-four hours an insulin whose action will last longer is needed. Although much research had previously been done, it was not until 1934 that Hagedorn in Copenhagen found that if insulin is mixed with a protamine, a special type of protein derived from trout sperm, a precipitate is formed which if injected into the subcutaneous tissues has the same effect as ordinary insulin, but is absorbed more slowly, comes into action later, and is more lasting in its effect. This suspension of protamine and insulin is known as "insulin retard." It is absorbed so slowly that it has no appreciable action on the blood sugar for one and a half to three hours after injection. It exerts its maximum action in from six to ten hours, and this ceases after twelve to eighteen hours.

The most recent advance has been that by Scott of Toronto in 1936. He found that if a trace of zinc is added to the "insulin retard" a yet more stable and less soluble insulin is formed, which if injected subcutaneously after shaking is more slowly absorbed; consequently its effect lasts still longer. It is called zinc protamine insulin. It has no appreciable action on the concentration of the sugar in the blood for three to six hours following the injection, after which it slowly begins to work, exerting its maximum effect in from eight to twelve hours. In moderate doses its action lasts from fourteen to twenty-four hours, and in larger doses it has worn off in thirty hours. In practice, however, the insoluble insulins do not act always quite so exactly: there may be a little variation; they may either come into action a little earlier or their effect may be delayed.

Advantages and Disadvantages of the New Insulins

There are certain advantages, but also disadvantages, in using zinc protamine insulin instead of soluble insulin. The following are the chief advantages:

1. Zinc protamine insulin lowers the blood sugar, and owing to its slow action should control it not only during part of the

day but in most cases during the night also; consequently no glycosuria and ketosis should occur during the night, as so often happens in patients treated with soluble insulin. In many cases only one injection in twenty-four hours is necessary.

2. The high carbohydrate diet can be spread more evenly over all the meals instead of confining the bulk of it to those following the injections of soluble insulin.

3. Owing to the slowness of the absorption of zinc protamine insulin no sudden reduction of blood sugar will take place, so that the not infrequent hypoglycaemic attacks in diabetics treated with soluble insulin occur with much less frequency. This is a great advantage, especially in diabetics in whom exercise is followed by attacks of hypoglycaemia.

4. Patients who have been treated with both soluble insulin and zinc protamine insulin say they have a greater sense of well-being with the latter. Possibly this is because of the better control of the glycosuria, the absence of hypoglycaemic attacks, and the need for only one injection a day.

There are, however, certain disadvantages in the use of the newer insulin:

- (a) Since the less soluble insulin is absorbed more slowly it will take longer to come into action—at least from three to six hours. Thus if it is given before breakfast, as is generally the case, the effect of the zinc protamine insulin taken the previous day will very likely have worn off; if not, then the patient has been given too much, for any post-breakfast glycosuria should not be controlled by the zinc protamine insulin which was given the day before. Consequently, as for three to six hours there will not be enough insulin in the blood stream to deal with the sugar absorbed from breakfast, the concentration of sugar in the blood will rise and glycosuria will occur. In such cases the most satisfactory way of dealing with the difficulty is to give along with the zinc protamine insulin, in the same syringe, a requisite dose of soluble insulin. This will act within fifteen to thirty minutes of the injection, and its effect should last until the zinc protamine insulin starts to act.

- (b) As the newer insulins are less soluble the rate of absorption, being dependent on the state of vascularity of the tissues into which they are injected, may vary a little from day to day, and consequently so may the concentration of the blood sugar.

- (c) It is true that hypoglycaemic attacks are not nearly so common in the cases treated with the less soluble insulins, but when they do occur they are much more severe and dangerous, coming on without warning and taking the form of convulsions or sudden unconsciousness, without any of the premonitory symptoms such as sweating, dizziness, etc. Further, these attacks of hypoglycaemia come on later than do those which are due to an excess of soluble insulin, because zinc protamine insulin takes longer to exert its maximum effect. Thus if an injection is given before breakfast, the attack, if it does occur, will take place some time during the following night when the patient is asleep.

Treatment of Hypoglycaemic Attacks

The important thing is, of course, to prevent these attacks from occurring. The stabilization of a patient with zinc protamine insulin should, with our present knowledge, be undertaken only in an institution where the patient can be under proper supervision and where adequate urinary and blood examinations can be carried out. Any increases in zinc protamine insulin must be made with caution and at not less than three-day intervals. A high carbohydrate diet should also always be given and a carbohydrate meal be taken at bedtime.

To prevent the danger of nocturnal hypoglycaemia it has been suggested that the insoluble insulin be given at night alone, with a carbohydrate meal. The disadvantage of

The patient is placed on a Hawley table and the deformity corrected by the usual Whitman manoeuvres. A radiograph is taken to check the position. While the film is being developed the field of operation is prepared and arranged. A lateral incision about six inches long is made, and the great trochanter and shaft of the femur are reached by muscle-splitting. The director is inserted and laid against the shaft of the femur, its upper end being on a level with the lesser trochanter, or two and a half inches below the tip of the greater trochanter. A long, narrow, straight instrument (I generally use a long Spencer Wells forceps) is passed up along the side of the director and placed against the flat anterior surface of the neck of the femur. The director is adjusted so as to lie parallel to the forceps, and is thus in correct position for both planes of the neck. A Kirschner wire is now laid in the groove on the upper surface of the director (held by the assistant) and drilled in.

A second radiograph is taken to check the position of the wire. A pin is now threaded on to the wire, and rests on the director. A metal hammer is also threaded on and the pin is driven home. The pin resting on the firmly held director obviates the risk of bending the guiding-wire, which many surgeons have reported and which renders it impossible to remove the wire afterwards. The wound is stitched up, and a third radiograph can be taken to check the result.

Results

The accompanying Table gives the results of sixteen cases treated in this way. Eleven have been quite successful and the patients are walking about with normal gait.

Table showing Results in 16 Cases of Fractured Neck-of the Femur

Case No.	Age	Sex	Accident	Operation	Walking	Result
1	18	M	20 10 35	24 10 35	18 11 35	Good. Pin removed 9 3 36
2	60	F	2/12/35	4/12 35	28 12 35	Good
3	56	F	13 12/35	16, 1 36	Pin slipped.	Has firm union $\frac{1}{2}$ in. short
4	57	M	22 12/35	1, 1/36	1-2 36	Good. Pin removed 29 4 36
5	30	M	20 12/35	15, 1/36	6, 2/36	Good. Pin removed 1 7, 37
6	63	F	29 3/36	3/4 36	15 7 36	Good
7	65	F	28 4/36	30 4/36		Died of pulmonary embolism 9 5 36
8	61	F	30 5/36	1/7/36	23, 8/36	Good
9	35	M	6, 5, 35	8, 7/36		14-months-old fracture. Neck absorbed. Pin slipped. Refused further treatment
10	59	F	21, 7, 36	27, 7/36	10 9 36	Good
11	63	F	4, 10, 36	21, 10/36	5, 1/37	Good
12	46	F	4, 11, 36	11, 11/36	18, 12/36	Good
13	42	F	9, 12, 36	22, 12/36	2 2 37	Good
14	44	F	31, 1/37	8, 2, 37	6, 3, 37	Good
15	77	F	31, 1/37	11, 2/37		Died pneumonia 24 2 37. Pin found firmly fixed in head in good position
16	74	F	31, 1/37	19 5 37 10 6 37		Neck absorbed. Pin slipped. Pin reinserted. Walking 8 9 37

some of these cases being of nearly two years' standing. I have removed the pin in three instances, but the other patients are disinclined to undergo the slight operation for its removal, as they have so far experienced no inconvenience from its presence. Of the remaining five

patients, one died of pulmonary embolism on the tenth day, and one, an old lady of 77, of pneumonia on the thirteenth day. In this case post-mortem examination revealed the pin firmly fixed in the head of the bone in excellent position. Had these two patients lived it is fair to presume that they would have shown successful results. Case 3 was a failure as a pinning operation because the pin slipped. This patient attempted suicide and fell from a first-floor window, sustaining a double Colles's fracture and a comminuted fracture of the neck of the femur near the base, from a direct blow on the greater trochanter. She now has firm bony union and can walk any distance, but has three-quarters of an inch shortening. Case 9 came under my care fifteen months after the accident. This patient had been treated unsuccessfully in a Whitman plaster. The neck was absorbed and the head atrophied. The pin worked out of the head. I proposed reintroducing the pin and driving it on into the acetabulum, but the man refused further treatment. The last case was that of a woman of 74 who had sustained a fracture of the neck four months before coming under my care. In her case the neck is absorbed, and in my first attempt the pin did not secure a firm hold of the head. I re-inserted the pin some three weeks later and she is now starting to walk, but it is as yet too early to say how successful her case will prove to be.

Clinical Memoranda

An Unusual Case of Chondrification of the Patellar Ligament

(WITH SPECIAL PLATE)

Although cartilage formation in torn muscles and tendons is fairly common the following case is of interest owing to the extent and site of the chondrification. I am indebted to Dr. Killpack of Haywards Heath for the history.

The patient, a boy 12 years old, had fallen and injured his left knee on June 11, 1937, and was admitted to Haywards Heath Hospital. On examination the patella was found to be dislocated. The outward displacement was easily reduced, but some upward displacement remained. The boy volunteered the information that the left knee had been "large and wobbly" for many years. He later developed an acute tonsillitis, and tonsillectomy was performed on July 7. As his knee was still very painful he was transferred to the Royal Alexandra Hospital, Brighton, under my care.

The radiographic report on the left knee stated that the lower angle of the patella was torn off and had separated for fully half an inch. At operation, on September 8, the patella was found to be quite normal, but the patellar ligament was torn off from the lower border of the patella. Embedded in this ligament was a large cartilaginous mass, which was excised (see Plate). The articular surfaces of the femur and tibia were normal. The patellar ligament was then firmly anchored to the patella and the wound closed. Recovery was uneventful.

The specimen was $1\frac{1}{2}$ by $1\frac{1}{2}$ inches, and consisted of cartilage with a bony centre. Its shape was not unlike that of a normal patella.

Hove.

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been previously distributed in smaller doses and on rare occasions: thus in the series of post-mortem reports of twenty-one cases studied by Hoyle and Vaizey (1937) tuberculous meningitis was reported in nine. The case to be described belongs to this group, showing disseminated miliary lesions which in the lungs were distributed in the periphery and along the fissures—an example of the form first described by Pagel as cortico-pleural chronic miliary tuberculosis (op. cit., p. 282), and recently studied by Stefko (1936).

Case History

A male clerk, aged 45, was admitted to the sanatorium on July 27, 1937, obviously very ill, with typical signs of meningitis, and died two days later. In addition to the signs of meningeal disease a pleural rub was heard on the left side of the chest, where the percussion note was impaired. No tubercle bacilli were found in the sputum.

History.—The patient's sister said that he had been in good health until March, 1937, when he had "sciatica," but was well again in April. Early in June he complained of headache, shivering, and severe vomiting, with night sweats, and slowly became worse till admission. A radiograph taken on June 30 showed shadows typical of miliary tuberculosis and obliteration of the left costo-diaphragmatic angle.

Necropsy.—There was moderate wasting. Examination of the brain revealed an excess of cerebrospinal fluid, with congestion of vessels and miliary tubercles in the region of the middle cerebral artery. The left pleura was reddened with vascular injection, and between the parietal and visceral layers were universal fine adhesions easily separable by the hand. Section of the lungs revealed miliary tubercles, but with a special distribution. These tubercles were confined to the periphery of the lungs to a depth of about an inch, and lining the pulmonary fissures in a similar manner. Equally striking were the numerous tiny interstitial emphysematous bullae; they were of varying size, but the largest appeared as a small cavity about half an inch in diameter with smooth glistening walls. The kidneys contained a few scattered miliary tubercles, but the spleen, though softened and enlarged, showed none to naked-eye inspection. A stony calcified mass an inch in diameter was found in the mesentery.

Histological Examination.—The nodules were found to consist of small caseous centres with extensive peripheral proliferation of epithelioid cells, lymphocytes, and fibrocytes. In addition there were areas showing exclusively proliferative reaction in the form of small epithelioid cell nodules surrounded by "collapse induration"—that is, collapsed alveoli with fibrotic interstitial tissue. Histological examination therefore showed that this was certainly not an acute process, but one with a definite tendency towards healing or a chronic course at every individual focus (see Plate).

Commentary

Although the clinical history available and the radiograph seemed to indicate that acute generalized miliary tuberculosis would be demonstrated at necropsy, the actual findings suggest a chronic course of the pulmonary lesions, both from the restriction of the miliary foci to the cortico-pleural area and from their macroscopic and microscopical appearance.

One may ask if the pleura exercises a localizing influence on blood-borne tuberculous lesions, and the frequent involvement of the pleura, in the form of idiopathic pleurisy, supports this suggestion. Another explanation, recently upheld by Stefko, is that the pleural lymphatics may be the path of spread, but a closer connexion of the pulmonary nodules and the pleural lesions than was found in the present case ought then to result. Again, experimental work by one of us has produced a chronic haematogenous lesion of the cortico-pleural area

in rabbits by intravenous injection of virulent bacilli after previous immunization of the animals by infection with living avirulent or killed bacilli; the final distribution of the lesions in these animals was the result of absorption of the more central lesions (Pagel, 1936).

It may also be noted that a radiograph which shows a fine mottling in all fields may be a shadow picture of purely cortical lesions, and in such case a tomographic film might give better diagnostic help; evidence of former pleurisy would stress the need for this extra investigation, since its presence may be an indication of the chronic nature of the miliary disease.

Summary

A case of cortico-pleural chronic miliary tuberculosis is described, with the post-mortem examination. The relation of this condition to other forms of pulmonary tuberculosis is discussed.

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FRACTURE OF THE NECK OF THE FEMUR ANOTHER METHOD OF INSERTING THE SMITH-PETERSEN PIN

BY

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(WITH SPECIAL PLATE)

The insertion of a Smith-Petersen pin has now become the accepted method of treating fractures of the neck of the femur; but the best means of inserting it is still on trial. Every surgeon who has to deal with these fractures has evolved his own technique, and the respective advantages of the "open" and "blind" methods have yet to be established. Advocates of both methods claim superiority for the one or the other practice, and until experience has proved either of them to be of outstanding merit for the majority of cases it will continue to be of interest to hear of any method which has been consistently successful in any one surgeon's hands. This being so, I venture to describe a method I have evolved which, although "open," may be described as a compromise between the "open" and the "blind" operations, in that it does not expose the fractured ends, which are still protected by the strong anterior ligament of the hip-joint.

The Technique

For my purpose I have designed a director—made for me by the Medical Supply Association—which when placed against the outer surface of the femur at the correct level gives the angle for the insertion of the pin in relation to the long axis of the bone. The lateral plane is gauged by setting the director-edge parallel to a straight instrument laid along the flat front surface of the neck. This will be made clear by reference to the Special Plate.

Reviews

ORGANIC NERVOUS DISEASES IN YOUNG PEOPLE

Diseases of the Nervous System in Infancy, Childhood, and Adolescence. By Frank R. Ford, M.D. (Pp. 954; 107 figures; 14 tables. 38s.) London: Baillière, Tindall and Cox. 1937.

We have learnt to expect only the best from the Johns Hopkins University, and Professor Ford has not fallen short of the high standard set him by this great medical school. He has compiled a most complete textbook of the organic nervous diseases which beset children and young people. This is more than a compilation however, for although the bibliographies at the end of each section bear witness to the erudition which this volume represents the author quotes his own experience and judgments wherever possible, thus giving a personal flavour which many textbooks of this magnitude lack. Charts, tables, illustrations, and case-histories illuminate the systematic descriptions of the many different conditions that are brought under review.

A complete guide to all modern methods of examining the nervous system is contained in the first chapter. This is followed by a discussion of the clinical anatomy and physiology of the system, and in this chapter is included a most useful description of the embryology, morphology, and clinical physiology of the immature nervous system. Next the pre-natal diseases are dealt with, and here are included all the various congenital anomalies of development which are manifest at birth. The heredo-familial and degenerative conditions follow naturally on this; and the great multiplicity of syndromes which, if they have done nothing else, have enshrined the names of so many distinguished neurologists are set out in order. This leads to the infectious and parasitic invasions of the nervous system, divided into sections comprising virus diseases, bacterial infections, invasions by moulds, yeasts, Rickettsiae, spirochaetes, protozoa, and parasitic worms.

Under the heading of toxic and metabolic disorders involving the nervous system we find described the neurological complications of the exanthemata and other more general diseases, of exogenous poisons, metallic and otherwise, of endocrine and metabolic disturbances, and of dietary deficiencies. Vascular accidents and the effects of abnormalities of the circulation as they occur in young persons are next described, and this section is followed by one devoted to neoplasms and related conditions. Trauma is dealt with both as it occurs at birth and subsequently, and sunstroke and injuries from lightning and electric currents are not omitted from this category. The epilepsies and the paroxysmal disorders of the nervous system are fully discussed, and this concludes the systematic description of the diseases and injuries of the somatic nervous system. A chapter is devoted to diseases of the autonomic nervous system and another to diseases of muscles. Finally there is a very useful chapter on syndromes and symptom complexes, such as cerebral spastic paralyses, spinal spastic paralysis, ataxias, disturbances of speech function, and disturbances of vision.

From the brief indications given above it will be obvious that this work is exceedingly comprehensive, and it must prove a most valuable work of reference for all neurologists, paediatricians, and orthopaedists. To these and all other medical men interested in children it can be most warmly recommended.

ENCYCLOPAEDIA OF MEDICAL PRACTICE

The British Encyclopaedia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynaecology, and Other Subjects. Volume 5. *Endoscopy of Respiratory Tract to Goitre.* Under the general editorship of Sir Humphry Rolleston, Bt., G.C.V.O., M.D. (Pp. 632; 139 figures, 35s. net.) London: Butterworth and Co. (Publishers) Ltd. 1937.

The fifth volume of this impressive work comprises the subjects from endoscopy to goitre. Enteric fever and glandular fever are two of the infectious diseases which are included. The differentiation of groups, the isolation of separate bacteria, and the successful application of the principles of immunity to the problems of diagnosis and prophylaxis, combined with an awakening sense of public duty in providing pure water and preventing the contamination of food, have produced a remarkable diminution in the incidence of enteric fever during this century, and the subject now lends itself to the standard description given by Dr. Lakin. Glandular fever, a comparatively new syndrome, with indefinite grouping and unknown aetiology, needing much more work before its position in the medical textbooks is similarly standardized, receives adequate treatment at the hands of Dr. Letheby Tidy, who has made considerable contributions to its recognition and classification. Glanders is rare; German measles common. Erysipelas is notifiable as an infectious disease: Mr. J. B. Hunter recommends the use of benzenesulphonamide compounds, antitoxin, and general supporting measures as well as local applications. Saturated solutions of magnesium sulphate in glycerin have the additional advantage of the hygroscopic effect of the glycerin.

The various articles on skin affections in this volume are valuable, notably that by Dr. Arthur Whitfield dealing in a general and informative way with eruptions, especially those anomalous and atypical rashes which do not fall readily under the usual nomenclature or correspond with the usual descriptions. Dr. Whitfield's classification should help practitioners to recognize these unusual forms. Skin diseases, though so patent to the eye, are not well understood by men in general practice. The series of contributions to the encyclopaedia will prove very useful for reference. Erythema in its diverse forms may be due to many external and internal causes; the description and classification offered by Dr. R. T. Brain should be most helpful, while the full treatment of fungous diseases presented by Dr. W. N. Goldsmith not only draws attention to the diagnosis of the various forms, but offers many alternative plans of treatment for these conditions which so readily become chronic and form a minor source of discomfort and disability. The articles on diseases and injuries of the eyelids and hereditary diseases of the eye are preceded by a succinct account of the methods of routine examination of the constituent parts of the eye and its media. Several inherited eye defects are known, but recent additions to knowledge make it impossible to accept Mendelian laws as a complete explanation of the facts of heredity, according to Dr. Doggart. Some ocular defects are transmitted as Mendelian dominants, some as Mendelian recessives, and others are sex-linked. A comment on family trees diagrammatically exposed in the male sign is more usually and accurately given by the arrow-head pointing upwards and to the tropical diseases included in this volume filarial infestations—are in the capable tributors from the School of Tropical Medicine.

This volume begins with two satisfactory chapters on endoscopy of the upper respiratory

A Swallowed Pin and a Round-worm

The following case may perhaps be considered interesting enough to be placed on record.

CASE REPORT

The patient, a boy of 8 years, swallowed the sharp half of a collar-pin, and was admitted to hospital an hour or so afterwards. The abdomen was screened immediately, and the



foreign body was seen to lie somewhere in the small intestine. The sharp end of the pin was fixed and immobile, while the other end was noticed to move in a peculiar jerky, to-and-fro fashion which was quite inexplicable.

Laparotomy was performed and the pin located in the ileum. On removal a large round-worm was found to have protruded its head through the hole in the blunt end of the pin to such an extent as to become fixed therein. The peculiar movements of the pin as seen under x rays were thus explained.

I enclose a photograph of the worm and pin as they were withdrawn from the intestine.

I am indebted to Dr. De Souza, who operated on the case, for permission to report it.

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Recurrent Hydatid Cyst

The occurrence of secondary echinococcosis following rupture or puncture of a hydatid cyst is well substantiated both clinically and experimentally (Dew, 1930-1), but there do not appear to have been many opportunities, at least in this country, of observing the results of such a process at a second laparotomy in the human subject. In this light the following case of recurrence of hydatid cyst may be of some interest.

CASE REPORT

A woman aged 20 was admitted to a surgical ward in Dundee Royal Infirmary on April 26, 1927, on account of acute pain in the right hypochondrium radiating to the back and right shoulder. A similar attack had occurred three weeks before, and lasted for five days. Both these attacks were attended by jaundice and bilious vomiting. On admission a rounded tumour, tender and freely movable, was palpable below the right costal margin. The pain slowly settled, and on May 10, 1927, laparotomy revealed a cystic tumour in relation to the right lobe of the liver, adherent to the small intestine and to the transverse mesocolon. The cyst was dissected free and excised, but is said to have been perforated during dissection. Recovery from the operation was without incident; pathological examination showed the cyst to be a typical hydatid, with numerous scolices but no secondary cysts.

The patient next came under observation on February 17, 1937; the intervening ten years had been uneventful, save for an attack of urticaria in the summer of 1936. The first unequivocal sign of recurrence was a typical attack of biliary colic, accompanied by jaundice and vomiting, following which she was admitted to Dundee Royal Infirmary. When examined on February 22 she was jaundiced but showed no urticaria and had no itching of the skin. Her temperature

was 96° F. and her pulse rate 66. There was neither tenderness nor muscular rigidity and no general abdominal distension, but a soft rounded tumour was palpable in the right iliac fossa. The patient's general condition was good. Blood examination showed: haemoglobin, 104 per cent.; red cells, 5,300,000 per c.mm.; leucocytes, 9,200 per c.mm. The differential count was: polymorphs, 6,800 (74 per cent.); lymphocytes, 1,288 (14 per cent.); eosinophils, 550 (6 per cent.); basophils, 180 (2 per cent.); large monocytes, 360 (4 per cent.). A radiograph of the lower chest and upper abdomen failed to reveal any cyst.

On March 4 laparotomy was performed by Mr. F. R. Brown, a right paramedian incision being made. The greater omentum was found to be adherent to the abdominal wall and to the lower surface of the liver. A thick-walled ovoid cyst 5 by 3 by 2½ inches was found in the right iliac fossa, and was removed by dissection from the small bowel and ascending colon. A second cyst was observed embedded in the left lobe of the liver, but as access to this from below was poor a transverse incision was made on the left side, just internal to the mammary line and at the level of the tenth rib; two inches of rib were resected and the peritoneum incised to expose the left lobe of the liver. Visceral and parietal peritoneum were sutured together and a paraffin-flavine pack inserted. The abdominal wound was closed. Four days later the exposed surface of the liver was incised with the diathermy knife, and typical hydatid fluid with numerous daughter cysts escaped; a thick yellow lining membrane was extracted and the cavity washed out with 1 per cent. formalin. The cavity was flushed out daily with eusol, first through a rubber tube drain and later through a catheter. Discharge of daughter cysts and bile-stained fluid persisted till May 20; thereafter the wound healed satisfactorily, and had completely closed by July 1.

During the earlier weeks after operation the patient had two febrile attacks, each lasting for less than twenty-four hours. In one of these the temperature rose to 102.8° F.; this was accompanied by a rigor and transient jaundice. Each attack was followed by the escape of a daughter cyst through the wound. On April 24 an injection of lipiodol was made into the sinus: this showed up an irregular cavity in the left lobe of the liver communicating with the bile ducts. A series of films was taken, and lipiodol was seen to have reached the small intestine in one and a half hours. After twenty-four hours no lipiodol was present in the liver. On April 28 a differential count showed only 2 per cent. of eosinophils; and on May 12 an intradermal test with 0.2 c.cm. of sterile hydatid fluid was negative.

The patient was discharged on June 11, free from jaundice and abdominal pain. She has since been seen as an outpatient on several occasions, and the improvement is being maintained.

COMMENTARY

The original source of hydatid infection is obscure; other members of the family are healthy, and the patient has never lived in an area where hydatid disease is common. No dog has been kept in the household.

The main point of interest is the length of time that elapsed between the first laparotomy, at which peritoneal implantation presumably occurred, and the earliest appearance of symptoms of recurrence. Even after ten years' growth the cysts were not of exceptionally large size, a finding which lends support to the view (Madelung, loc. cit.) that in most cases hydatid infection occurs in childhood, the usual lack of symptoms until early adult life being due to the slow growth of the cysts.

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methods of experiment and inference illustrated in biological standardization. The book deals with the measurement of hormones, vitamins, and certain drugs, and excludes immunological products. Immunological and non-immunological standardization make one intellectual discipline, but the experimental technique differs so greatly in the two branches that to have dealt with both would inevitably have meant composite authorship. Moreover, the more familiar physiological processes involved in non-immunological standardization make it easier for the non-specialized reader to follow. That a German version is already announced is evidence that this is a book that was widely needed and awaited.

ATLAS OF BACTERIOLOGY

Muir's Bacteriological Atlas. Second edition. Atlas enlarged and text rewritten by C. E. van Rooyen, M.D. (Pp. 90; 83 coloured plates. 15s. net.) Edinburgh: E. and S. Livingstone. 1937.

Richard Muir's bacteriological atlas must be well known to most bacteriologists and students of this subject; the appreciation of his artistry extended far beyond Edinburgh, where he worked. In the ten years since this atlas first appeared the microscopy of micro-organisms has extended beyond the cultivable bacteria to still smaller things—the so-called filterable viruses. At one time the viruses were held to be "ultramicroscopic," but it is now recognized that the larger ones come within the limits of visibility with the microscope; even the student is becoming familiar with their appearance. The publishers have deemed it time to bring this atlas up to date, and Dr. C. E. van Rooyen, the author of the new edition, has revised the text and extended the book by the addition of twenty-six coloured plates. Many of the new plates illustrate the morphology of viruses or the changes they produce in the cells which they infect, and, since Dr. van Rooyen's personal investigations have been largely concerned with the morphology of viruses, he is particularly well qualified for this task. And a glance at these plates, not only those depicting viruses but those also of other micro-organisms—bacteria, spirochaetes, and protozoa—shows that the author possesses considerable skill in the coloured reproduction of microscopical preparations; they stand comparison with Muir's, which is equivalent to saying that they are excellent. The text to Plate LVI on page 58 speaks of the nuclei being "deficient in nucleoplasm which . . . is arranged around the periphery of the cell in a margined fashion." Surely this refers to chromatin, which is margined at the periphery of the nucleus. And Plate LV, depicting the inclusions of herpes, is not above criticism, for the inclusions are more like Type B nuclear inclusions and do not show the margination of chromatin so characteristic of herpes inclusions. However, generally speaking, there is little to criticize in the new edition of the atlas, and Dr. van Rooyen is to be congratulated on the way he has done his work in bringing it up to date.

Notes on Books

Surgical Instruments and Appliances, which first appeared in 1905, was prepared—so the author, Mr. HAROLD BURROWS, informs us in his preface—to assist those upon whom the duty of making arrangements for a surgical operation fall. Such a book is likely to appeal also to students about to present themselves for examinations in surgery. On the whole the ninth edition may

be said to be representative of the instruments and materials in current usage—orthopaedics, obstetrics, otolaryngology, and ophthalmology are catered for as well as general surgery—but certain operations and instruments might well have been omitted or replaced. Perforators and burrs are more often used for opening the skull to-day than the trephine shown, and except for the very rare tumour arising in it the Gasserian ganglion is no longer removed. The use of a coin-catcher and probang (illustrated) with an oesophagoscope seems a little unusual, and page 73, depicting a crushing clamp and instruments used for haemorrhoids, might be taken from a pre-Listerian work. In future editions we hope to see this little book brought really up to date, because there can be no doubt about the need for such a compendium of surgical materials. The publishers are Faber and Faber, and the price is 2s. 6d.

A second edition of *A Surgeon's Pocket Book*, by Mr. H. S. SOUTTAR, has recently been published (Heinemann, 7s. 6d.). Into this volume of less than three hundred pages and of a size that will slip easily into a coat pocket without spoiling the shape of the coat has been compressed in tabloid form a review of the whole of surgery. To the Conjoint candidate who wants to acquire as many surgical facts as possible in the shortest time this little book will serve as the perfect *aide-mémoire*. The author has embellished this new edition with small reproductions of the plates in the new edition of his *Art of Surgery*. The student who uses this pocket book as supplementary to the larger work cannot fail to acquire a comprehensive knowledge of general surgery.

In his monograph *Las Miocarditis* (Buenos Aires: El Ateneo) Professor G. N. MARTINEZ gives a comprehensive review of the clinical and pathological aspects of myocarditis, but does not appear to put forward any new ideas or report any original work. Many photomicrographs and electrocardiograms are used as illustrations. In the section on the nosographic classification of myocarditis more space is given to that of typhoid fever than to those of scarlet fever and rheumatic fever combined, and diphtheritic myocarditis is also rather briefly treated. Such an allocation seems disproportionate to the relative importance of the several types. No attempt is made to present modern work on a problem which is of paramount importance in Europe and North America—namely, the pathogenesis of rheumatic and scarlatinal myocarditis and their relation to streptococcal infection. Diagnosis, prognosis, and treatment are discussed with the utmost brevity.

In *Disease and the Man* (Oxford University Press, 8s. 6d.) Dr. R. F. LAPHAM aims at helping the recently qualified man, who is leaving the well-charted hospital wards for the open seas of practice, where he will encounter entirely different problems. This book is yet another sign of the revolt of the clinician against what he regards as the excessive inroads of the laboratory into his province. "With the ever-increasing delicacy and number of analytical procedures . . . attention shifted . . . and with this shift the patient paled into relatively less and less significance . . . [he] became resolved into isolated and impersonal segments." If the immense gifts that science has bestowed on medicine are fully recognized, protests such as these are not without their use at the present time. They help to keep the balance true. The author reveals himself as full of kindly common sense, but he leaves us with the impression that the American student must be decidedly less sophisticated than his English cousin.

A brief memoir of the late Dr. Cécile Booyen has just been published under the initials F. LeG. C., and copies can be obtained on application to the Secretary of the Medical Peace Campaign, 12, Kent Terrace, Park Road, London, N.W.1, price 6d., post free. A photograph of Dr. Booyen appears as a frontispiece to the memoir.

and of the urinary tract. It is desirable, however, that the modern advances attained by gastroscopy should be dealt with more fully; perhaps the editors envisage a separate article in a later volume. Gynaecological subjects are dealt with by Professor Dougal on affections of the Fallopian tubes, and by Dr. Feldman on deformities of the foetus; and Dr. Russell Brain's account of epilepsy is full and clear. The orthopaedic subjects of diseases and injuries of the epiphyses, and of diseases and deformities of the feet, are capably done, and Sir David Wilkie's article on affections of the gall-bladder and bile ducts is full and informative. Professor Fraser and Sir Thomas Dunhill were the obvious choice of the editors to deal with the present-day position in regard to goitre and diseases of the thyroid gland. Their account of their work together is broad-minded and sufficient in detail, but they would be the last to imply that the present exposition is more than a wayside halt to take stock of the position and plan the survey of extended work in the further fields of interendocrine disturbance.

A noteworthy feature of this volume is the excellence of the articles on psychological medicine. Dr. Charles Myers, dealing with the phenomena of mental fatigue, draws a distinction between mental fatigue as exhaustion and the state of lessened activity known as boredom. Using the physiological data of the spinal-cord reflexes as an analogy, he builds up a theory of cortical and mental fatigue. In the absence of strict knowledge of the causation, but conjecturing that there is a biochemical cause, we at present are driven back upon one common remedy—rest—but this must be coupled with appropriate psychotherapeutic measures. Enuresis has a psychological basis so often that Dr. Moncrieff's article will be of much value to the practitioner, and Dr. Neustatter explains the methods of controlling exhibitionism. Among many useful subjects dealt with, Dr. C. O. Hawthorne's wise words on etiquette and ethics in medical practice can be read and reread with advantage.

THE COSMETIC ART

Manual of Cosmetics. By C. Lazar, M.D. (Pp. 318; 12 illustrations. 12s. 6d.) London: Henry Kimpton. 1937.

For those who are interested in the cosmetic side of dermatology this manual by Dr. C. Lazar will be found quite useful. The author appears to have designed this work not primarily for the medical profession, but for that class of persons, which grows more numerous every year, known as "cosmeticians." He does not content himself with the discussion of creams, face massage, scalp treatment, and the various manipulations to which the beauty parlours of this country usually restrict themselves, but he also gives directions for carrying out numerous procedures of a surgical nature which we like to consider are the prerogative of the medical profession alone. Among other matters Dr. Lazar gives directions for the removal of benign tumours, and he instructs his clientele in the use of surgical diathermy, carbon dioxide snow, the galvano-cautery, and the dental drilling machine.

The dental drilling machine was introduced into cosmetics by Kromayer, and Dr. Lazar recommends it strongly for removing freckles and flat pigmented naevi. A spherical burr is used for this purpose, and he says that if the drilling is carried out slowly it is so painless that it is not worth while using local anaesthetic. He gives very full and explicit directions for carrying out the various little cosmetic operations which he describes, and there is no doubt that many medical men who practise minor

surgery will find useful hints for improving their technique and extending their sphere of usefulness if they peruse the manual. Whether, on the other hand, it is safe to put it in the hands of the cosmeticians for whom it is primarily intended, and who have only very sketchy knowledge of the principles of surgery and the pathological possibilities of the human integument, is another matter. In any case it is quite a useful guide to a subject which, though of increasing importance, is usually neglected in the ordinary textbooks of dermatology, and from that point of view it can be recommended. It is worth reading even by specialists in diseases of the skin, who will find in it many useful hints.

BIOLOGICAL MEASUREMENT

Biological Standardization. By J. H. Burn, M.D. (Pp. 288; 64 illustrations. 21s.) London: Humphrey Milford, Oxford University Press. 1937.

We trust that Professor Burn is unduly pessimistic when in the preface to his book he anticipates a poor circulation. On the contrary, we are inclined to predict that for a book of its kind it will be widely read and appreciated. The subject is one of the really vital and progressive branches of medicine and concerns not only medical workers but also druggists and manufacturers. A great change has taken place in the attitude towards biological standardization during the last ten or fifteen years. In 1920 Ehrlich's unit of diphtheria antitoxin was the only serious therapeutic standard in existence. It is true that work had already started, particularly in laboratories concerned with commercial issue, but it was only when the League of Nations organization came forward to co-ordinate the work and introduce international methods and standards that any real progress took place. Not until 1926 was Magnus's standard for digitalis accepted. It may now be said that every biological substance for which it has been proved possible to find consistent methods of measurement has been provided with an international standard, and further standards will no doubt be adopted as technical methods of measurement improve and mature.

So far as therapeutics is concerned we may well believe that this new attitude will end the age of what might be called "private judgment" in therapeutics. If a therapeutic effect is consistent enough to be of value it should be measurable, and if measurable it should forthwith be measured, whether it be in the laboratory or in the wards. In biological standardization medical measurement has begun in good earnest, and the therapist can now say with confidence to the physicist or the chemist, "Our things may be more difficult to weigh than yours, but we weigh them no less conscientiously." Standardization technique is somewhat intricate both in measurement and in interpretation. The only way to make it understandable to the average reader is to give full detail, and this Professor Burn does without becoming obscure or dull; a little physiology is all that is needed in following even his more intricate experimental procedures.

In the interpretative part of the subject the great change which has come about in recent years has been due to the application of statistical methods. To this Professor Burn devotes three introductory chapters, which may be said to embrace a numerical philosophy of standardization. It would be a mistake for the ordinary medical man to look upon this subject as too technical and specialized to be of any interest to him. On the contrary, we believe that there is no better way of approaching rational therapeutics than by the study of the precise

MATERNAL MORTALITY IN THE U.S.A.

The secretary to the Bureau of Medical Information of the New York Academy of Medicine has assembled, in a handy volume,¹ the result of a number of investigations into the problem of maternal mortality which have been carried out in the United States during the last ten years. One of the most important of these investigations was that undertaken by the New York Academy of Medicine itself, and was the subject of an editorial notice in these columns on March 24, 1934. The inquiry dealt only with the City of New York, covering the three-year period 1930 to 1932; others came from the City of Philadelphia and from fifteen States selected from the Registration Area of the Republic. The greater part of Dr. Galdston's report is devoted to a statement of the facts elicited, and they are presented in clear and simple diction which is singularly free from what might be called obstetric jargon. Avowedly the author's public is the whole people of the United States, and he hopes at once to interest them in the problem and to demonstrate its salient features. His main thesis is that the reduction of their high maternal death rates can only be achieved if the medical profession secures the willing and informed co-operation of the general public, and, in particular, of the average American mother.

Dr. Galdston's survey of the conclusions to be drawn from the above-mentioned investigations is lightened here and there by cogent reflections of his own. In speaking of the "preventability" of maternal deaths he points out that deaths are classed as "preventable if they had had proper treatment and care." Behind "if," says the author, stand all those variants of professional competence in judgment and performance, of professional honour, and of good sense which render all human performances variable and unpredictable. It is essential that these considerations should be known to, and understood by, the public, and kept in mind whenever judgment is passed upon a particular case. The desirable attendant in a confinement, he says, is a "physician adequately trained and experienced in obstetrics . . . and aware of his limitations." This point has been made by others, although not perhaps so trenchantly expressed, yet it must not be forgotten that awareness of our limitations is learned by most of us in the painful school of failure, and, even so, it is learned more slowly by some than by others.

The components of the problem of maternal mortality in the United States are not identical with our own, and admittedly American difficulties are

greater in extent than ours even where they correspond. It would therefore be unneighbourly to set up comparisons which on balance would incline in our favour. The principal points emphasized are familiar enough—namely, that large numbers of women receive no ante-natal care whatever; that the "vast majority" are ignorant of, and therefore indifferent to, abnormal conditions which may arise in pregnancy; that a small number of urban dwellers appear to suffer from an exaggerated fear of the sufferings and dangers of childbirth; that there is far too much "meddlesome midwifery"; and that maternity departments of hospitals are too often inadequately staffed and equipped. Dr. Galdston's view is that these defects can be repaired only by a concerted effort of nationwide extent, in which individuals, groups, and committees must co-operate. Men and women alike must first learn what constitutes good obstetric service; then they will demand it, and demand will create supply. Among the first lessons to be learned by the general public is the fact that "operative delivery undertaken merely to alleviate pain and shorten labour involves increased danger for both mother and baby." It is recognized that the education of the public will call for a sustained campaign, not initiated by a few zealous individuals but organized and applied by the community itself. The process of education should begin in senior schools, where in courses of biology the requirements for safe childbirth could be included as part of the reproductive process. Secondary schools and universities, clubs and welfare societies should carry on the work, and so young men and women when contemplating a family would have a clear idea of the general lines upon which safe delivery may be sought, and would be in a position to exercise a wise choice of hospital or of medical attendant. It is of course recognized that when the public demands better obstetric service the doctors will be expected to supply that service. Among the first steps which should be taken by the medical profession Dr. Galdston puts the provision of adequate facilities for postgraduate study of midwifery, the certification of obstetric specialists by an "empowered body," and the recognition by the average practitioner of his obligation to refer all abnormal cases to specialists wherever they are available. Further, all hospitals should be "listed," and only those which are adequately staffed and equipped should be recognized as suitable for the reception of maternity cases.

If Dr. Galdston's survey is instrumental in stirring the great American public to action along the lines indicated there can be little doubt that in due time their problems will be solved; but it is a long, long trail that they are invited to follow.

¹ *Maternal Deaths—The Ways to Prevention*. By Iago Galdston, M.D. New York: The Commonwealth Fund. London: Oxford University Press. (15s.)

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THE IMMUNITY OF LONDON

At a time when public attention has been focused upon the typhoid outbreak at Croydon, which is just over the London border, it is refreshing to turn to the newly published report of the London County Council for 1936 concerning the public health.¹ The report shows in tabular form the comparative immunity which the metropolis has enjoyed for many years from fevers of the enteric group. During 1936 only 255 cases were notified, although this was an increase upon the figure (187) for 1935, and the deaths numbered thirty-one, together with seven others not actually occurring in London, though they were London cases. During the 'nineties the annual mortality in London from typhoid was round about 0.14 per 1,000 living. During the first quinquennium of the present century the rate fell to 0.08, during the second quinquennium to 0.04, and the fall was progressive until 1923, when the figure stood at 0.01, at which it has since remained. The notifications during the last decade of the nineteenth century were about 0.80 per 1,000 living; with the turn of the century they showed a progressive decrease, uninterrupted by the war, and by 1922 the figure was down to 0.06, around which it has remained, except in 1928, when it jumped to 0.13. In that year 580 notifications were made, but the number has been much less in subsequent years, and the lowest figure (109) was reached in 1934. In the late summer of 1936, 154 cases of typhoid were notified in London during a period of nine weeks. Of these, thirteen occurred among a party of girl guides from the Rotherhithe district who had been staying at a holiday resort on the south coast, and thirty-four of the cases were infected during the outbreak in the Bournemouth area, where the infection was attributed to an unpasteurized milk supply. The seasonal incidence of the London cases, as shown by notifications, was greatest in September and October and lowest in December and February. The cases seem to show no preference for any particular part of London, the notifications being greatest in Wandsworth in the south, Fulham in the west, Hampstead in the

north, and Bermondsey in the east. The ages of the patients were under 5 years in twenty-nine cases; between 5 years and 20 years in ninety-one, and between 20 and 35 years in seventy-seven. Of the deaths (fourteen males and seventeen females) only three were at an earlier age than 15.

The mortality from enteric fever has shown over the course of forty years the same characteristic declining curve as scarlet fever, although, of course, the number of cases bears no relation; there were forty times as many cases of scarlet fever in the metropolis as of enteric, but the mortality from scarlet fever at the beginning of the century was the same as enteric—namely, 0.14 per 1,000 living—and it is now 0.01, the same as enteric. All the infectious diseases in fact show a marked decline. No case of small-pox has occurred in London since the middle of 1934. Deaths from measles (584) were fewer than in the previous epidemic years—1934, 1932, and 1930. Deaths from whooping-cough were higher, being 278 as compared with 166 in 1935, but here again there was a fall as compared with earlier years. Deaths from scarlet fever numbered only forty-two and from diphtheria only 226. The report mentions 382 cases of food poisoning, with one death, during 1936. The majority were isolated cases, and possibly due to the idiosyncrasy of the victims. The foods incriminated were chiefly meat and fish. Three or four outbreaks were said to have been caused by food eaten at staff canteens.

Altogether the healthy condition of London is a matter of legitimate pride, and reflects the greatest credit on the health services and on the medical profession in general. It must be remembered that in the area administered by the L.C.C. and the City Corporation we have a population of over four million persons, of whom one-fifth are under fifteen years of age. They live in three-quarters of a million houses, and one-third of a million people live under overcrowded conditions. Furthermore, London is the port of call for all manner of persons coming from all manner of places. It is constantly the scene of a migratory movement; every year, to judge by the last intracensal figures, nearly 10,000 persons who have been born elsewhere settle in the metropolis—a figure much smaller, by the way, than in years gone by. Yet London keeps resolutely healthy and free from infectious diseases. A cause of mortality which is becoming formidable in the statistics is one which it hardly comes within the sphere of the medical officer to avert. Deaths from street accidents (541 in 1936) exceeded the deaths from influenza and equalled those from diphtheria, whooping-cough, and scarlet fever combined.

¹ Annual Report of the London County Council, 1936. Vol. iii (Part I). Public Health. P. S. King and Son, Ltd. 1937. (1s.)

averages for the previous nine-year period, but the picture presented by these figures would have given readers a false impression of the actual situation. Mere lists of figures, although invaluable in directing attention to the occurrence and prevalence of particular diseases in different areas, give no information about the circumstances in which an outbreak has originated; nor do they reveal the steps which have been taken to control it or the measure of success which has attended them. In the comments at the end of the table we hope to give this information when it is available and when it seems relevant. We would therefore take this opportunity of seeking once more the co-operation of medical officers of health in keeping the medical profession fully informed on epidemic matters. A public health authority, especially that of a health resort, may be faced with an apparent conflict of interests in disclosing information regarding the occurrence of infectious disease in its area, particularly during the holiday season. As a matter of experience outbreaks of infectious diseases rarely arise through the direct fault of local authorities, but should any attempt be made to conceal its presence or gravity, or should there be delay in applying appropriate measures for its control, blame may be attached to those responsible. The policy of administrative candour is bound to pay in the long run. The recent application of the Public Health Act, 1936, makes the present time an opportune one for initiating this weekly survey.

THE CEREBROSPINAL FLUID

Drs. Houston Merritt and Fremont-Smith have already contributed a valuable article on the cerebrospinal fluid to *Nelson's Loose Leaf System of Medicine*, as well as numerous short articles on the same subject. They now give us at greater length the data from which they have formed their opinions.¹ These are taken from the records of the Boston City Hospital, and comprise personal examinations of 21,000 specimens of cerebrospinal fluid taken from patients suffering not only from disease of the nervous system but from many other conditions in which involvement of the nervous system was suspected. Although this wealth of material has not included every known disease which produces alterations in the fluid, it leaves few gaps and gives authority to the statements made. The authors are firm supporters of the "dialysate" theory of the formation of the fluid, though they confess that it is not possible to explain all the phenomena of its composition and formation by this theory. Of its absorption they say disappointingly little, and leave many questions related to hydrocephalus and increased intracranial tension unsolved. The monograph is, however, intended to be practical rather than theoretical, and when viewed in this light leaves little to be desired. Their full survey of the changes in the fluid found in many forms of nervous disease, and the diagnostic implications of the various fluid syndromes, should be valuable to practitioner and pathologist alike.

¹ *The Cerebrospinal Fluid*. By H. Houston Merritt, M.D., and Frank Fremont-Smith, M.D. W. B. Saunders Company. (22s. 6d.)

INDUSTRIAL DERMATITIS

Dermatitis as an industrial disease has developed into an important subject during the last few years. First cited as a ground for workmen's compensation in 1916 owing to the large number of cases arising in the course of munition work, it has since been reported with increasing frequency. As is well known, it is closely related to eczema, and the practical question continually arises whether a patient suffering from an inflammatory condition of the skin is to be considered as a victim of industrial dermatitis, and therefore entitled to compensation from his employer, or of eczema of constitutional origin. The importance of the subject is shown by the fact that not less than 15,000 cases of dermatitis are certified by factory surgeons every year. Dr. MacCormac, in a discussion on the subject at the annual meeting of the British Association of Dermatology, pointed out that the age incidence of idiopathic eczema and of industrial dermatitis, especially in males, is very much the same. He concludes that large numbers of cases of alleged occupational dermatitis are probably idiopathic eczema; though he admits that they may be examples of idiopathic eczema prematurely induced by the occupation of the patient but maintained by the constitutional peculiarity which determines eczema. This is rather a fine distinction and does not alter the legal liability of the employer to pay compensation in such cases. Quite commonly, when the disease first shows itself, the employer agrees to pay compensation, but a legal battle may take place when the employer makes an application to end the compensation on the ground that the workman is no longer suffering from industrial dermatitis. Some medical men are inclined to hold the view that a dermatitis due to work cannot persist for a long period after the removal of the alleged irritant, and that when it appears to do so the patient is really suffering from idiopathic eczema. If this view were accepted by the courts the workman's compensation would be stopped, but, very properly, judges are extremely reluctant to take up this attitude, and they are supported by another body of medical opinion, which holds that the human skin which has once been attacked by occupational dermatitis may acquire a habit of breaking down, and of becoming sensitive to agents and influences which were previously harmless. The beginning of all cases of occupational dermatitis is the certifying factory surgeon's certificate to the effect that the patient is suffering from this condition. This throws the liability of compensating the suffering workman on his employer or his representatives. Although in the vast majority of cases the certificate is correct, it must be remembered that factory surgeons are not often dermatologists, and hence cases occasionally arise in which other skin troubles—for example, lichen planus, psoriasis, or even scabies—are certified as occupational dermatitis. By the regulations governing the procedure under the various Workmen's Compensation Acts any appeal against the factory surgeon's certificate must be entered within ten days, and if this is not done the certificate becomes binding. In this way workmen occasionally draw compensation

DOMINION GRADUATES AT OXFORD

Lord Nuffield, whose gifts to the University of Oxford during the past two years have amounted to just upon three and a half million pounds, has made a further allocation for the special benefit of medical graduates from the Dominions. He has placed at the disposal of the trustees appointed under his benefaction of October, 1936, when he set aside two million pounds for the purpose of the Medical School, a sum of approximately £168,000 in order that graduate students from South Africa, Australia, and New Zealand may have facilities for sharing in the advantages of the developments which are taking place at Oxford. During recent visits to the Dominions—he is now proceeding on another visit to Australia, to attend the 150th anniversary celebrations at Sydney—Lord Nuffield has been impressed by the flourishing condition of the medical schools despite their remoteness from the great centres of research, and it has seemed to him that a scheme which made freer access to Oxford possible for selected graduate students would encourage deserving work and be advantageous both to the Dominions concerned and to Oxford itself. He has therefore offered to establish in Oxford three demonstratorships, to be held in turn in the departments of anatomy, biochemistry, pathology, pharmacology, and physiology, and three assistantships in the departments of medicine, surgery, obstetrics and gynaecology, anaesthetics, orthopaedic surgery, and therapeutics. These posts will be tenable for a fixed period by graduates eligible for or already holding similar positions in those universities of South Africa, Australia, and New Zealand which grant medical degrees. The holders will be selected in rotation by the overseas universities. Payment of a sum for apparatus and incidental expenses will be made to the Oxford departments in which the visiting demonstrators and assistants work. The scheme also contemplates the appointment from time to time by Oxford University of a visiting professor to tour the Dominions for the purpose of giving information with regard to research in the home country and at the same time studying the overseas needs. Lord Nuffield's gifts are of such magnitude that public attention is apt to be drawn to their scale, and the vision which inspires them is overlooked. In this latest gift, the benefactor reveals again his appreciation of a need not previously met and perhaps forecasts a scheme of study-visits and interchange on much bigger lines than this allocation can immediately bring about.

To the British Medical Association, which, especially during recent years, through its

assemblies over-seas, its appointment of delegates on various occasions in the Dominions, its fostering care of Oversea Branches, and the constant work of its Dominions Committee, has done much to establish contacts and to secure for the medical profession in the Dominions a like position to that which has been established in the home country, this scheme will be specially welcome. It means far more than the creation of a few temporary appointments at Oxford. The Dominions themselves will benefit from the experience of these graduates on their return, and the spirit and technique of medical research and education as carried out under the most authoritative auspices will permeate the medical schools in the newer lands. As everybody knows, some very noteworthy contributions to medicine have come from the Dominions, but the relative isolation of the universities there has imposed a necessary handicap and has made certain inequalities inevitable. A reciprocal advantage will be that the University of Oxford itself, in its Nuffield School, will benefit by the presence of highly qualified workers, who will bring to the laboratories and wards the freshness of outlook and impatience of convention which one associates with our kinsmen from other parts of the Empire. The Oxford medical school will never forget that one of its most distinguished regius professors, Sir William Osler, came from over-seas.

A WEEKLY EPIDEMIOLOGICAL SURVEY

To give readers some idea of the extent and prevalence of notifiable diseases we print this week at page 52 a table under the heading "Epidemiology and Vital Statistics," and intend to include this from now onwards as a regular feature of the *Journal*. We shall supplement this when occasion demands with brief comments on any significant feature of the table and on any matter that is of current epidemiological importance. The table is compiled from the Registrar-General's weekly returns and from similar returns that have been made available to us through the courtesy and co-operation of the Departments of Health of the Irish Free State, Northern Ireland, and Scotland: to them we are much indebted. It should be made clear that the figures in this table do not apply to the week immediately preceding the issue of the *Journal* in which they appear but to the penultimate week—the latest period for which the information is available for publication in these columns. Attention is also drawn to the fact that the figures for the deaths under the heading of each infectious disease are for a certain number of towns in each area, while the figures for the notifications are for the whole area in each case. This is made clear in the legend at the head of the table. It will be noticed that median values can at present be obtained only for a limited number of notifiable diseases in this country and in London. It would have been a simple matter to give a list of

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE TREATMENT OF BURNS AND SCALDS

BY

PHILIP H. MITCHINER, M.D., M.S., F.R.C.S.

In dealing with the treatment of burns and scalds in general practice one of the most important things to realize is the far better prognosis which can be given in the case of scalds than in the case of burns. For whatever the treatment used, it is a well-established fact that the mortality rate in scalds is only one-third of that from burns, and therefore in any scald a correspondingly better prognosis can be given than in a burn of the same extent.

Why do Burnt Patients Die?

One of the first things to remember is the importance of prophylaxis, and in order to apply this effectively it is necessary to understand the causes which result in the death of the patient. It has been established that 80 per cent. of the deaths ensue from shock and collapse, which are due partly to the absorption of histamine and other toxic bodies from the damaged tissues, partly to the excessive loss of fluid from these tissues, and, lastly, to the pain from the exposure and stimulation of nerve endings. The remaining 20 per cent. mostly result from sepsis, and occur not within the first two days as in the case of the collapse, but in about a week or ten days from the infliction of the burn.

Discussion of the researches which have led to these findings is out of place in such an article as this, but those who wish to inform themselves of the details are referred to the many works on the subject. It will be seen from the above that for any treatment to be efficient it must be directed primarily to the avoidance of collapse and must aim essentially at the complete coagulation of all damaged tissues in order to prevent the absorption of toxins, the escape of fluids, and excessive pain. Secondly, thorough cleansing of the damaged area and its surroundings is necessary if sepsis is to be avoided. By the thorough application of these two principles, coagulation and cleansing, the modern treatment of burns has been able to show such a great advance that the mortality from these injuries has dropped to one-tenth, as will be seen by the study of Table I.

TABLE I.—*Mortality of Burns and Scalds in St. Thomas's Hospital*

Year Groups	Treatment	Mortality (per cent.)	
		Burns	Scalds
1894-1895	Baths and ointment	39.6	18.8
1900-1903	2 per cent. picric	39.7	7.0
1924-1928	2 " " "	15.5	7.5
1929-1936	2 per cent. tannic	4.0	1.7

Coagulant

It is essential that to be efficient a coagulant should be able to penetrate while acting, so that the entire depth of damaged cells may be reached. There is otherwise

a grave danger that a superficial coagulum (which still permits of absorption and escape of fluids from the deeper uncoagulated tissue) may lead to a sense of false security through having caused cessation of pain and a temporary improvement in the patient's condition—an improvement which is not maintained but is succeeded in a few hours by the advent of that "secondary collapse" so well described by Wilson of Edinburgh and so frequently fatal. It will be seen that the ideal coagulant not only should be capable of penetrating but it must be used in a solution weak enough to allow it time to penetrate into the depths of the damaged tissues. As the mortality table shows, the use of picric acid led to a fall in mortality; this was due to its coagulant properties, but no greater fall occurred, because picric acid coagulates only the superficial tissues. Tannic acid, on the other hand, if used in a sufficiently weak solution, is capable of penetrating through the entire depth of the damaged tissues, and therefore gives far better results than either picric acid, silver nitrate, or strong solutions of tannic acid, which produce only a superficial coagulum.

The older methods of treatment by ointments or paraffin-wax merely secured cessation of pain and in no way procured coagulation, so they will be mentioned merely to be condemned. Similarly the modern method of treatment by crude cod-liver oil preparations offers in its results no comparison with those obtained by coagulation, though it has the advantage over the older greasy dressings that sepsis can be held largely in check. The gentian-violet treatment also aims at antiseptics, but it does not produce coagulation, so that the results are not satisfactory in severe burns, though considerable absorption of the dye occurs.

The Use of Tannic Acid

One important point in relation to tannic acid is to remember to use weak solutions. Personally I advocate a 2 per cent. strength—certainly never over 5 per cent. It must be borne in mind that tannic acid in solution readily grows a large selection of moulds and thus becomes very septic; so an antiseptic has usually to be added to prevent this. Various antiseptics have been tried, the most successful being perchloride of mercury 1 in 2,000. It has been found, however, that this solution decomposes in about two months, and in order to prevent this a powder is used which not only keeps indefinitely but dissolves easily in warm water. This consists of tannic acid, 17½ grains, and perchloride of mercury, 1/2 grain, to be dissolved in two ounces of warm water. This gives a 2 per cent. tannic acid solution with 1 in 2,000 perchloride of mercury; and the two ounces, in addition to being sufficient for each spraying, will soak a compress dressing 6 by 4 inches, which is large enough to cover the average burn met with in domestic practice. In the case of larger burns two or more powders, as may be necessary, can be dissolved in a corresponding quantity of water. As the perchloride, however, has the disadvantage of being scheduled as a poison, many other antiseptics have been tried, including acriflavine and hexyl-resorcinol, of which the latter in a 1 in 2,000 solution is the most beneficial. These, however, frequently cause pain to the patient and interfere with the formation of a hard and

which they really do not deserve, but such cases are very infrequent. On the whole the Act carries out the intentions of the legislature satisfactorily. Many modern industrial processes entail serious risk of damaging the skin of the workman, and, although cases of industrial skin disease form only a small percentage of the accidents and diseases to which workmen are liable in the course of their employment and for which it has been rightly decided that they should be compensated, the actual number of skin cases is, as we noted above, by no means inconsiderable. It must be remembered not only that there are many branches of manufacture in which the skin is exposed to various sorts of liquids and dusts which are notorious for their liability to damage the skin, but that most manual labour is carried on under rough and dirty conditions which are likely to be detrimental to any skin insufficiently endowed with toughness. The number of cases reported has much increased during recent years. This is not due to any deterioration in conditions of work, but is because the approved societies have woken up to the opportunity open to them of getting rid of their liabilities to their members in respect of skin disease. At the present time, whenever a workman goes sick with any form of skin disease his approved society is extremely likely to attempt to show that it is a case of industrial or occupational dermatitis. Most of these cases are settled on reports from the medical men who advise the insurance companies which relieve the employers of their statutory liability, and the number of cases which ultimately find their way before a legal tribunal is very small. On the whole, though occasionally abused, the law providing for compensation in cases of industrial dermatitis works well and protects the interests of the worker in a just and satisfactory manner.

CO-OPERATION BETWEEN PHYSICIAN, SURGEON, AND DENTIST

From the Editor of the *Military Surgeon* we have received a reprint of a paper on the interrelation of medicine, surgery, and dentistry in military and civil practice read by Captain W. S. Bainbridge of the U.S. Naval Reserve Medical Corps-Fleet. He urges closer co-operation between physician, surgeon, and dentist, and supports his argument by interesting and pertinent cases met with in his own practice, and by observations from outside it. Hippocrates 2,500 years ago cured a patient of rheumatism by removal of a diseased tooth. In the world war bone wounds among Mohammedan regiments healed badly till orange sticks were substituted for tooth-brushes—unused on account of a possible pig-bristle. In Captain Bainbridge's practice contact between dissimilar metal fillings has been found capable of causing lesions of cheek or tongue suspicious of malignancy; the lesions were cured by insertion of similar metal fillings; and mastitis has been found definitely dependent on dental sepsis. Reading the detailed clinical cases gives us the impression that actinomycosis of the mouth is far commoner in the United States than in this country. The author most certainly proves his thesis.

THE TRUDEAU FOUNDATION

To those familiar with the development of the sanatorium movement the name Trudeau probably conjures up the picture of a young married man with advanced pulmonary tuberculosis, almost given up by his physicians, trudging along the Adirondack Mountains, an isolated spot in North America, in the hope that the open-air life would work a miracle. That was over fifty years ago; and the miracle happened. To most people, however, the name Trudeau brings to mind the Trudeau Foundation at Saranac Lake, with its modern sanatorium of 185 beds and laboratory, also a special research laboratory and medical school for tuberculosis, which were established in 1916 to Trudeau's memory—all at the spot to which he came to regain his health. It is now over twenty years since Edward Livingstone Trudeau died, but the yearly reports of the Trudeau Foundation continue to bring before us the results of his work and vision. The sanatorium caters for "self-supporting" people; the Trudeau School of Tuberculosis gives courses of instruction to physicians, and by awarding fellowships for study and research provides support for young physicians and scientists undergoing treatment. There is a clinical research laboratory at the sanatorium, and, in addition, in the village of Saranac Lake, there is the Saranac Laboratory for the study of tuberculosis, formerly the private laboratory of Dr. Trudeau, which, though co-operating with the sanatorium laboratory, is a separate concern. It serves as headquarters of the Trudeau School of Tuberculosis, provides diagnostic facilities for the physicians practising in the village, and carries out independent researches in the field of tuberculosis and associated conditions. The annual report for 1936,¹ consisting of three pamphlets, has just reached us. The general report, which is concerned chiefly with financial details, is of less interest to clinicians than the medical one. Some of the results published in the latter are worthy of note. During the year 264 patients were discharged (including three deaths), but sixteen of these were either non-tuberculous or only suspected of having tuberculosis. "Only sixteen, or 6.5 per cent., of the remaining 248 were discharged as having their disease 'arrested,' and twelve, or 5 per cent., as 'apparently arrested,'" the report stating that "the few months' residence for most patients is insufficient for complete arrest." This comment must be amplified by giving some further figures. Of the thirty-eight patients who stayed from thirty to ninety days (average sixty-two days) 23.7 per cent. were discharged as "quiescent"; of 187 patients who stayed ninety days or over (average 299 days) 15 per cent. were discharged as "arrested" or "apparently arrested," and 50.2 per cent. as "quiescent." Among these 187 people no less than 63.6 per cent. were classified as "moderately advanced" and 12.3 per cent. as "far advanced" on admission. While the report does not indicate how far the terms used at Saranac Lake are comparable with those in this country, the results would appear to be better than those obtained in sanatoria of a similar type here.

¹ Report of the Trudeau Foundation for the year ended September 30, 1936.

H. GORDON THOMPSON: LYMPHOID TISSUE OF THE ALIMENTARY CANAL

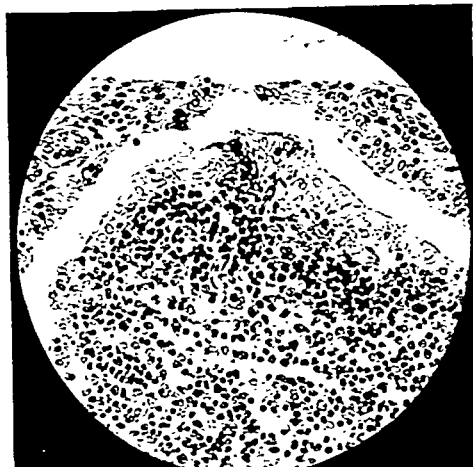


FIG. 1.—Vermiform appendix of rabbit (low power). Lymphocytes pouring into the alimentary canal.

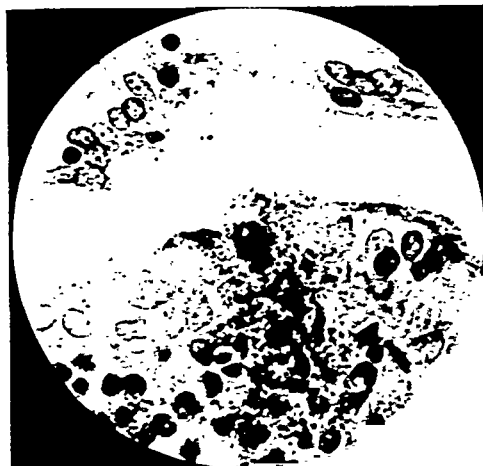


FIG. 2.—Vermiform appendix of rabbit (high power). Lymphocytes pouring into the alimentary canal.

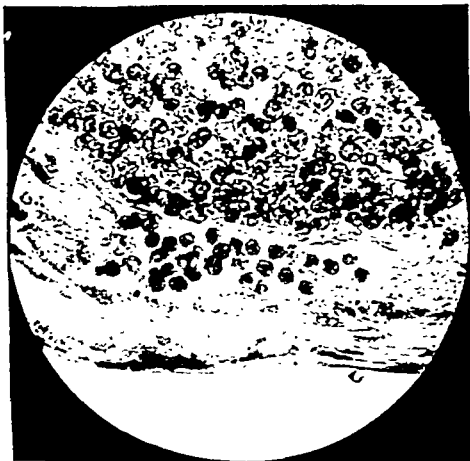


FIG. 3.—Vermiform appendix of rabbit. Lymphocytes in subserous lymphatics.

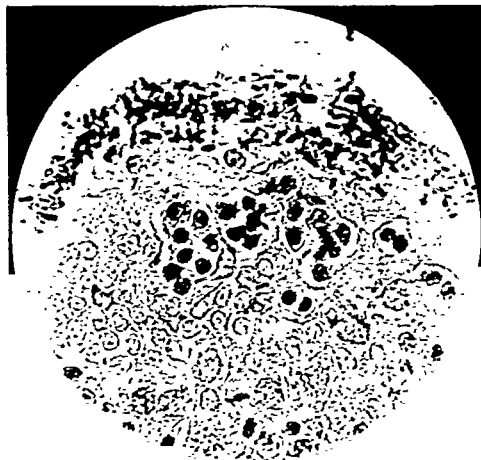


FIG. 4.—Vermiform appendix of rabbit. Groups of lymphocytes moving out to meet bacterial invasion.



FIG. 5.—Vermiform appendix of rabbit. Atrophy of lymphoid tissue as a result of vitamin A deficient diet.

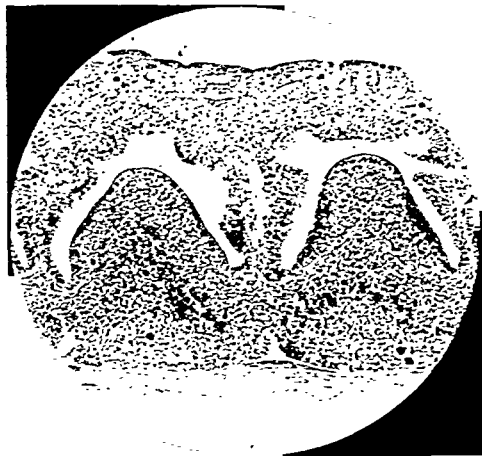


FIG. 6.—Vermiform appendix of rabbit. Regeneration of lymphoid tissue after giving provitamin A (carotene).

satisfactory coagulum. It cannot be too strongly impressed on the practitioner that the addition of this antiseptic is to preserve the tannic acid solution, and does not prevent sepsis in the area of the burn, which must therefore be most carefully cleansed, as described later.

After these preliminary remarks I will proceed to consider in detail the treatment with tannic acid. This may be applied by either the compress or the spray, but inasmuch as the spray treatment is possible only in hospital it will not be described here: experience shows that it never gives good results in severe burns when applied under the conditions of private practice, and it is unnecessarily complicated in slight cases, where the compress or the application of tannafax jelly gives equally good results. In passing, it may be mentioned that tannafax jelly is an excellent method for treating small burns such as so frequently occur in homes, where it can with advantage be kept with the stock of first-aid applications. It does not, however, give satisfactory results in large or extensive burns. (A full description of the spray method can be found in *The Modern Treatment of Burns and Scalds*.)

First-aid Treatment

The treatment of burns, as of any injury, resolves itself into first-aid and final treatment. The first-aid treatment must be immediate, because the sooner a coagulant is applied the smaller is the likelihood of collapse. It may be argued that few homes keep tannic acid; but there are very few where tea is not procurable, and the infusion of tea as we drink it contains from 2 to 5 per cent. of tannin—a fact realized long ago by the Chinese, who have successfully dressed their burns with tea for over 5,000 years. All that is necessary, therefore, as a first-aid measure is to soak clean linen in tea and apply it promptly all over the burnt area. Care must be taken that the tea is sufficiently cooled, so that no scald is inflicted by its application.

Oils, flour, and butter must have no place in the first-aid treatment of burns, for, although they stop the pain, that is all they can do, and collapse, often fatal, will occur.

After the application of tea or tannic acid wrap the patient up well and give plenty of warm fluids to drink; an injection of morphine, 1/4 to 1/3 grain, or a dose of tincture of opium, according to the age of the patient, may be given with advantage, and this fact must be recorded. Do not hurry the patient into an ambulance and rush him to hospital; he will be very much better if he is left lying quiet for half an hour before being transferred.

Final Treatment

The final treatment consists in the application of the tannic acid compress; but first the burnt area and surrounding skin must be thoroughly cleansed, and this can be efficiently carried out only under anaesthesia. Burnt patients are liable to pulmonary complications, so that inhalation anaesthesia should be avoided; similarly there is a tendency towards albuminuria, with renal and hepatic inefficiency, and therefore barbiturates such as evipan or avertin are not without their risks. For these reasons heavy dosage with opium or morphine, as suggested in Table II, has been found most satisfactory to induce anaesthesia in these cases. In this respect it must be remembered that the drug will need at least half an hour to act before the patient is sufficiently somnolent to permit cleaning to be proceeded with.

TABLE II.—Opium Dosage for Cleansing Burns and Scalds

1.—IN CHILDREN

Age	Preparation	Dose
1 month	Tinct. camph. co.	℥ij-ij
2 months	" " "	℥iv-ij
3 "	Tinct. opii	℥i-℥
6 "	" "	℥℥-℥
1 year	Tinct. opii (a) or Inj. morph.	℥ij-ij
Over 1 year	Tinct. opii or Inj. morph.	grain 1/75 ℥ij for each year and ℥ij in 15 minutes if necessary grain 1/75 for each year

2.—IN ADULTS

Age	Preparation	Dose
12-15 years	Tinct. opii and Inj. morph.	℥xxx grain 1
15-20	Tinct. opii and Inj. morph.	℥xxx grain 1
Over 20 years	Tinct. opii and Inj. morph. (b) or Inj. morph. (c)	℥xxx grain 1-1 grain 1-1

(a) Tinct. opii is more satisfactory than morphine. (b) For women. (c) For men according to stamina.

N.B.—Should slow or shallow breathing give rise to anxiety atropine sulphate 1/200 to 1/50 grain should be administered hypodermically.

Essential Cleansing

When the patient is well under the morphine the first-aid dressing is removed and the area of the burn and the skin round it are cleaned. It is the latter which is most likely to be septic, as it has not been properly burnt, so it must be cleaned with especial care. On this depends the entire success of the treatment with tannic acid, and I venture to say that *if your treatment fails it will be because the area has not been cleaned properly, and for no other reason whatsoever*. All dead skin must be removed, debris picked off, blisters pricked, the raised skin cut away, and the whole area washed with soap and warm water, using a flannel or sponge. When the area is thoroughly clean—particularly round the edges—it should be sponged with ether. The tannic acid dressing is then applied.

The Compress

Into the 2 per cent. tannic acid solution, made up as described, dip a dressing of three layers of sterile lint or six layers of sterile gauze, cut to extend three inches beyond the obvious edge of the burn. Take it out dripping, and apply loosely and evenly over the burnt area. Then bandage the dressing firmly into position and leave it to dry, with the area rendered immobile by skeleton splints or suitable fixation: this is perfectly simple, and keeps the patient warm. If the burnt area is large a cradle should be used, and extra heat must of course be applied to warm the patient; but do not let the heat be too strong or the compress will dry before the tannic acid has had time to penetrate and secondary shock will subsequently develop, as the deeper damaged tissues are not coagulated. An electric lamp a little way off, or a hot-water bottle held near the dressing, will be sufficient to dry the compress slowly, and, incidentally, will not concentrate the solution.

H. B. RÓDERICK : FRACTURE OF NECK OF FEMUR. ANOTHER METHOD OF INSERTING THE SMITH-PETI

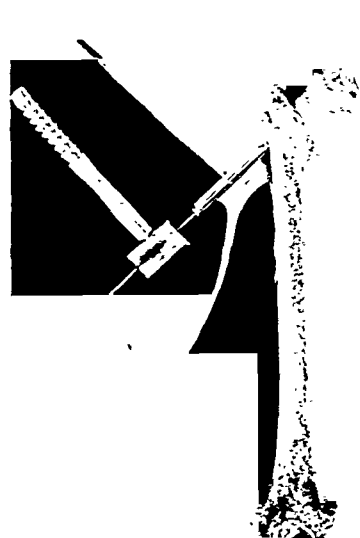


FIG. 7.—Showing pin and hammer threaded on to guiding-wire. Pin resting on director.

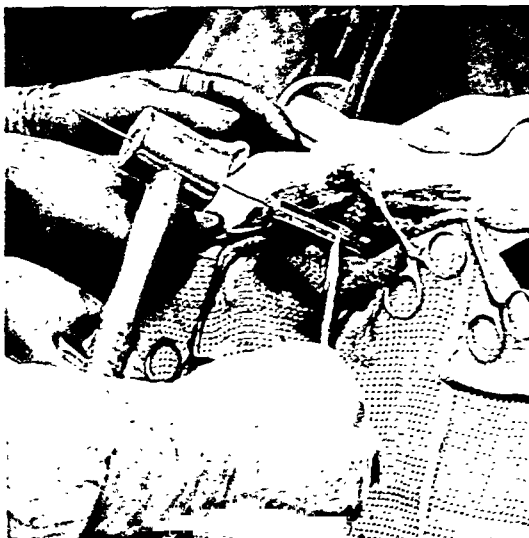


FIG. 8.—Same as Fig. 7, at operation.



FIG. 9.—Radiograph



FIG. 10.—Radiograph showing deformity corrected and guiding-wire in position.



FIG. 11.—Radiograph showing pin in posi

ICK: FRACTURE OF NECK OF FEMUR. ANOTHER METHOD OF INSERTING THE SMITH-PETERSEN PIN



ector applied to side of femur.

FIG. 2.—Side view, showing director and forceps lying parallel to each other.



FIG. 3.—Actual operation; showing director and forceps in position



drill laid along groove of director.



FIG. 5.—Same as Fig. 4, at operation.



FIG. 6.—Guiding-wire in position.

After-treatment

The patient must be kept warm and fluid be given freely to combat collapse. The dressing should be left untouched for two weeks approximately, by which time the coagulum will separate naturally when the bandage is cut. Fixation of the burnt area must be maintained for the first twenty-four hours at least, so that the coagulum of tannic acid can solidify, and if the burn is in any of the flexures of the body the limb must be extended by splints, so as to avoid contraction and subsequent deformity from destroyed subcutaneous tissue or muscle. A burn extending all over the hand, for instance, would entail separating the fingers with rolls of bandage between the knuckles, so that they would not become webbed at the base and leave the hand deformed. In first or second degree burns these splints may be removed in forty-eight hours in most cases, but with deeper burns they must be retained till the coagulum separates, and often have to be reapplied for some time after this.

At the end of two weeks cut the bandages and the coagulum will lift away from the burn. Any areas that are inclined to stick should be left a day or two longer, when they too will come away neatly.

Complications

Various complications may occur during the course of treatment.

1. *Cracking of the coagulum* results unless efficient fixation is maintained for the first twenty-four or forty-eight hours, and is an indication that the dressing must be removed and the burnt area re-tanned with the part properly fixed. Similarly, if hexyl-resorcinol or acriflavine solution is used a soft and unsatisfactory coagulum may result, and this is also an indication for re-tanning.

2. *Sepsis* may occur, though in this respect it must be realized that the escape of a little serous or sanious discharge round the edges of the coagulum is of frequent occurrence and does not mean that sepsis is present. Pain, pyrexia, and a discharge of frank pus alone indicate sepsis; these call for the removal of the loosened coagulum, thorough re-cleansing of the area, and reapplication of a tannic compress, when a satisfactory result will be obtained.

3. In burns which have destroyed the skin *ulceration* will of course be present when the tannic acid coagulum separates. All that is necessary in these cases is continued splintage to prevent contracture and the application of a suitable lotion, or the use of some method of skin grafting to effect healing, which can be obtained with very little scarring.

Special Burns

Burns in certain situations, such as the face, perineum, and buttocks, are better treated, if possible, by the spray, though with care an excellent result can be obtained by the compress. In the case of a burnt hand great care must be taken in the application of compress and bandages to individual fingers and the clefts between them, as well as in the splinting of the hand and fingers and the fixation of the latter apart by means of rolls of bandage stitched between the digits well clear of the clefts.

Up till now only fire and water burns and scalds have been considered, but there are also many very bad *chemical burns*. Tannic acid is equally good for these, but the chemical that has inflicted the burn must first be neutralized completely before the tannic acid is applied.

In any such burn washing freely with a large quantity of warm water is essential, and in addition an *acid burn* must be neutralized with an *alkali*—bicarbonate of soda, for instance—while an *alkali burn* should be neutralized with a 2 per cent. citric acid solution; this is best, as it penetrates the tissues, while most of the other acids (for example, acetic) act only on the surface.

Electrical burns are very difficult indeed to treat. They are often fatal, and so the need for treatment does not arise. Only a very small burn shows—a sort of stab in the flesh where the current has entered. The patient should be moved away from the current at once—even before it is switched off; but of course the rescuer must take the greatest care not to become electrocuted himself. The patient must be treated for collapse and the small burn with tannic acid, but very little else can be done. Pain will be intense through all the nerves. A certain amount of relief can be obtained from the use of veronal tablets, but morphine must on no account be given.

In the case of burns from *mustard gas* the medical man must protect himself by using rubber gloves and, of course, by wearing an overall and respirator. The first thing to do is to neutralize the gas with bleaching powder emulsion, then wash the area with plenty of water, dry over with ether, and put on a tannic acid compress.

For *lime or gas burns* in the eyes irrigate the eyes first with a neutral fluid such as a 2 per cent. solution of citric acid, and then instil sterile castor oil and a drop of 1 per cent. atropine solution.

Lastly I will just mention *sunburn*, which, after all, is a burn and often requires specific treatment. The popular idea of treating sunburn is to put on grease and lie out in the sunshine. Of course as a result the patient is very nicely basted, and suffers all the pain of a fire burn. Here is a prescription which has been found very beneficial when dealing extensively with sunburn at Territorial camps:

R. Calamine	...	...	...	400 grains
Zinc oxide	...	...	...	400 "
Tannic acid	...	...	...	100 "
Glycerin	...	...	...	1 ounce
Water	...	...	...	1 pint

This lotion should be applied at hourly intervals until the irritation is relieved. Incidentally the lotion has itself a pleasant tanning effect on the skin.

Other Methods of Burn Treatment

Many other methods have recently been used, but the majority fail in that they do not produce coagulation; considerable shock therefore ensues from the escape of fluid, and in severe burns this frequently has fatal results. Thus they cannot in the majority of cases be considered as efficient as a weak solution of tannic acid.

Crude cod-liver oil has had a considerable vogue, but is no better than any other grease dressing, though, as stated, it holds sepsis largely in check.

Gentian violet (1 per cent. aqueous solution) is an excellent antiseptic and keeps burns clean. No better treatment can be used for small first and second degree burns. It must be realized that absorption takes place in all burns, and the urine may be discoloured, while there is of course a violet discoloration of the skin, which persists for a considerable time. Moreover, as no coagulation of the damaged tissues occurs shock will result from loss of fluid. This antiseptic unfortunately does not combine well with tannic acid.

F. A. H. SIMMONDS AND W. PAGEL: CHRONIC DISSEMINATED TUBERCULOSIS

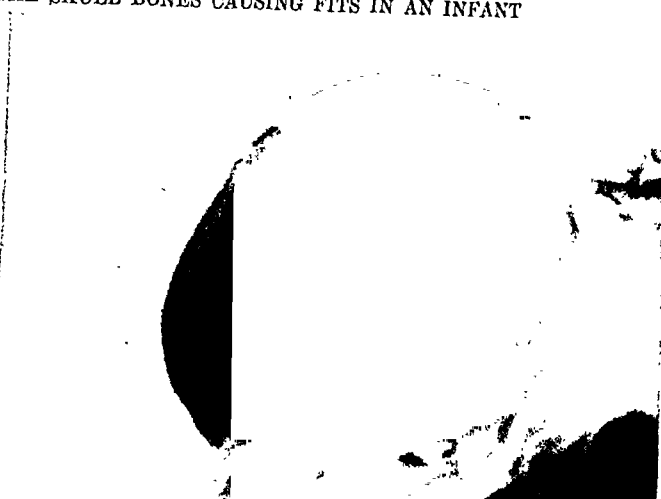


FIG. 1.—Miliary tubercles in cortical areas and along interlobar fissure.



FIG. 2.—Miliary tubercles in cortical zone; small emphysematous bullae; pleural thickening and adhesions.

G. C. GORDON: PERSISTENT OVERMOULDING OF THE SKULL BONES CAUSING FITS IN AN INFANT



Radiographs showing the overlapping bones at age of 3 months.

J. M. TURNER: UNUSUAL CASE OF CHONDRIFICATION OF PATELLAR LIGAMENT



Photograph of the cartilaginous mass excised.



FIG. 2.—Lateral view of left knee-joint. Note (a) cartilaginous mass in the patellar ligament; (b) upward displacement of the patella.

statement issued by him on November 9 he had said that boiling of the water was unnecessary, he said that the matter was discussed in the Public Health Committee, which so decided. He did not agree that it would have been a helpful precaution. The water supply was already being effectively chlorinated two days before there was anything to suggest that water was the cause of the outbreak. Asked if he refused to take any suggested precautionary measures on the ground that a panic would be created, he said that the word "panic" was used at a meeting of residents in the area which he had attended: if he used it himself it was in connexion with the broad-casting of information.

Notification to Croydon Practitioners

In reply to a further question, Dr. Holden said that the twenty-six doctors in the affected area of South Croydon were informed of an outbreak of typhoid on November 1, and all the 150 doctors in the borough on November 4. If a local medical committee had been available he would have been happy to consult it.

Is there a local Division of the British Medical Association?—Yes.

Could you not have applied to the officers of that Division?—If I had applied to the secretary of the Division, whom I know very well, he would have called his committee together, but that would have meant delay.

They are all on the telephone, surely a meeting could have been summoned the same night. You do not suggest that had that been done any one of those gentlemen would have refused to treat it as a matter of extreme urgency? Can you imagine the secretary refusing to give it immediate attention?—I think the secretary would have done what he thought was right. I have always found the secretary of the Division ready to co-operate.

Mr. Lyons referred to the letter in the *Times* of November 22, signed by Lord Dawson and Sir Kaye Le Fleming, and taking up their remark about lack of co-ordination between departments, asked what co-ordination there was between Dr. Holden's department and that of the borough engineer. Dr. Holden replied that the co-ordination was in the submission of the results of the bacteriological examinations to him for his opinion.

The Chairman (Mr. H. L. Murphy) said he would not suggest that this cross-examination was irrelevant, but it had arisen out of some temperate comments on the *Times* letter which were made by Sir Walter Monckton at the beginning of the proceedings. He understood that Sir Walter's remarks were addressed to the point that the two distinguished signatories, like many much less distinguished persons, did not appear to have made themselves acquainted with the terms of reference of the tribunal.

Sir Walter Monckton said that that was the case. He was making the assumption that Lord Dawson and Sir Kaye Le Fleming had not seen the terms of reference, which were not confined to an inquiry into the causes of the outbreak, but extended to the steps taken to deal with it. Had they done so they would have refrained from stating that there was a defect in medical administration in Croydon.

Preventive Inoculation

Mr. Lyons asked Dr. Holden what were his grounds for stating that he had consulted several medical colleagues on the subject of prophylactic inoculation, and medical opinion was against it. Dr. Holden replied that he had consulted the borough bacteriologist, also Dr. E. T. Conybeare of the Ministry of Health, and a local practitioner, and their opinion was against inoculation on the ground that immediately afterwards—he thought it was a well-known fact pertaining to all methods of inoculation—a negative phase occurred during which the individual might be more susceptible. He was definitely advised not to recommend universal inoculation.

On the general question of co-operating with the local profession, Dr. Holden said that he had been medical officer of health for a good many years, and he had never wilfully ignored private practitioners. In this typhoid outbreak he had followed the practice always adopted by medical officers of health.

He added that he had attended a meeting summoned by the B.M.A. Division later in the month (the 24th), when a number of recommendations were made. In reply to the Chairman (Mr. Murphy) he said that he was himself a member of the B.M.A. and of the Croydon Division, but he could not attend the meetings regularly as the time conflicted with meetings of his official committees.

Co-operation with the Local Profession

Dr. Holden was next cross-examined by Mr. A. H. Forbes, appearing for the Croydon Division of the B.M.A. and the Local Medical and Panel Committee. He directed attention to an article in the *Medical Officer* of November 27, which stated that it was neither usual nor useful for the medical officer of health in times of urgency to confer with representatives of the local medical profession. He hoped Dr. Holden did not agree with that "heresy." Dr. Holden repeated that if there had been a local committee of doctors available he would have been happy to seek their help, the Public Health Committee consenting.

The article further says, "Lord Dawson is not fully acquainted with modern public health practice." Do you approve any modern public health practice which considers it generally not useful for the medical officer in times of urgency to confer with local medical practitioners?—I think that if the local profession have a standing committee it could and would be of great assistance to the medical officer of health.

Then if the local medical practitioners had had in existence at the time of this outbreak a standing committee you would gladly have co-operated with it?—Provided that the standing committee was recognized by my council.

And you would have furnished the committee with all relevant information?—Subject to the consent of my committee.

Typhoid in its early stages is difficult to diagnose?—From clinical symptoms alone, yes.

And it is important that diagnosis should be made as early as possible, both from the point of view of the patient's nursing and diet and from the point of view of contacts?—Yes, but I do not think that in the early stages of typhoid there is much risk, if any, from contacts.

Is there risk at any stage prior to the probable date of diagnosis?—That is a difficult question; the date of diagnosis may be as late as the third or fourth week, and in that case there might be a certain risk.

But in practice, as soon as typhoid was diagnosed, one would advise all the usual precautions to prevent infection by contacts?—Yes, understanding by "contacts" those attending the patient.

It is ordinary practice as soon as even a tentative diagnosis is made to give instructions in the household concerning precautions?—If I was the medical attendant I should give such instructions.

Have you ever been in private practice?—A long time ago, for about six months.

When you notified the doctors of South Croydon on November 1 how did you discover their names?—From a list of doctors in my possession and from a local street directory.

I want to draw attention to the letter you sent. It tells the doctors nothing as to the possible cause of the outbreak nor does it say where the cases are occurring. Is that likely to be of any use to men in private practice?—Yes.

Even though the letter says nothing to indicate that the source of infection was water?—Yes.

Do you agree that if at any time you could have told these doctors that the source of infection was water and that the water was supplying the houses in certain streets it would have been of immense value to them in making a diagnosis or a provisional diagnosis?—I do not see that it would have been any more useful than drawing their attention to the fact that typhoid was in Croydon, more especially, at a time when I was not sure by any means that any particular item of food or drink was implicated.

I suggest that if a practitioner sees a doubtful case and knows it is within an infected area, the house being on an infected water supply, he would diagnose the case as typhoid at once?—When he knows that the water supply is infected, yes. But I did not feel justified in notifying the practitioners concerning any particular source of supply until I had more information at my disposal.

Did that apply as late as November 6?—Strictly speaking, it applies even now, for it is all presumption.

Mr. Forbes had not completed his questions when the court rose.

Silver Nitrate.—A 10 to 20 per cent. solution of silver nitrate rubbed into the burnt area produces a tough and rapid coagulum; but here again it does not always penetrate into the deeper tissues, and so a certain amount of collapse occurs in severe burns. Next to tannic acid, however, an application of silver nitrate and gentian violet gives the best results; but here once more the primary essential cleansing of the burn and surrounding area is necessary if sepsis is to be prevented. The patient having been given a dose of sedative, and the area of the burn being cleansed as already described under the tannic acid treatment, the whole of the burn area is painted or sprayed once with a 1 per cent. aqueous solution of gentian violet and is thoroughly swabbed over with a 10 to 15 per cent. solution of silver nitrate, care being taken that the silver nitrate does not escape over the surrounding skin. The area is now again sprayed or painted with a 10 per cent. solution of gentian violet at fifteen-minute intervals for five or six times, the patient in the meantime being kept warm under an electric cradle and given plenty of fluids to drink. Should it be necessary the painting or spraying with gentian violet can be repeated once or twice daily for the next day or two. From the use of this method the American authorities report a mortality of 7.3 per cent., apparently for both burns and scalds; this is considerably higher than that from weak tannic acid solution, as might be expected when one realizes that in the case of extensive burns the silver nitrate coagulum does not extend into the deeper damaged tissues.

Many other antiseptics have been combined with tannic acid instead of perchloride, the most popular of which is acriflavine. This substance, however, in my experience, is not satisfactory for the reasons already given. The same objections apply to the great majority of antiseptics that have been tried in this connexion.

Finally, I would say to those practitioners who bring forward instances where some particular treatment has given good results in individual cases of burns that any treatment may be successful in the case of a slight burn, but that in severe burns cleansing and coagulation alone can be relied on to preserve the patient's life, with the minimum of disfigurement and the maximum relief of pain and the prevention of collapse and sepsis.

CROYDON TYPHOID INQUIRY EVIDENCE OF EXPERT WITNESSES

The tribunal inquiring into the outbreak of typhoid fever in Croydon continued its sittings over Christmas. The first evidence called on behalf of the Corporation was that of a geological expert, who spoke as to the structure of a gathering ground of the suspected well, and a consulting water engineer, who testified as to the character of the water from the Addington supply. The latter witness, Mr. S. R. Rafferty, agreed that this well had been known for a number of years to show variations in the quality of the water. He agreed also as to the danger from workmen's latrines in the vicinity during such time as some work was proceeding on a school belonging to the local authority, and as to the undesirability of the presence of a pig farm at this particular spot, though he would not say that this was a possible source of danger. It was further put to this witness that on the other side of the wood from the reservoir there was a ground, just outside the Croydon boundary, which was used as a week-end camping place for some hundreds of people and had no sanitary conveniences of any kind. The witness replied that there had been no means of dealing with such a state of affairs, unless it could be held to constitute a local nuisance, until the passing of the recent Public Health Act.

Medical Officer of Health's Evidence

Dr. O. M. Holden, medical officer of health for Croydon, who was in the witness chair for three days, traced the history of the epidemic and of the inquiries set on foot regarding water, drains, etc., immediately the cases occurred. He had been under the impression that the whole of the Croydon water was chlorinated, and was surprised to hear that the high-level supply, which included that from the Addington reservoir, was not. Chlorination of the Addington well began on November 1. He had studied reports of a predecessor of his in 1905-8 regarding the liability of the Addington well to surface pollution. He knew the conditions on the gathering ground, and for some time he had been a little uneasy about this well; he had drawn attention to the fact that the analyses of the water from this well did not appear to be satisfactory and had recommended chlorination.

In reply to his own counsel, Mr. Sandilands, K.C., Dr. Holden said that the duties of the medical officer had been considerably increased during the last twenty years, but the water supply had never been put upon him. He did not wish to deny that as medical officer he had a certain responsibility. He considered the limit of his responsibility to be to advise the responsible authority on the bacteriological analyses, which were the only material he had before him. At the end of 1930 he advised that chlorination should be considered by the borough engineer, and he had been under the impression that chlorination was carried out at Addington well from that time. It was put to him by Mr. Lyons, counsel for the South Croydon Typhoid Outbreak Committee, that in 1931 he had reported that some solid contamination had been getting into the Addington water, and that if it were built on to any greater extent and cesspools multiplied there would be grave danger to the public health, and that when in 1936 he reported that the water supply was satisfactory he omitted to point out what he really knew—namely, the danger which he had appreciated five years earlier. Dr. Holden denied this.

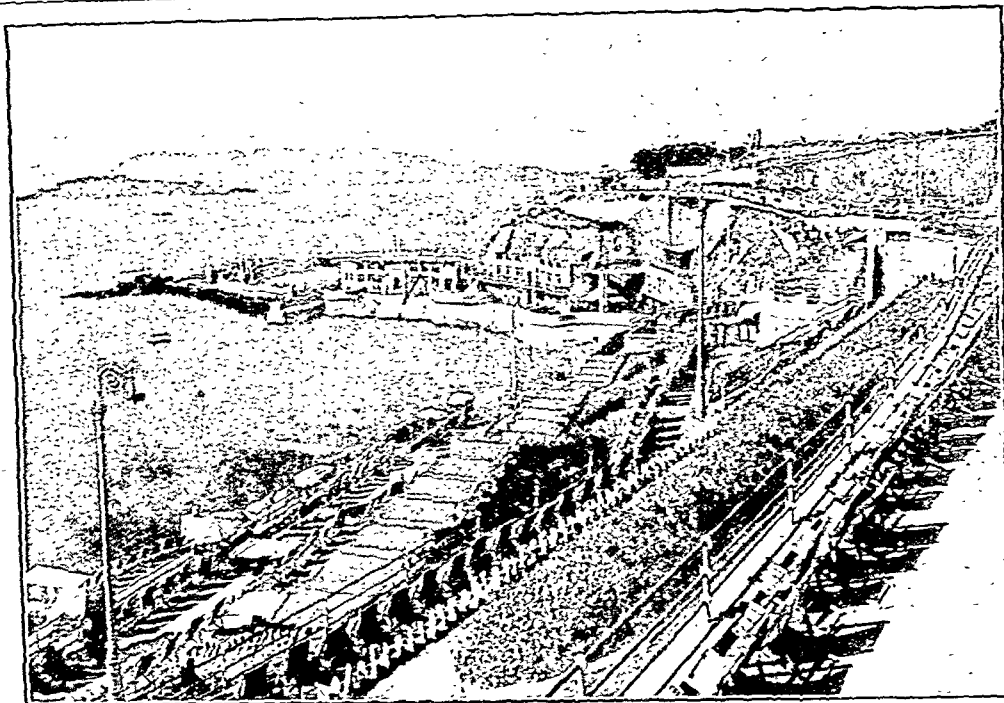
He was also asked what steps he took to prevent householders drinking water from their own cisterns after he knew the water to be contaminated. Dr. Holden replied that the precautionary measures taken on November 1 at the source of supply safeguarded the water by November 3, on which date he first knew the water to be infected, but he agreed that nobody visited the unoccupied houses, drained off the water, and chemically treated the tanks.

Precautionary Measures Adopted

When the inquiry was resumed on Tuesday, December 28, Dr. Holden was further cross-examined by Mr. Montagu Lyons, who asked first as to the dates when the Addington well was chlorinated. The witness said that the records would be with the borough engineer. The borough engineer, like himself, had been under the impression that the supply had been continuously chlorinated since an earlier complaint was made, but he discovered at the beginning of the outbreak that only intermittent chlorination had taken place.

Asked how many cases would be brought to his notice in the same area before he decided that an outbreak was probably beginning, he replied that two or three cases of any infectious disease in the same neighbourhood would cause him to think seriously of the likelihood of spread. But he desired to make it plain that at first the water was not specially considered. It was one of a number of things, including milk and other articles of food, which had to be examined, and there was no reason at the end of October, when the first four or five cases had been notified, for giving water the priority.

Dr. Holden was questioned as to a statement he had made that in recent years water had seldom been found to be the cause of typhoid. He said that the statement was a fair one, though it might have been amplified. Certainly the most serious outbreak of recent years (Bournemouth) was not due to water. Asked why in a

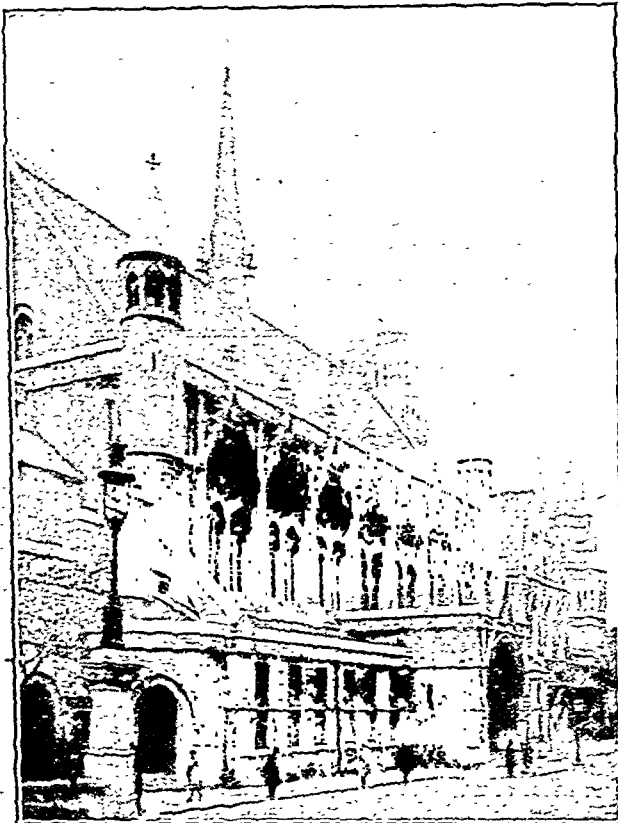


Part of Plymouth Hoe, showing the bathing pool and terraces, with Drake's Island in the middle distance and Mount Edgumbe in the background.

now dwelling within the propound boundaries." To commemorate his election His Worship provided a feast, composed of a pie of "all sorts, of fish, flesh, and fowl that could be gotten. It was fourteen feet long and four feet broad, and an oven was built for the purpose of its baking." And to this day Mayors on election day give their luncheons, though on more modern lines.

Drake as Mayor

Sir Francis Drake was Mayor in 1581. Although better known for his exploits at sea—and whenever Plymouth is mentioned Drake finishing his game of bowls before attacking the Armada comes to mind—it should be remembered that it was he who first provided the town with an adequate water supply. Also regarded as of sufficient importance to be placed on record is the fact that he "set a mariner's



The City Guildhall.

compass on the Hoe." More notorious, though less practical, was the action of another Mayor who struck the town clerk—as he sat upon the bench, because the official addressed him without his title of "Worship."

Invaded by the French, "spoiled by the Bretons," Plymouth through the centuries suffered from piracy, and in addition to the plague was a victim of a "sweating sickness" known as *sudor anglicus*, which raged in the fifteenth century. But the famous Sabbath Day siege, well known to students of the Civil War, marked an epoch of first importance in national as well as local history; and since then, generation after generation, its name has been writ large in the annals of the country, until to-day it ranks as a great naval arsenal, as an important military garrison and seaplane base, and as a commercial port visited by steamers to and from all parts of the globe.

ONE HUNDRED AND SIXTH ANNUAL MEETING
OF THE
BRITISH MEDICAL ASSOCIATION
PLYMOUTH, 1938

THE one hundred and sixth Annual Meeting of the British Medical Association will be held in Plymouth next summer under the presidency of Dr. Colin D. Lindsay, senior physician to the Prince of Wales's Hospital, Plymouth. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 20, 21, and 22, the morning sessions being given up to discussions and the reading of papers. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 15. The full list of presidents, vice-presidents, and honorary secretaries of the seventeen Scientific Sections will be published in an early issue of the *Supplement*. Other details of the arrangements for the Annual Meeting will appear in subsequent issues. We publish below the first of a series of descriptive and historical articles on Plymouth and its medical institutions.

PLYMOUTH YESTERDAY AND TODAY

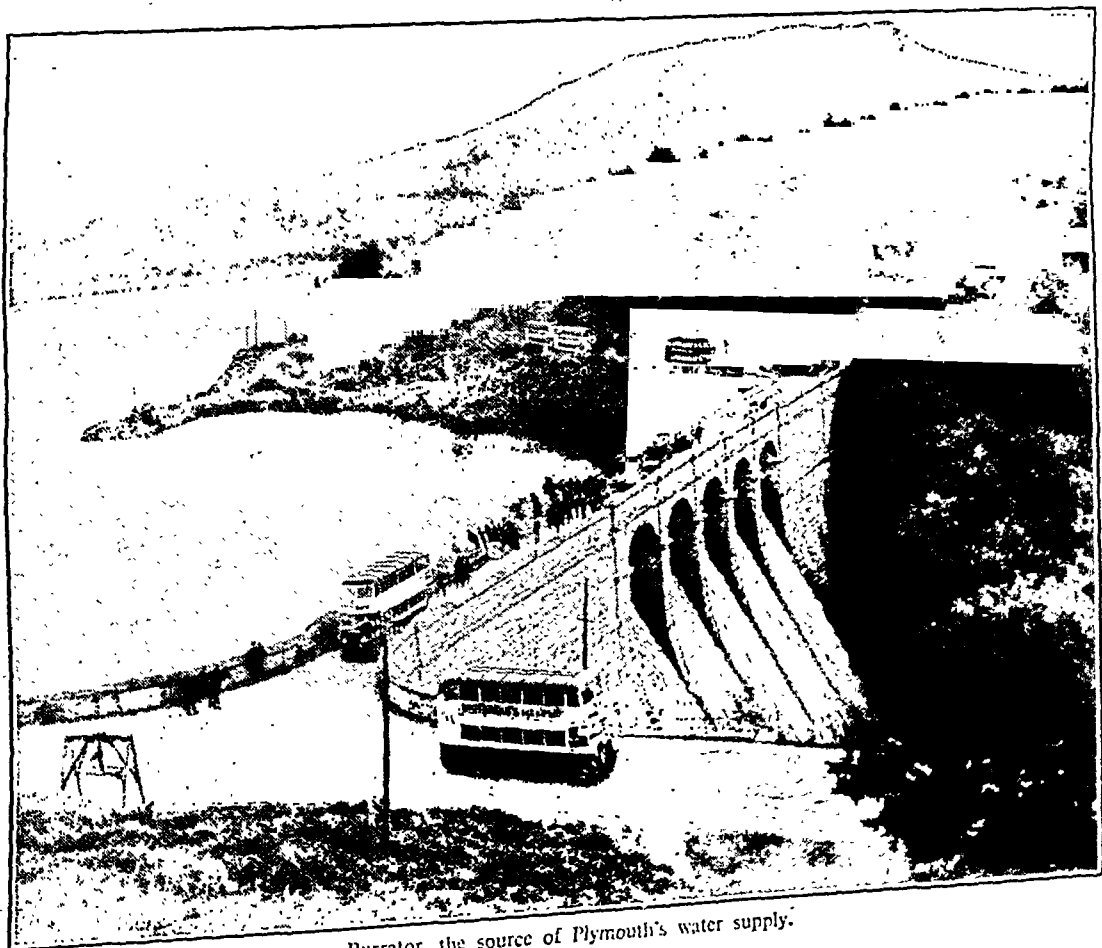
In choosing Plymouth as the venue of their Annual Meeting this year the British Medical Association will come to "no mean city." Its claims to distinction are many. It has played a prominent part in history and the development of the Empire, and to the sciences and arts its sons have made no less a contribution.

As in most nations, but seldom in towns, the history of Plymouth begins in the region of myth and legend. Her geographical position and natural surroundings were such as to appeal to those people who inhabited ancient Britain, and it is claimed that the Damnonii not only lived there but spread over the county to adjacent Cornwall. During the Anglo-Saxon period Plymouth, first frequented as a fishing station, gradually rose into a place

of note. Late in the eighth century the Danes landed in England, and not many years afterwards made their way into Devonshire, which they are reputed to have inhabited for some time subsequent to 786. Devon was one of the last districts to submit to Norman rule. In Domesday Book, compiled in 1086, Plymouth, then known as Sutone (South Town), is described as being held by the King in demesne. Afterwards the town was divided and the greater part went to the Priory of Plympton, with which rested its government for many years.

First Charter

As far back as 1439 the charter of incorporation was granted, and the first Mayor, William Ketriche, was described as "one of the most honest and discreet men



Burrator, the source of Plymouth's water supply.

HEALTH OF THE SCHOOL CHILD

CHIEF MEDICAL OFFICER'S REPORT*

Sir Arthur MacNalty, in his annual report as Chief Medical Officer of the Board of Education for 1936, points out that education includes physical education, and that in order to obtain full advantage from it a child must receive an adequate and balanced diet. To achieve this end it is important that meals provided for school children requiring supplementary nourishment should be rich in those essential foodstuffs which may be deficient or lacking in their home dietary. Such articles are milk, cheese, eggs, butter, green vegetables, fruit, and meat. The question of the proper selection of children for free meals is dealt with, and three essentials for success are laid down—accurate ascertainment, efficient provision, and a proper income scale. The need for greater appreciation of the value of milk and for improvement in the arrangements and dietaries in the schemes for provision of solid meals is emphasized. In this connexion the example of certain authorities who have made substantial improvements in their schemes is quoted. Mention is made of the importance of teaching girls the art of managing a home efficiently, for experience shows that malnutrition in the child is sometimes the result of bad home management rather than of poverty.

The introduction concludes with a passage relating to school camps, in which the following sentence occurs:

"If the world could be remoulded to our liking every school would be an open-air school in a country or seaside setting, with ample facilities for playing fields and the seashore of nature."

Nutrition of the School Child

In Chapter I an account is given of the additional information on the subject of nutrition which became available during the year. Several important reports have appeared, notably a memorandum on the *Nutritive Value of Milk*, prepared by the Advisory Committee on Nutrition; the first report of the same committee; and the report of the Technical Commission on the *Physiological Bases of Nutrition*.

From the reports of school medical officers it would appear that in many areas the physique of elementary school children as shown by height and weight measurements has continued to improve. The method of clinical assessment introduced in Administrative Memorandum 124 is again discussed and a comparison made between the findings for 1935 and 1936. During 1936 the nutrition of 1,726,755 children examined at routine medical inspection was assessed by some 1,300 observers. The percentages placed in the four categories were almost identical with those in 1935: 14.6 per cent. in A (excellent), unchanged; 74.2 per cent. in B (normal), as against 74.1 per cent. in 1935; 10.5 per cent. in C (slightly subnormal), as against 10.6 per cent. in 1935; 0.7 per cent. in D (bad), unchanged.

The nutritional condition of children in the Special Areas is discussed, and the need for increased provision of extra nourishment in these areas is stressed. Other subjects discussed in this chapter are the causes of sub-normal nutrition and physique, figures for heights and weights in different areas compared with those of the same areas in previous years, a comparison between the nutritional state of a group of secondary school children in Surrey and another group in Spennymoor.

Provision of Free Meals and Milk

During the year 139,662 children received free solid meals. The total number of meals, including milk meals, provided free of charge increased from 87,000,000 in 1935-6 to over 100,000,000 in 1936-7. This increase of 13,000,000 was due to the rapid rise in the number of

free milk meals provided, which has increased from 42,200,000 in 1934-5 to 63,700,000 in 1935-6 and 78,300,000 in 1936-7. The statistics are followed by a discussion of the Milk in Schools Scheme, in which certain difficulties in the operation of the scheme are mentioned and in which a table is given showing the advantage of fresh milk over certain dried milk preparations. Examples are given of the dangers which arise from raw milk, and these show that the Board's policy of advising that pasteurized milk should be used wherever possible is fully justified.

Physical Education

In January, 1936, the Board issued Circular 1445, which was a statement of its views as to the policy to be pursued in regard to two aspects of physical education and was designed to assist authorities and others in preparing a comprehensive plan of development. The later part of the year saw the initiation of further Government plans for encouraging recreational and physical activities among those who have left school.

Reference is made to the setting up of the National Advisory Council for Physical Training and Recreation, and the chapter also contains a description of the duties of organizers of physical training.

Medical Inspection

The discussion of the system of routine medical inspection which was begun in the 1935 report is continued. The prevalent opinion of school medical officers appears to be that changes which may be introduced should take the form rather of additions grafted on to the present framework of the system than of radical changes in the framework itself. The statistics given in the chapter include those relating to the staff of the School Medical Service and to the findings of medical inspection. The subjects of medical inspection and treatment in secondary schools and of inspection and treatment in junior instruction centres for the unemployed are also discussed.

Medical Treatment

The relations between the School Medical Service and other bodies such as the voluntary hospitals, public health authorities, and the medical profession generally are discussed, and the need is emphasized for full co-operation between all those who take part in the medical treatment of school children. Schemes for the treatment of certain defects are discussed, and it is pointed out that orthopaedic schemes are a good example of what can be achieved by the co-operation of numerous bodies, both public and private.

Other subjects considered in Sir Arthur MacNalty's report are nursery schools and the care of young children; the School Dental Service and the Medical Research Council report on the influence of diet on caries in children's teeth; the teaching of mothercraft and hygiene in schools; and the education and training of blind children. During the year a medical officer of the Board, in company with H.M. Inspectors, paid visits to a number of school camps for elementary school children. A general description of these camps is given and recommendations are made with regard to them, the importance of ample floor space and ventilation in the sleeping-quarters being emphasized. Lastly, attention is drawn to the importance of continuity of medical care throughout life and to new legislation connected with the National Health Insurance Scheme and with the Factory Acts designed to that end.

Dr. Carl Koller (Karl Köller), who in 1884 at the age of 27 introduced cocaine as a local anaesthetic in ophthalmic surgery, celebrated his eightieth birthday in New York on December 3.

* *The Health of the School Child*. Annual Report of the Chief Medical Officer of the Board of Education for 1936. London: H.M. Stationery Office. (2s. 2d., post free.)

Noted Medical Men

Physicians and medical men of Plymouth were among its earliest scientific observers, and several outstanding personalities come to mind. Dr. James Yonge, F.R.S., who died in 1721, not only practised with much success but wrote a number of philosophical and medical works. Dr. Huxham, the author of a celebrated treatise on fevers which was translated into several foreign languages, practised and died in Plymouth. It is said that the adoption of the principles enunciated by him saved the life of the then Queen of Portugal.

Dr. John Mudge gained high reputation, not only by his skill as a medical man but by his knowledge of mathematics and optics. He wrote several medical works. So also did Dr. Woolcombe. Dr. Edward Moore dealt largely with zoological subjects, and Mr. C. N. Moore was the author of several works on cancer. Sir William Snow Morris, the scientist, was born at Plymouth, and John Prideaux became eminent as a chemist. Dr. Leatherby, medical officer of health of the City of London, who died in 1876, was a Plymouth man.

Jonathan Heard was an expert on matters electrical and chemical. A public lecturer at the age of 17, he lost his sight four years later through a sudden explosion of silver fulminate, but despite this handicap continued his work, particularly as a public experimenter.

In more recent days one recalls the names of Dr. Cloy, Dr. Paul Swain, Dr. Hingston, a well-known local philanthropist, Dr. Rolston, and A. Bertram Soltau, who had the rare distinction of holding the Fellowship of both the College of Physicians and the College of Surgeons, as a few among many who carried on a noble tradition which is being worthily maintained to-day.

An Up-to-date City

It must not be assumed that Plymouth, which was raised to the dignity of a city in 1928, is content to live on its past. It may have first elected its Members of Parliament as far back as 1292, and its recordship may date from 1480, but in every essential respect it is modern, with broad thoroughfares, imposing public buildings, and all the amenities that reasonable enterprise demands. As "the centre of a hundred tours" it can meet the most exacting claims of the visitor, who will undoubtedly be impressed by its contrasts.

It is possible to play bowls under the watchful eye of Drake, to stroll on the Hoe—the finest promenade in Europe, some say in the world—and watch with increasing fascination the ever-changing panorama of the Sound, fanned on one side by the wooded slopes of Mount Edgcumbe, and on the other by the heights of Bovisand. The rocky foreshore, with its unique buildings, provides an ideal spot for bathing, and on the terraces immediately above sun-bathing can be indulged in.

Elizabethan Plymouth

Near by is the Smeaton Tower, which for a century stood on the Eddystone Rocks until replaced by Douglass's lighthouse in 1882. A walk of a few minutes brings one to the Elizabethan Plymouth, passing en route the Citadel with its massive ramparts built by Charles II. No. 32, New Street is a typical Elizabethan house recently restored, and it is possible here to glean some idea of the home surroundings of the old sea-dogs of Devon. On one of the entrance piers to Sutton Pool stands the *Mayflower* Memorial, marking the spot where the Pilgrim Fathers embarked for America. The rebuilt residence of Cookworthy, whose name is linked with Plymouth china, and a distillery, formerly a religious house of the Black Friars, are in the vicinity.

Ancient and Modern

The mother church of St. Andrew dates from 1385. It has a fine tower built by Thomas Yogge, a wealthy merchant, in the time of Henry VI, the town "finding the stuff." St. Andrews, which was restored in 1874-5 by Sir Gilbert Scott, stands on the eastern side of a spacious square. On the southern side is the Guildhall (Early Pointed), some sixty years old, opened by Edward VII when Prince of Wales. Its beautiful painted windows portray five or six hundred years of Plymouth history. On the northern side are the municipal buildings, and in the Mayor's Parlour is to be seen the White Rod of the Lord High Steward, an office long held by one of the Royal Family.

Devonport and the Navy

Although Devonport and the former township of Stonehouse between were once separate entities, they are now incorporated into the municipality of Plymouth. But Devonport, with its extensive dockyards, its naval barracks, and its Royal Naval Engineering College, possesses an individuality all its own. It has a big part to play in national defence, and in the immense naval docks are all kinds of ships of war in various stages of completion. Naval uniforms are to be seen everywhere, and thousands of workmen pour through the gates daily to and from their work. The main establishment is the North Keyham Yard, where extensions were completed in 1907 at a cost of nearly £5,000,000. Further improvements are now under consideration. The Royal William Victualling Yard, at the gate of which is a statue of William IV, and the headquarters of the Royal Marines, are in Stonehouse.

Mention should be made of the city's museum and art gallery with its many treasures—one among the places to be visited. Another building which should be visited is Plymouth Institution, where the pursuit of the arts and sciences continues with ever-increasing vigour. Its museum, and an extremely valuable reference library containing some priceless works, are well worth inspection. It is interesting to note that in a long line of distinguished men the name of Dr. J. Elliot Square, member of an honoured family in Plymouth, appears as a President.

It may be judged that the visitor to Plymouth will not need to seek that which interests and stimulates the imagination. With almost a plethora of these things the problem will be what to miss because of other demands on time.

The eleventh annual report of ULAWS (the University of London Animal Welfare Society), 42, Torrington Square, W.C.1, has now been published. Sir Frederick Holday, president of the society, draws attention in a foreword to the support which animal welfare is receiving from scientific men and women. The work of ULAWS during the past year has expanded considerably. In the branches in ten colleges of the University of London a large number of meetings on humanitarian and natural history subjects were held. In addition, members, both graduates and students, delivered lantern and film lectures in schools, clubs, women's institutes, etc. There have been important developments in the society's campaign against the gin trap. During the year the House of Lords Select Committee on Agriculture (Damage by Rabbits) issued its report. ULAWS welcomes the positive recommendations made in this report, but points out that on questions of fact the Select Committee has achieved a compromise between conflicting opinions and interests rather than scientific appraisal of the evidence. It claims that the progress made towards solution of the problem of trapping is "a justification of the scientific approach to problems of animal welfare."

the common signs of leprosy in India was visible enlargement of the auricular nerve; this was not his experience in cases in Nigeria. Dr. CHESTERMAN supported Dr. Howard's statement regarding the rarity of thickened nerves in African lepers.

Sir JOHN MEGAW said that in India leprosy was often a mild disease. He deprecated over-exercise or exercise in the heat of the day in leper establishments, emphasized the importance of a nourishing diet, and expressed surprise that specific treatment with leprosy antigen prepared from the lesions in nodular leprosy had not been given a more extensive trial. Dr. A. FELIX drew attention to the recent experimental transmission of leprosy to the Syrian hamster, and suggested that the leprosy tissues of this animal might prove a satisfactory source of antigen supply. Dr. C. J. AUSTIN had on two occasions operated on lepers in Fiji with nerve abscess in cutaneous leprosy; he wondered if the tuberculoid cases really constituted a type distinct from the nervous or cutaneous types. Dr. GUSTAVE TAYLOR of Formosa said that among Chinese lepers demonstrable enlargement of nerves was common. If the patient turned his neck so as to stretch the sternomastoid muscle the great auricular nerve was frequently palpable: not only could one feel it but one could actually see it.

In reply, Dr. W. HUGHES agreed that tuberculoid leprosy was very like sarcoid. He had not encountered nerve abscess in Malaya, but there 80 per cent. of cases were of the cutaneous type. Leprosy manifested itself clinically as nodular skin and trophic lesions; without cellular reaction there were no manifestations of disease, though bacilli might persist in the tissues. Dr. E. MUIR said he had seen three or four cases of nerve abscess in cutaneous leprosy; he thought two of the patients had developed caseous lesions within the nerves as a result of deterioration of health. Nerve leprosy was common in Southern Nigeria and India. He could not say why it was not found more often in Malaya. Demonstrable nerve enlargement was common; he had been studying leprosy for some years before he realized how really common it was.

BRONCHOGENIC CARCINOMA

At a meeting of the Liverpool Medical Institution on December 2, with the president, Professor R. E. KELLY, in the chair, a discussion was held on bronchogenic carcinoma.

Dr. C. S. ANDERSON said that there had been a small real increase in the incidence of bronchogenic carcinoma in recent years. The great majority of, if not all, lung cancers originated in bronchi; they might be divided macroscopically into four types—hilar, nodular, miliary, and diffuse. Microscopically they might be squamous, adenocarcinomatous, or anaplastic, and the extreme pleomorphism of the cells made definite classification very difficult. Diagnosis was established by the clinical pathologist from a study of the sputum or of sections removed at biopsy.

Clinical Pathology

Dr. ROBERT COOPE discussed the pathological basis of the signs and symptoms. An early neoplasm appearing in a bronchus acted as a foreign body and produced a cough which was short, hard, perhaps hacking, and at first quite unproductive. As the nodule increased in size it might ulcerate and bleed, giving rise to haemoptysis. When the growth was large enough to produce an appreciable, but still partial, blocking of a large bronchus, it seriously interfered with the proper ventilation of the lung. A localized and unilateral wheeze might be heard, and dyspnoea might appear early. The poorly aerated part of the lung was very susceptible to infection. With complete blocking of the bronchus the lung beyond it became deflated and collapsed (obstructive atelectasis).

Obviously quite a small growth might completely block even one of the larger bronchi at a time when there were few symptoms and the patient appeared comparatively well; the resulting physical signs were a lack of expansion of the lung, dullness to percussion over the affected lobe, and a wide area of silence. In other words, the physical signs might be out of all proportion to the symptoms—in striking contrast to the state of affairs in simple abscess or tuberculosis of the lung. Suppurative changes in the distal part of the lung were likely to occur in the form of atelectatic bronchiectasis, lung abscess, pleurisy with or without effusion, empyema, or pyopneumothorax. The combination of infection with defective lung aeration sometimes resulted in a surprisingly early appearance of clubbing of the fingers.

Long before it had completely obstructed a bronchus, however, a malignant bronchial growth might have invaded local structures, and if it happened to be near the hilum of the lung would then show some of the invasive manifestations of a mediastinal tumour. Paralysis of the phrenic nerve with consequent elevation of the diaphragm was particularly important; it was especially apt to occur on the right side by secondary involvement of the small mass of glands through which the nerve passed. If the neoplasm began in a smaller bronchus near the periphery of the lung there would be early pleural involvement, and perhaps effusion; extension also occurred towards the hilum, with invasion of the corresponding lymph glands. One type of the disease was caused by a growth which did not obstruct a bronchus until some considerable time after it had spread, fanwise, along the lymphatics, producing a chronic indurative condition, with the x-ray appearances of "unresolved pneumonia"; the same x-ray picture might be given in the early stages of infection of the lung distal to a bronchial stenosis. The "pneumonia" did not resolve, however—a sinister persistence in a person at or beyond middle age. At any time the growth might begin to necrose, producing an irregular fever, clubbing of the fingers, and toxæmia; in this event cavitation of the lung was much more ragged than that due to suppurative changes distal to a blocked bronchus. Secondary metastases might occur anywhere, and at times a metastatic growth in an obvious place, such as skin or skull, was the presenting sign; a secondary deposit without an obvious primary should always suggest carcinoma of the lungs. Finally, there were the general symptoms produced by any cancer; loss of weight and cachexia were usually late symptoms.

Early Symptoms

Persistent cough, haemoptysis, and dyspnoea were the most likely early symptoms; an analysis of the earliest symptoms of a series of fifty-four cases supported this, and underlined also the importance of secondary inflammatory lung lesions distal to the affected bronchus. In these cases there was an average duration of nearly six months between the earliest symptom and the time when the patient first came to hospital. In patients of cancer age haemoptysis occurring for the first time should be regarded as due to bronchogenic carcinoma until it was proved to be caused by something else. Similarly, in patients of that age who had not previously had "chest trouble," any cough, or "influenza," or atypical pneumonia, or pleurisy which did not clear up satisfactorily might be due to bronchogenic carcinoma. In an elderly person pleurisy with effusion, empyema, or lung abscess which appeared to have no obvious cause might be a complication of the disease. A cough accompanied by dyspnoea which was not adequately explained by the physical signs in the lung or by the condition of the heart, and which was of recent appearance, might be due to partial blocking of a large bronchus by new growth. All these conditions called for investigation. The pathology of the disease did not encourage much hope of cure. The growths which were likely to be diagnosed early were those which could be seen through the bronchoscope, and

Reports of Societies

LEPROSY

At a meeting of the Royal Society of Tropical Medicine and Hygiene, at Manson House on December 9, 1937, with the president, Lieut.-Colonel S. P. JAMES, in the chair, papers were read by Dr. E. MUIR and Dr. WILLIAM HUGHES.

Epidemiology and Control of Leprosy

Dr. Muir dealt with this aspect of the leprosy problem, pointing out that leprosy belonged to a certain stage of human development. It was rare among nomadic tribes and aborigines leading an unmixed tribal life, but tended to spread when primitive people settled down to agriculture, and when they first came into contact with civilization. Leprosy again tended to disappear when a certain standard of living and sanitation had been reached. Leprosy was a disease of the crowded house, room, and bed, and the more crowded and insanitary these were the more likely it was to spread. In India the joint family system had an important bearing. The rise and fall of the leprosy curve in an area was not due to the development of physiological immunity so much as to the growth of a mental and social immunity. As the disease increased in the community its members learnt to recognize it and take precautions. These precautions might not be adequate or sufficient to eliminate the disease, but they generally curtailed it. The place of treatment in the control of leprosy was an important one, but one which had often been exaggerated and misunderstood. We had no specific treatment for leprosy any more than we had for tuberculosis. The most we could say was that when leprosy was compared stage by stage with tuberculosis it proved somewhat more amenable to treatment than the latter disease. In both, the main reliance must be placed upon general methods and improvement of the health of the patient. When this could be secured—and with the help of certain special remedies, such as chaulmoogra oil and its preparations—the majority of cases might be expected to recover, though the more the disease advanced beyond a certain stage the more difficult and hopeless did it become.

One of the essential factors in the control of leprosy was the large, well-staffed leper settlement. In the modern leper settlement, some of the best of which might be seen in Nigeria, the patients were suitably housed and spent cheerful and useful lives. The well-run leper settlement was in fact a model village, or cluster of villages—a centre of culture and progress—not only benefiting its own inhabitants but potentially a source of enlightenment and sanitary and social development for the whole area. Leprosy in countries in which it was endemic was so inextricably bound up with economic, social, educational, and sanitary problems that its control could only advance simultaneously with the solution of these problems. It was significant that in this country the lazaret was the precursor of the modern hospital, and that many of our early public health laws were passed for the control of leprosy.

Tuberculoïd Leprosy

Dr. Hughes confined his observations to tuberculoïd leprosy, and in his introductory remarks pointed out that though the existence of giant cells of the Langhans type in leprosy had been vigorously denied by Hansen and Looft, Jadassohn had described them in 1898. Since then many workers had noted their existence. Wade was the first to give a systematic account of a special form of leprosy associated with a giant-celled or epithelioid infiltration. This form was much more closely allied to the neural than the cutaneous type, although, clinically, it

could be easily mistaken for the latter. The tuberculoïd lesion seemed to be common in races which had been afflicted with leprosy from time immemorial. It might in a way be regarded as an expression of racial immunity, or indeed of racial allergy, if such a term was permissible. According to the recent literature the incidence among Northern Indians was about 60 per cent. of the total cases of leprosy. Bacilli were very scarce in these lesions, and might be impossible to find except in serial sections. The tuberculoïd lesion in this respect resembled such conditions as, for example, lupus, Boeck's sarcoid, the syphilides, etc. Like other forms of leprosy it was subject to occasional exacerbations or "acute reaction." This was a local phenomenon not attended by fever, loss of weight, increased sedimentation rate, etc., which characterized acute reactions in the cutaneous type of leprosy.

In assessing the significance of tuberculoïd leprosy a comparison with the tissue responses in tuberculosis was inevitable. Both diseases were associated with an acid-fast bacillus and the epithelioid giant-celled lesion was common to both. In leprosy, however, there were two other types of tissue response—the chronic inflammatory type of exudate associated with early neural leprosy and the cutaneous exudate characterized by the lepra (Virchow, or foam) cell. The numerical relation between the bacilli and the cellular exudate in tuberculoïd leprosy presented a sharp contrast with that seen in the cutaneous type, and if a cutaneous case of leprosy responded to the same degree as a tuberculoïd case, the resulting tuberculoma would fill St. Paul's. Recession of the lesions during severe debilitating disease had previously been noted. If a tuberculoïd lesion receded the bacilli were so scarce at any time that such recession could be, and often had been, mistaken for cure. It was only to be expected that in countries where there was a high incidence of tuberculoïd leprosy superficial observations might easily lead to mistakes. In all probability this was the basis of many of the spurious "cures" in the literature of leprosy. It was quite common for authors to record "pushing" the heavy metals until the symptoms of metallic poisoning supervened. At this stage it seemed the highest percentages of cures—in reality recession of lesions—occurred.

Whatever might be the argument for abolishing the hyperergic state in the case of tuberculosis, as advocated by Rich, Pagel, and others, it was extremely doubtful if such measures should be resorted to in tuberculoïd leprosy. In this disease the prognosis was on the whole fairly good. Occasionally—for example, in cases of iritis—it might be justifiable to use drugs in dangerous doses to abolish the cellular exudate in the uveal tract. But the difficulty was to find a drug which would do this consistently. At the moment it was doubtful if any single drug or combination of remedies could be relied on to stave off the blindness which was such a distressing feature of these cases. The study of tuberculoïd leprosy was new, but already sufficient facts had been accumulated to give a fresh point of view in leprosy, and perhaps in other forms of proliferative disease.

General Discussion

In the discussion which followed Dr. J. M. H. MacLeod said that tuberculoïd leprosy was very like sarcoid. For many years histologists had been debating the relationship between sarcoid and true tuberculosis cutis in the same way as they were wondering what was the precise histological relationship between tuberculoïd and cutaneous leprosy. The bacillary position was of course different, because in nerve leprosy one occasionally found bacilli, but not often, whereas in sarcoid he had never succeeded in finding tubercle bacilli, though some other people had reported doing so. Dr. HOWARD pointed out that in Southern Nigeria the tendency was to develop a cutaneous type of leprosy, whereas in the north the neural and tuberculoïd types were found. Dr. Muir had said one of

Dr. JAMES FENTON from the chair pointed out that the medical officer of health worked under three Departments of State—the Ministry of Health, the Board of Education (which two were indivisible, the Chief Medical Officer of both Departments being the same individual), and the Home Office. He dissented from Dr. Stewart's remark about the medical officer of health and housing, and pointed to the great housing activity all over the country in the direction of which the medical officer had taken a fundamental part. In the subsequent discussion Dr. J. C. BRIDGE, senior medical inspector of factories, said that during his own term in the Factory Department the industrial medical service had become a new service altogether, and the larger it grew the better pleased would be those who had to administer the Factories Act. Personally he could not see how industry as such could produce tuberculosis to anything like the extent that bad housing conditions could produce it; nevertheless, there was a tendency to blame industry for all the illness from which the worker suffered. Dr. T. O. GARLAND suggested that it would be useful if industrial medical officers were given facilities for visiting condemned areas and new housing estates in their districts.

THE MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY

At a meeting of the Medical Society of Individual Psychology held on December 9, with Dr. H. C. SQUIRES in the chair, a paper was read by Dr. O. H. WOODCOCK on "The Contribution of Adler to Psychological Medicine: The Relation of the Sexes."

Dr. Woodcock said this subject was chosen as the third in the symposium on Alfred Adler because it had often been a criticism of individual psychology that Adler avoided the issue on sex, and that his concept of "the masculine protest" was merely to use another and inferior title to "the castration complex" of Freud. This indictment had little justification except that, in his revolt from the tremendous stress placed by Freud on sex, Adler had laid more emphasis in his writings on the subjects of the will to power and community (or social) feeling. He taught that an individual must adjust himself to life along three lines—namely, to society, to vocation, to sex—if a completely harmonious personality is to result. The biological urge of every living organism is to complete development characteristic of its species. In his unpublished lecture "Marriage as a Task" Adler described monogamy as the highest sexual goal for mankind, and regards it as a constructive task, requiring infinite patience and understanding, on the part of two people who have determined to enrich and relieve each other's lives. It is a task so difficult of achievement that many fall by the way, but those who survive discover a beauty that transcends all other human relationships. All sexual relations or attitudes other than mating founded on mutual affection and thoughtfulness are useless goals, fictive and demoralizing—the retreats of cowards, foolish short cuts of the lazy, and attempts at domination by the cruel and the egoistic. A sexual illness arose when one person used another only for his or her own profit. Adler said that masculine dominance was not a natural thing, yet all our institutions, our traditional attitude, our laws, our morals, our customs, give evidence of the fact that they were determined and maintained by privileged males for the glory of male domination. Hence the dissatisfaction with the feminine role and the adoption of what Adler called "the masculine protest." There should not be dominance on either side in the sex relation of male and female. Marriage was the highest expression of social feeling, in which the ideal aim should be "to give," and the requirements were exceptional ability to identify oneself with the partner.

Dr. Woodcock then went on to describe Adler's teaching with regard to what he termed the false paths, retreats, evasions, the perversions, the devices of those who have

failed to realize marriage as an exercise in co-operation with a partner of the opposite sex. With regard to such aberrations as masturbation, frigidity, impotence, ejaculation praecox, vaginismus, homosexuality, exhibitionism, fetishism, promiscuity, celibacy, prostitution, masochism, and sadism, Adler believed that many of these were difficult problems, but not insurmountable. The treatment of each would be determined, after analysis of the problem, in the consulting-room according to the methods of individual psychology.

There was an interesting discussion afterwards, to which many of the audience contributed.

OBSTETRICS AND GYNAECOLOGY

At a meeting of the North of England Obstetrical and Gynaecological Society, held in Liverpool on November 26, with the president, Dr. J. W. BRIDE, in the chair, Mr. BRIAN WILLIAMS (Liverpool) read a note on the use of protosil in obstetrics. In forty-four of the cases he had treated the haemolytic streptococcus had not been isolated, and in such cases there was no evidence that protosil was of value. In forty cases a haemolytic streptococcus had been found; in nineteen of these in which infection was localized there were no deaths; in ten where infection involved the pelvic cellular tissue, the peritoneum, veins, tubes, or ovaries there were no deaths; but of the eleven remaining patients, showing either septicaemia or peritonitis, six died. He administered the drug prophylactically to 104 patients, in none of whom were haemolytic streptococci found, whereas in seventy-three controls this organism occurred eight times. An interesting discussion followed in which Professor JOHN CHISHOLM (Sheffield), Mr. A. GEMMELL (Liverpool), Mr. C. WALSH (Liverpool), Mr. BURNS (Liverpool), and Mr. JEFFCOTE (Liverpool) took part. At the same meeting the president, Dr. J. W. BRIDE (Manchester), discussed further a case of malignant tumour of the ovary and lung in a girl of 12. Mr. C. J. K. HAMILTON reported a case of acute yellow atrophy of the liver; Professor A. M. CLAYE (Leeds) discussed a case in which dysmenorrhoea and dyspareunia were due to endometriosis; and Mr. GEMMELL showed two pathological specimens, one of carcinoma of the isthmus uteri, the other of a sarcoma of the uterus. Finally, Mr. ST. GEORGE WILSON (Liverpool) showed, by means of a cinematograph film, a method of delivering the trunk and arms in breech presentation.

A meeting of the London Association of the Medical Women's Federation was held on December 8 at the premises of Messrs. Hazell, Watson and Viney, Long Acre, W.C., printers of the *Lancet*. Small parties were conducted round the works and inspected processes of setting up copy by monotype machines; correcting errors of composition; making-up and imposition of pages; printing; and folding, gathering, and stitching. In the course of the evening Dr. M. H. Kettle commented on some editorial aspects of the printing arrangements. Some seventy members were present. In the unavoidable absence of the president, Miss E. C. Lewis, Dr. Letitia Fairfield thanked the directors for the opportunity offered to see the *Lancet* in the making, and for their hospitality.

A clinical meeting of the Oral Surgery Club was held at Leeds on November 26 and 27, twenty-six members and guests being present. The general meeting and dinner was held in the University Staff House on November 26. The following were elected to hold office for the coming year: president, Professor T. Talmage Read; members of committee, Professor F. C. Wilkinson, Major S. H. Woods, Mr. T. Hall Felton, Mr. A. E. Rowlett, and Mr. Harold Round; honorary secretary, Mr. R. S. Taylor.

which were, therefore, near the hilum and liable to show early spread to the glands at the hilum—not hopeful subjects for an attempt at surgical cure. If the growth was situated more peripherally so that the surgeon had a chance of removing one or more lobes through healthy bronchial tissue there was much more difficulty in making an early diagnosis.

Place of Surgery

Mr. JOHN T. MORRISON referred to fifteen cases in the literature of total pneumonectomy and thirty-nine of lobectomy. Of the former, six out of the seven survivors were claimed as cures; of the latter, so far as records went, at least nine out of the twenty-six survivors, and possibly more. There were among the lobectomies considerably more recurrences to offset the lower operation mortality. In assessing operability, Mr. Morrison set on one side the large number of growths involving the main bronchus, in which cases for the most part only palliative radiation therapy was feasible. He then went on to point out and illustrate radiologically the variability of atelectasis in relation to the size and position of the primary growth.

Drs. T. F. HEWER, G. A. C. LYNCH, and R. H. MOLE exhibited a series of specimens. Mr. J. E. G. MCGIBBON reported some favourable results of treatment with deep x-ray therapy, with or without the use of radon seeds, in a series of fifty-five cases of bronchogenic carcinoma in the bronchoscopic clinic of the Royal Southern Hospital. Dr. P. H. WHITAKER, Dr. J. H. MATHER, and Dr. E. T. BAKER-BATES also took part in the discussion.

PUBLIC HEALTH SERVICES AND INDUSTRIAL HYGIENE

A combined meeting of the Society of Medical Officers of Health and the Association of Industrial Medical Officers was held on December 17, when addresses, preliminary to a general informal discussion, were given by Dr. J. J. Buchan, medical officer of health for Bradford, and Dr. Donald Stewart, medical officer, Imperial Chemical Industries, on "The Public Health Services and Industrial Hygiene."

Dr. J. J. BUCHAN said that many cases of illness and accident in factories were in no very remote sense due to conditions arising outside the factory. This only emphasized the need for co-operation between these two services, and the first essential to co-operation was an understanding of each other's field and problems. One primary difficulty was that two different departments of State were concerned—the Ministry of Health in the case of the public health services, and the Home Office in the case of industrial health services. In his own area at least the Home Office was very commonly regarded as having for its province criminal jurisdiction rather than the common health, and this operated disadvantageously in some respects. Something of this feeling had crept into the law and practice of industrial hygiene in that there was a distinct tendency to blame industry for all illness that occurred among the workers. On the other hand, Dr. H. E. Collier of Birmingham University had said truly that industry ought not to be saddled with the cost of illnesses which were really attributable to faulty social conditions and communal ignorance. Dr. Buchan hoped the time would soon come when industrial workers would be subject to some degree of continuous hygienic supervision. It was by no means uncommon to find a young worker falling in health shortly after he had been drawn into industry. During this period of acclimatization to industrial conditions there ought to be closer supervision than at present. Something of this kind was attempted by the more enlightened firms, but it should not be considered that the whole cost was a proper charge on industry, nor should the arrangements be controlled by industry or by the Home Office. It had been the experi-

ence of many members of the public health service that employers, when faced with this problem affecting the health of their employees, did not hesitate to consult the officers of the local health authority. That had been his experience in his own city.

The certifying factory surgeon—now called the examining surgeon—ought, in Dr. Buchan's opinion, to have a less circumscribed position than he had to-day. He ought to be more than a mere certifier. The recent change of name was rather futile, because it still indicated that his responsibility was only for the medical examination; it did not imply any duty of continuous health supervision. He thought the arrangement whereby industrial medical officers might have access to school medical records was likely to prove of great value, and it was surprising to find that any doubt existed as to its utility. The school medical record gave impartial and reliable information of profound importance to those who had to do with health in factories. The records were compiled at a time when they were little likely to be influenced by the desire of the parents to find employment for the children, and if made by careful and understanding school medical officers and read by officers of a like kind in other services they were likely to be extremely useful. His own school records were referred to continually in the juvenile employment bureau, as well as in juvenile and ordinary courts and elsewhere.

Dr. DONALD STEWART said that both the public health and the industrial health services aimed at prevention, and had comparatively little to do with curative measures. The general practitioner had been much against them both, and the word "encroachment" had been heard with regard to both, but he believed that that day was over and that the general practitioner now was willing to be helped, and officers in these services were more than willing to help him. In what way were the public health services developing? So far as the public health services were concerned there was ample evidence of extensive development, as was shown by the reports of the central and local authorities. The development on the whole appeared to be satisfactory, but he had one or two criticisms—for example, the public health services did not pay sufficient regard to such matters as housing, recreation, and social amenities. The Factory Department of the Home Office had developed slowly but efficiently, and had lately been concerned in some extremely good work in connexion with the rehabilitation of persons injured in accidents, and, still more recently, in the question of lighting in factories.

The 1,700 industrial medical officers known as factory examining surgeons (Dr. Stewart continued) were a much maligned body of men, but he believed their activities should have wider scope. Again, the Industrial Health Research Board was in its own sphere the finest thing in the industrial medicine of other countries. The bridging of the gap between actual research and the application of it in the workshop, factory, and office was a problem which would have to be solved before any industrial service became fully effective. Another respect in which the industrial health service had advanced was in relation to injuries. The industrial medical officer, whole- or part-time, was necessary to-day even from that one angle alone, to prevent lost time through "stupid things like sepsis," and to aid in the effective rehabilitation of the injured workman. Research was necessary also into industrial working conditions, the comfort of the worker, and the psychological effect of groupings of workers. One of the outstanding questions was to "get across" to the employer the sane medical outlook with regard to his workpeople. In order to obtain the best results the industrial medical officer must be in closest contact for a large part of his time with the employer. He had to be a part of the management. As for the worker himself, he, through his organizations and trade unions, had a very definite interest in the contribution that medicine could make.

Correspondence

Immunization against Typhoid

SIR,—I am in complete agreement with Professor Greenwood regarding the fallacies inherent in such statistics as those of typhoid immunization. This is especially so when the figures are compiled by medical men who are not necessarily expert statisticians. It is, however, possible to obtain a broad impression which, although not having the value of accurately compiled statistics, makes a reasonable appeal to common sense.

From the beginning of the war I had charge of the campaign against typhoid among both troops and civilians in Alsace and in some parts of the adjacent French territory. In these regions typhoid was endemic, and many cases occurred among the German troops when they were billeted in the villages. In spite of all efforts both before and after the beginning of the war—which efforts included the isolation of all bacilli carriers—typhoid continued to occur among the civil population, but not among the troops who had been vaccinated. It was therefore decided to enforce vaccination upon the civil population in a district where the disease had been prevalent for more than thirty years. After this vaccination no case of typhoid occurred in that district for the remainder of the war, and we were informed by the Civil District Medical Officer that this was the first time that this had happened. This was so much more surprising in that general conditions were much worse than during peace time.

After the war I received a grant from the Prussian Ministry of Health for the purpose of the study of oral immunization. There are two methods of oral immunization: the first is that of Besredka, where bile pills are given before the tablet of oral vaccine; and the second is that of von Wassermann and Neuberg, where sodium benzoate is used in place of the bile pill. Up till January, 1927, Besredka's method had been used in about 250,000 cases in both French territory and in Eastern Europe, good results being obtained in both places. In the town of Lodz, of 43,000 immunized people only forty-three became infected (0.1 per cent.), while among the 73,000 non-immunized people, 1,000 cases occurred (1.4 per cent.). In the last edition of his book (1937) Besredka gives further examples of the good results obtainable: 32,130 received vaccine, and there were six cases of typhoid; among 45,790 controls there were thirty-nine cases of typhoid. In an investigation carried out in Japan it was observed that in Tokyo, out of 42,094 who had received vaccine there were 229 cases of typhoid, and that out of 154,390 controls 1,624 developed typhoid; in rural districts, out of 77,810 who were given vaccine 306 subsequently developed typhoid, and in 267,109 controls there were 2,929 cases.

A report by Tchernozoubov showed that monovalent oral vaccines prepared from about 12 strains gave complete protection, no case after that occurring in three villages with populations totalling about 2,000 inhabitants. He stresses the advantage which lies in the fact that as many as 50,000 million organisms may be administered by this method, whereas no more than half this number may be injected. The fact that after oral immunization the Widal titre rises to 1:1,000 or 1:1,200 and remains as high as 1:200 or 1:400 after ten months shows that the antigenic properties are resorbed and are present in the circulation (Ruge). The method of von Wassermann was

used in Germany and Jugoslavia. Hirsch (Jugoslavia) immunized 350 people by mouth, of whom not one became infected, while nine cases of typhoid occurred among 500 people of the same district who were not immunized; there were two cases among 2,000 people immunized subcutaneously. Mantey (Germany) carried out investigations in a city of 5,000 inhabitants where typhoid was endemic, and where 220 cases had occurred in four previous years. He gave oral immunization to 178 people who had been in contact with typhoid cases or carriers, but, despite this "isolation," two cases occurred among people who had not been immunized.

Apart from these examples the method was used in the Hanover outbreak in 1926, when 20,000 people were given oral immunization, but, as the method was not used until the latter part of the epidemic, no conclusions can be drawn from the protection obtained. The number included some hundreds of school children, and no complaints were received of any ill effects or reactions.

I feel that the method is worthy of trial in other instances, and that it is especially useful under the conditions of peace and among a civil population where the opposition to injection prevents the use of subcutaneous vaccination. It further avoids the inconvenience of those reactions which frequently follow the injection technique.—I am, etc.,

London, W.1, Dec. 21, 1937.

ERNST M. FRAENKEL.

Periodicity of Recurrences in Cancer

SIR,—The theory of a thirty-three-week cycle in epidemics of influenza, advanced by Brownlee and by Stallybrass, has been found useful in forecasting epidemics. Its essential nature, however, remains undetermined, possibly depending on some life-cycle of the causal virus. Many writers have pointed out that exacerbations of malignant disease often follow attacks of influenza, tonsillitis, etc., but so far as I know no periodicity has been reported in recurrences of malignancy. The following observations suggest, however, that this does occur in breast cancer in thirty-three-week cycles.

In twelve patients (private cases) with breast cancer who have been followed up carefully at intervals of one to three months (some for periods of four or more years) recurrences have been noted at thirty-three-week intervals. In one patient four such periods have been observed with recurrence of nodules in the scar and metastases in the opposite breast and axilla. In twenty hospital patients in one series examined the same phenomenon was apparent in primary, recurrent, and metastatic cases. Most patients showing "cyclical or intrinsic periodicity" (Stallybrass, C. O., *Principles of Epidemiology*, 1931, p. 570) clearly had a thirty-three-week cycle, sometimes singly, or in longer periods with two to nine cycles between the appearance of recurrences. Thus two-year periods of intermission were occasionally noted—that is, three intervals of thirty-three weeks.

A similar periodicity of seven and a half to eight months has been traced in thirty other cases of cancer in other sites—for example, skin, lip, cheek, palate, tongue, pharynx, larynx, oesophagus, and testicle. A preliminary survey shows a great majority of recurrences at this interval. Also in the allied diseases, Hodgkin's disease and leukaemia, several instances have been found in the few cases tested. One patient with Mikulicz's disease had three periods.

Periodicity is a phenomenon of recurrence and cannot be found either in patients rapidly cured, in those dying soon with a highly virulent invasion, or in those with very low resistance. Further points for study are the

Local News

ENGLAND AND WALES

Vital Statistics for 1936

The volume of Medical Tables forming Part I of the Registrar-General's Statistical Review of England and Wales for 1936 (H.M. Stationery Office, 6s.) shows that the number of live births registered during the year was 605,292, giving a birth rate of 14.8 per 1,000 persons living. This rate was 0.1 above that for 1935, and 0.4 above that for 1933, which was the lowest ever recorded. The county having the highest rate was Durham with 17.3, followed by Staffordshire with 17.0; those with the lowest rates were Cardiganshire 11.7, Cambridgeshire 11.9, and East Sussex 11.9. The death rate was 12.1 per 1,000 persons living, 0.4 above the rate for 1935 and 0.3 above that for 1934, but 0.2 below that for 1933. When allowance is made for the fact that the average age of the living population is increasing every year, the resulting corrected or standardized death rate was 9.2, which is 0.2 above that for 1935, the lowest ever recorded both for men and for women. The mortality of infants under 1 year was 59 per 1,000 live births, which is 2 per 1,000 in excess of that for 1935, the lowest on record. Mortality from infectious and parasitic diseases in general reached a low record of 1.17 per 1,000, and the tuberculosis death rate declined once again to a new low record of 692 per million. Pneumonia mortality was 690 per million—only a slight increase on that for 1935, the lowest recorded. The measles death rate per million children under 15, which up to twenty years ago was seldom below 1,000, was 297, and the whooping-cough rate was 228. Diphtheria again registered a considerable improvement over the preceding year. The cancer rate, corrected for the increasing age of the population, increased slightly to 1,010 per million from 1,001 in the previous year. Deaths of women attributed to complications of child-bearing numbered 1.34 from septic causes and 2.31 from other puerperal causes to each 1,000 live and still births, compared with rates of 1.61 and 2.33 respectively in 1935. Resort to suicide showed a further decline, the crude rates per million persons living having fallen each year since 1932, when the high level of 143 was reached, by successive steps to 124 in 1936. Accidental deaths by fall or crushing, including traffic fatalities, increased to 306 per million, which equals the high record of 1934.

Science and Social Service

In his address on science and social service given to members of the National Institute of Industrial Psychology at Burlington House, London, on December 16, Sir Richard Gregory, Bt., editor of *Nature*, stressed the urgent need for the application of scientific method to social and international problems. Although scientific discoveries might be prostituted in the cause of war, it must be acknowledged that the advance of science had on the whole led to an enormous alleviation of human suffering and an increase in the capacity and facilities for happiness. As science was responsible for the industrial developments and economic changes which had caused also the means by which civilization might commit suicide, it had a duty to guide the human race in the wise use of the powers it had created. The personal and group loyalties of men, their fears, ideals, passions, and ambitions, all lent themselves to scientific study with a view to providing a basis for effective social action. It was fashionable at the present time to blame the machine for the mechanization of life. To do this was to make the fundamental mistake of

regarding the machine as the master and not the servant of society, and to forget that the most regrettable results of industrialization were not for the most part the direct fault of technological progress, but of lack of consideration for human needs. Science should be able to assist in the solution of problems arising out of the new social environment as well as in the industrial field. One of the prime needs of the present time was the development of research in the social and biological sciences on a scale commensurate with that of the physical sciences. In contrast to investigations which treated human beings as mechanical robots the primary aim of any such studies should be to increase the comfort and promote the intelligence of the worker in order to combat the evils due to conditions arising out of mechanization in industry. Most of the work of the National Institute of Industrial Psychology was designed to this end, and was thus assisting in the adjustment of society to the changes caused by technical development. In conclusion Sir Richard Gregory referred particularly to the value of the Institute's work in vocational guidance and selection.

Midwives and Cases of Contracted Pelvis

At the December meeting of the Central Midwives Board for England and Wales a letter from the Central Midwives Institute was considered. It asked for a ruling as to whether, under the existing rules, if a midwife is advised by the doctor in charge of an ante-natal clinic that her patient has a contracted pelvis and that a doctor should be engaged, the midwife is obliged to act on the advice given or whether she may decide for herself if the pelvis is contracted or not, and whether it is necessary to engage a doctor. The Board decided that a reply be sent to the Midwives Institute in the following terms:

Except in an emergency a midwife must not, without medical aid, attend a pregnant woman or conduct a confinement if the patient is suffering from any abnormality or complication. If a midwife has been notified by a registered medical practitioner in charge of an ante-natal clinic that one of a midwife's patients has a contracted pelvis or other abnormality, and that a doctor should be responsible for the care of the midwife must act in accordance with the notification of the such medical practitioner. In the opinion of the Board, any notification of the nature referred to above should be made by the medical officer in charge of the ante-natal clinic in writing, and not verbally.

Physical Education and Training

A conference on physical education and training, arranged by the London Head Mistresses' Employment Committee, was held recently at Montagu House, Whitehall, the headquarters of the Ministry of Labour. Miss E. Strudwick, High Mistress of St. Paul's Girls' School and chairman of the Employment Committee, presided over a meeting of head mistresses and physical training teachers. The principal speakers were Miss D. Spafford, secretary of the Ling Physical Education Association, and Sir Henry Pelham of the National Advisory Council for Physical Training and Recreation. Other experts contributing to the discussion were Miss Colson of the Central Council for Recreative Physical Training, Miss Grant Clark of the L.C.C. College of Physical Training, and the principals of physical training colleges. Miss Spafford said the shortage of trained gymnastic teachers had been accentuated by the demand for trained organizers in all parts of the country, due to the popularity of recreative physical training. Speaking of the three years' course, she emphasized the value of the third year of training, which included a medical course and dancing. In the field of recreative physical training Miss Spafford emphasized the need for a thorough and all-round training. Miss Strudwick, referring to the demand for shorter courses of training, spoke of the danger of lowering the high standard which had been achieved by physical training colleges in the past.

The "lucubration" of his readaptation may go on for weeks without further intervention of the psychotherapist, who should never adopt the role of priest, but assume that of a fellow searcher, who does not impose upon him but draws out potentialities for autochthonous development. For the human psyche is not a static automaton, but a dynamism for illimitable adjustment to ever-changing circumstance. For, however standardized and automatic become the processes of industry, there always remains the difficult problem of social adjustment, demanding a complex selectivity, the failure of which is the most fertile source of psychoneuroses even in industrial relations, as has been shown by Elton Mayo in America and by Charles Myers and his co-workers in England.

That the patient must learn to understand thoroughly the inner processes of his mind excludes from psychotherapy the claims of the cults, medical or lay, which appeal esoterically or by side-tracking the real issue by substituting for it a panacea. Equally barred is suggestion, the most rapid method of all, the essence of which is that the patient does not understand the process. Enlightenment is the prime essential if fresh stimuli, unavoidable in ordinary life, are to be evaluated correctly. For example, in a kleptomaniac seen last month a single interview sufficed for ascertaining that the patient stole because of a resentment against a world which had crippled him by stealing from him. The irresistible impulse to steal ceased with his reorientation towards its cause; whereas appeals to prudence and morality had led only to an attempt at suicide.

In thirty years' practice of psychotherapy I have encountered only four cases which approached the large number of hours assumed necessary by your correspondent Dr. Fretson Skinner (December 11, p. 1196).

The first case, nearly thirty years ago—an anxiety hysteria due to marital maladjustment—was under treatment for two years, owing entirely to my own lack of experience and blundering. The second, a writer's cramp, required six months. Each of these patients was sent away for a long change during treatment, however, so that in neither did it actually consume over twenty hours. The third was a case of paranoid interpretations, despair, drug and alcohol addiction, and a determined attempt at suicide. Reorientation was effected by daily interviews for six weeks—about fifty hours. This 30-year-old failure is now embarked on a successful career. The fourth, a 60-year-old woman with paranoid attitudes, was seen about five times a week for nearly six months. She has remained well for six years.

These are conspicuous exceptions, for the usual patient seldom needs more than a week or two for permanent reorientation, and seldom requires as much as five hours of actual psychotherapy. I know of only one relapse, and that occurred after fifteen years of successful professional life.

The aim at the essentials of reconditioning avoids time-consuming and seldom advantageous free association, dream analysis, the bedevilment of a supposed sexual origin except when present, the seeking for non-existing repressions except when there, and all reference to a hypothetical unconscious and suchlike red herrings, which obscure the issue, waste hours, and mystify the patient and often doctor also, when they are not mere devices for the deep anamnesis necessary to penetrate the inner psyche of the patient.

Neither Faculties nor practitioners can be blamed for scepticism towards methods which claim esoteric exclusiveness, such as requiring that an exponent be psycho-analysed by Freud. It is significant, too, that the leading English-speaking advocate of that form of psycho-analysis, Dr. Brill of New York, confessed before the American

Psychiatric Association in 1926 that it cured few even of the small number of psychoneurotics who should be psycho-analysed. This was in marked contrast to the claims of himself and others in 1901, after the introduction of the method to America—that all psychoneurotics were curable by this method, and by this method only.—I am, etc.,

Bordighera, Dec. 18, 1937.

TOM A. WILLIAMS.

SIR,—I was greatly heartened to see two letters on this subject in the *Journal* to-day, particularly when they are written by such well-known authorities as Dr. Ross and Dr. Rees. Perhaps I may be pardoned for a little loose exaggeration in my effort to state some of the difficulties I have personally met with in the treatment of psychoneurotic cases.

I have neither the skill nor the experience of Dr. Ross, whose pioneer work is known and valued by all who are interested in this subject, and the last thing I wish is to create discussion on the methods of treatment or schools of thought. I should have said there are "not many guide-posts" rather than "not any." But my point was that most medical men are sent out from the schools without much knowledge as to the whereabouts of these guide-posts, and without the skill to read them when they are met with.

It must, of course, be true that many cases of the milder types of psychoneurosis *do* get well in less time than I mentioned. Every medical man uses his personality in treating his patients, and those neurotics who get well do so because of the "unconscious psychotherapy" employed by the hard-worked doctor. It was not of these cases I was writing, but of the more serious cases that constitute such a difficult group. For example, the anxiety states seen in miners form a very big group of cases in my clinic. These men are truly pitiable, in that they really want to return to work but cannot do so on account of their anxiety, seen under its varying symptomatology. Then again there is the group of "difficult youths" who are unable to find an occupational niche. This is the result of the economic stress during the "slump" period, which produced a home environment which, in spite of brave and gallant endeavours to prevent it, tends to lead to childish reaction character traits and psychoneurotic disorders. It is these groups among others that form such a difficult problem in big industrial cities like Sheffield. To quote Dr. Ross himself (*The Common Neuroses*):

"Such a patient if taken on at all must be taken seriously; the first interview is one of the most important of all, and if a patient turns up with the symptoms which suggest the presence of a functional state and the doctor is pressed for time, he should defer the taking of the case *till he has at least a full hour to spare*." (Italics mine.)

This is exactly the difficulty I tried to stress. To wait for a full hour for six patients seen on the one day a week devoted to the clinic means setting aside six hours during the week for these people. To give them only six interviews is to spend thirty-six hours over six patients, and meanwhile there are another six new patients each week to be similarly dealt with. It is merely a matter of arithmetic to see that a waiting list very soon becomes choked.

I think the suggestion put forward by Dr. Rees—namely, that of a special committee to be set up by the B.M.A.—is worthy of the closest consideration.—I am, etc.,

Sheffield, Dec. 18, 1937.

E. FRETSON SKINNER.

relation of irradiation to periodicity: as to altering its spacing or not, as to radiosensitivity at stages of a period, and as to the possible value of prophylactic irradiation (local or general) just before a probable period of recurrence. Clinical examination would appear to be most necessary at and about the periods of maximal growth activity, as the earliest recurrences respond most satisfactorily to treatment. Periodicity might be studied with advantage to our knowledge in those few patients who refuse all medical treatment, for about untreated cases little is known so far but the average duration of life. Biochemical research at maximal periods might yield valuable results.

As to explanations of periodicity the most probable appears to be that it supports the virus theory of cancer. I have lately discussed some of the evidence in favour of it (*Brit. J. Radiol.*, 1937, 10, 529), such as contagion and possible association with other virus diseases. If periodicity be established as part of the natural history of tumours it would appear to support the virus theory of their origin: the dates so far assembled appear to be random ones, not following the influenza maxima, as the alternative explanation of a lowered resistance to malignancy resulting from influenzal infection (manifest or latent) would seem to imply. Detailed statistics will be published in due course. The study of periodicity may be expected to throw new light on the cancer problem from the points of view of the clinician, the medical statistician, and the pathologist.—I am, etc.,

J. H. DOUGLAS WEBSTER, M.D., F.R.C.P. Ed.,
Honorary Director, Meyerstein Institute of
Radiotherapy, Middlesex Hospital.

London, W.1, Dec. 21, 1937.

Lipoids and Cancer

SIR,—In an annotation in the *Journal* of December 18 (p. 1229) on the nature of the Rous agent; you draw attention to the work of Jobling, Sproul, and Stevens, who have successfully obtained from the Rous tumours active carcinogenic extracts, which contain very little proteid or carbohydrates, but consist mostly of lipoids, and you question whether these facts have any relation to the chemical structure of known carcinogenic compounds.

That lipoids are in some way associated with the onset of malignant disease has been suggested from time to time—for instance, Cronin Lowe, in discussing the Bendien reaction, has pointed out the deficiency of the lipolytic power of the serum, and Shaw MacKenzie has done some valuable work in this connexion. But we have not advanced much further. It seems to me that in cancer there is a disturbance of the lipoid metabolism, which brings about an alteration in the surface tension of the cells, causing them to proliferate unduly. It is in this alteration of surface tension that the mysteries of the division of the cells and nuclei lie. In mitosis and after fertilization the protoplasm becomes converted to a more or less jelly state; this change is always an indication of activity. I believe that in cancer there is in the serum and tissues an excess of non-saturated fatty acids or of alkalis, or perhaps of both, and these combine to form saponins, which have a profound effect on surface tension. Indeed, it is known that such an increase in fatty acids does occur, the percentage rising from 62.1 in health to 72.62 in cases of cancer. According to W. E. Dixon, the key to the understanding of the action of the saponins lies in their behaviour to cholesterol and lecithin, with which they combine in equimolecular amounts; the

lipoids of the cells are then changed physically and chemically and lose their functions. Thus the lipid membrane of the red blood cells loses its power of retaining the viscous haemoglobin, which passes out of the stroma. Have we not here an explanation of what occurs in pernicious anaemia which is successfully treated by the exhibition of the liver esterases, with their action on fatty acids? There is no doubt that the cohesion of protoplasm is due to the fats present, and anything affecting this cohesion causes an alteration in the physical state of the cells, and thereby an alteration of surface tension.

Cholesterol exists in the body combined with fatty acids as esters, which in health are split, dissolved, and hydrolysed by the esterases of the bile, duodenum, and pancreas (Thamhauser). From esters it is not a far step to the production of carcinogenic bodies. All that is required is their dehydrogenation by a faulty mechanism, and we know that in cancer there is a diminution in body acidity; we also know from the experiments of Loeb, B. Moore, and others that an increase in alkalinity stimulates, and an increase in acidity depresses, manifestations of cell life. Dehydrogenation of esters may be explained by this statement of B. Moore: "It is clear that the rate of production of acids, other things being equal, must depend on the concentration of hydrogen ions in the plasma. A drop from any cause of hydrogen ions in the plasma must mean a corresponding fall in the rate of production of acids."

There are, then, five conclusions: (1) cell division is affected by an alteration in the surface tension; (2) faulty metabolism of lipoids causes an alteration of surface tension, most probably from the formation of soaps; (3) diminished acidity stimulates growth; (4) in cancer there occurs diminished acidity due to a drop in the hydrogen ions of the plasma; and (5) dehydrogenation of esters causes them to become carcinogenic.—I am, etc.,

Wigan, Dec. 22, 1937.

J. THOMSON SHIRLAW,

Treatment of Psychoneuroses

SIR,—As the essence of psychoneuroses is an emotion preventing a due adjustment of circumstance, then in order to get rid of it the means of its induction must be sought. The principle of their conditioning in human beings does not differ from that used by Pavlov in dogs, where by artificial stimuli he produced in the animals a state of expectation of food which led to the physiological reactions normally set up by its presence. Similarly he showed how to induce by an artificial stimulus the physiological consequences of such an incommensurate emotion as fear, which with human beings is the most frequent emotional factor in psychoneuroses, whether expressed as specific phobia, general anxiety, obsessive thinking, sense of inadequacy, faulty interpretations, excessive rationalizations, or even some mannerisms. In the dog a reorientation of attitude towards the artificial stimulus reconditions its effects, so that a sound that had produced the tremor of fear will now produce salivation and pleasure of food expected.

Psychotherapy is essentially a reconditioning on this principle. It is reorientation of a patient's attitude, so that stimuli which had made him uncomfortable become indifferent or pleasurable. The more simply this is attempted the less time it takes. Indeed, when a single external situation provokes a phobia, paralysis, anaesthesia, mutism, an emotional crisis, or what not, reconditioning may require only one interview. But it will seldom be permanent, unless the patient learns the rationale of the process whereby his life attitude is re-set.

the aortic valves there was a vertical tear about half an inch long through an atheromatous patch. The coats of the aorta were separated to form a dissecting aneurysm, and from this there was an opening into the pericardial sac. The heart was not enlarged, and the other organs of the body appeared to be normal.

In both Miss Ottley's case and my own sudden pain was experienced. In the former it was referred to the epigastrium, in the latter to the chest, and in both cases it radiated to the back. My patient had the definite feeling that something had given way; this does not appear to have been experienced by Miss Ottley's case. Both patients were pale, in both the pulse was regular and slow and the blood pressure readings similar. In both cases a primary rupture took place forming a dissecting aneurysm, which was followed by the secondary rupture, in Miss Ottley's case in some seven hours' time and in mine in about twenty-seven hours. Both were married women, Miss Ottley's patient being 63 and mine twenty-six years younger.

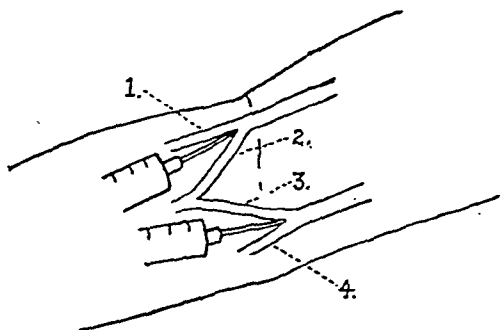
I am indebted to Lieutenant-General Sir James A. Hartigan, Director-General, Army Medical Services, for permission to publish these notes.

—I am, etc.,

London, E.4, Dec. 13, 1937. R. W. SWAYNE, M.B., B.S.

An Easy Method of Venepuncture

SIR,—Two of the commonest difficulties encountered in venepuncture are complete transfixion of the vein and the excessive mobility which accounts for the failure to enter it. These difficulties are met with especially by practitioners who have to do only a few venepunctures a year.



1.—Superficial radial vein. (2) Median cephalic vein.
3.—Median basilic vein. 4.—Superficial ulnar vein.

To overcome them I have devised the following technique, which I have used in a large number of cases with complete success, even where the veins have been very small. The principle of the method is to aim at the angle formed by the junction of two veins—that of the superficial radial and the median cephalic, that of the median basilic and the superficial ulnar, or any other junction which may present itself about the elbow-joint. By this technique slipping is prevented; the chances of entering a vein are greatly increased, as there is one on each side of the needle; and the danger of going through the vein is minimized. I have found this method particularly valuable in taking blood from donors for transfusion.—I am, etc.,

LÉON FEINSON-MULDAVIN.

Royal Free Hospital, London.
Dec. 16, 1937.

Senior Casualty Officer.

Ether Convulsions

SIR,—Mr. J. B. Bamford's comments on this subject in the *Journal* of December 18 (p. 1252) have reminded me that I had three cases of so-called ether convulsions when I was an anaesthetist to several of the smaller London hospitals thirty-five years ago. My colleagues called it ether convulsions, but I did not agree with them, as all the three cases were not completely anaesthetized when the convulsions occurred, and on changing over to chloroform, which in those days was not considered a safe procedure, the convulsions ceased and the operation was completed.

Afterwards I went carefully into the patients' histories, and found that they had all three suffered from *petit mal*. It is, I think, accepted that these patients take ether very badly but chloroform well. It would be of interest to hear if Mr. Bamford had also considered this point before coming to the conclusion that his four cases were really suffering from ether convulsions.—I am, etc.,

Chichester, Dec. 20, 1937.

A. M. BARFORD.

The Problem of the Final M.B., B.S.Lond.

SIR,—Dr. A. M. H. Gray's natural modesty did not allow him to give a complete view of transactions in which he has played an important part. Some years ago the Board of the Faculty of Medicine appointed a committee to report to it on medical grievances. This committee advised the Board to ask the Senate to authorize a full inquiry into the university curriculum. This proposal seemed, however, inadequate. Viscount Dawson, I think, exhorted the Board to take a wider view, to remember that the ancient universities of Oxford and Cambridge sent their medical students to London, and urged that it would be more statesmanlike if the three universities—and the Royal Colleges—took council together. This view commended itself to the Board. The late Professor Pembrey did indeed object that the Colleges, not being universities, should not be included, but he was in a minority of one, and the logical defect he pointed out was thought to have been cured by associating the Society of Apothecaries (a body which had examined general practitioners long before the Royal College of Physicians could so far condescend) with the inquiry. An expert committee was constituted, took evidence, and reported. The report was adopted in principle by the Senate, which instructed its chain of subordinate academic committees to revise the scheme of medical teaching and examination in London accordingly. This elaborate process was completed about thirteen months ago, and all seemed to be ready for the trial of a new system.

But the Board of the Faculty could wait no longer, the scandal was too gross; perhaps the Universities of Oxford and Cambridge, the Royal Colleges, and the Society of Apothecaries, excellent in isolation, were bad in combination; perhaps these new regulations, so painfully elaborated, would not cure the evil. What was to be done? Recalling the ancient truth that the half is sometimes greater than the whole, the Board decided to forsake the Universities of Oxford and Cambridge (and the Society of Apothecaries) and take refuge in the arms of the Royal Colleges.

It may be asked what these *corporations*, as distinct from those of their individual members who are teachers of the *university*, have to contribute to the solution of an educational problem. They do not represent the general practitioners of the country; their only corporate relation with general practitioners is by virtue of the fact that they

Autophytic Dermatitis

SIR,—The able and authoritative article by Dr. Henry MacCormac in the *Journal* of December 11 has induced me to call attention to an allied, but somewhat different, form of autophytic dermatitis. In those cases the injury inflicted on the skin is not intentional but autonomous. It may be done at times of stress or agitation, or it may be a habit of which the patient is unaware, but in any case it often results in a dermatitis produced by touching or rubbing the skin by a restless moving finger, or the conveyance of a superficial infection from one part of the body to another by the same agency.

A middle-aged lady with erythema of the face, while talking in the course of her consultation, could be seen constantly touching her face with one or other hand. She was quite unconscious of doing so, and even when she was told about it did not desist until her hands were held. When the habit was controlled the skin healed.

As an instance of the conveyance of infection by the restless finger, a case occurred where it seemed likely that a Monilia infection between the toes had something to do with the starting of a pruritus ani.

Such involuntary actions might, I suppose, be termed "release phenomena" by the psychologists.—I am, etc.,

Rothsay, Dec. 17, 1937.

J. N. MARSHALL.

Strangulation of Herniated Ovary

SIR,—I have been much interested in the letters recently published in the *Journal* (August 7, p. 265; November 27, p. 1102; and December 4, p. 1152) on this subject.

Inguinal hernia in female children is rare in all who are adequately fed and whose diet is well managed. In other words, it is rare in those who are plump, contented, and happy; more common in those who are thin and cry continually from indigestion, or who strain when their bowels act. Rickets, which balloons out the intestine, predisposes markedly to hernia. The absorption of fat lays bare the internal ring and takes all the "stuffing" out of the canal. Crying and straining raise the intra-abdominal pressure enormously, while rickets expands, and therefore thins out, the abdominal wall. The role of the gubernaculum and the canal of Nuck is important, but I think a good deal of rubbish is written about it. How the gubernaculum can pull the testis to the bottom of the scrotum, when the scrotum is not a fixed point, and not pull the bottom of the scrotum up to the external abdominal ring, I can never understand, but I can believe that it pulls or anchors the genital organ, testis or ovary, at the brim of the true pelvis quite near the internal ring. Having reached this spot it requires very little excursion to enter into the canal or fall over into the pelvis. For some weeks after birth the testicles can easily be withdrawn into the abdominal cavity if the inner part of the thigh be touched. In much the same way, I think, the ovaries might be made to descend along the inguinal canal if they could be manipulated. I conducted an investigation on small babies, and examined post mortem the inguinal region of about 150. In no case was the peritoneum attached to the abdominal wall in any way, and it was invaginated, by a probe, along the inguinal canal to the external ring. The descent of the ovary may be comparatively rare, but when it occurs there is always danger of strangulation taking place, not so much if it is left alone but after well-meaning efforts at taxis.

I used to teach students that all strangulated herniae in baby girls of less than 3 months old contained ovary

and not bowel. Strangulation of gut in female children at this time is excessively rare. The reason for this is obvious, for if the bowel comes down the neck of the sac is expanded over the entering and returning portion of the gut, as well as the omentum between the two tubes. It has therefore a more or less pyramidal shape which favours replacement. The ovary, on the other hand, once down, is in the position of a button through a buttonhole; it has a narrow neck and is extremely difficult to replace, but often if left alone will go back by itself. If ordinary taxis is applied by anyone who fails to recognize what the contents of the hernia are, strangulation is quite likely to follow.

The prolapsed ovary overlies the external ring, and if pushed upwards and outwards, as in ordinary taxis, is pushed over the narrowest part of the ring just at the bifurcation of the two pillars where the chance of replacement is smallest. Continual pressure or persistence in taxis will injure the ovary, swelling takes place, and incarceration and strangulation may start in the ordinary way. Taxis, to be successful in the case of the ovary, must be made in exactly the opposite direction to ordinary taxis; in other words, the ovary must be gently pressed downwards and inwards to the pubic spine over the widest part of the ring, so that the button will the more easily go through the buttonhole. I have demonstrated this, and felt the ovary suddenly disappear as if snatched away, so often that I am sure of the truth of this observation.

From the letters in the *Journal* I gather that the probability of an ovary being in a strangulated hernia of a female infant needs emphasizing, and the true method of replacing it needs to be taught.—I am, etc.,

DUNCAN C. L. FITZWILLIAMS,
C.M.G., M.D., F.R.C.S.

London, W.1, Dec. 22, 1937.

Rupture of the Aorta

SIR,—In the *Journal* of November 13 (p. 966) Miss Constance Ottley describes a case of this condition. It may be of interest to record a similar one.

On June 25, 1933, a married woman, aged 37, was admitted to the Military Families Hospital, Tidworth, as a stretcher case. On the morning of the previous day she felt unusually well, and had proceeded to carry out a "large washing." About midday, when she had almost finished her work, she was suddenly seized with a violent pain in the chest and back, which caused her to cry out. She stated that just before the pain came on she experienced a feeling that something had point she was quite clear and volunteered the information. She was able to walk into the back yard to summon help. The patient was seen by Captain Bayley, R.A.M.C., shortly afterwards. His report stated that she was pale, but that the pulse was slow and regular. There was no dyspnoea. She passed a somewhat restless night, and was admitted to hospital at 12.30 p.m. the following day. She was then somewhat pale, but her appearance did not suggest that she was gravely ill. The pulse was slow and regular, the temperature was 99° F., and the blood pressure was 130/80 mm. Hg. There was no evidence of cardiac enlargement; a systolic murmur was heard over the base of the heart. The radial pulses were equal in volume, and the pupils were equal. The patient complained of pain in the centre of the chest which radiated to the back and the right side of the neck. She was quite clear in her mind, and spoke without difficulty. A possible rupture of an aortic valve was considered, and an injection of 1/8 grain of morphine was administered. She became more comfortable and dozed. At 3.40 p.m. she was suddenly cyanosed and died immediately.

At necropsy the pericardial sac was distended with blood and the aorta atheromatous. About one and a half inches above

of your correspondent's much-appreciated testimonial to the high standard of the West London Hospital teaching, it is hard to believe that an institution with such a large and experienced staff, and upon which so much public money has been spent, could not give even greater value to medical graduates in the future than has been possible at the West London in the past.—I am, etc.,

MAURICE SHAW,
Dean, West London Hospital
Medical School.

London, W., Dec. 18, 1937.

Who Owns X-Ray Negatives?

SIR,—The paragraph from your Paris correspondent in the *Journal* of December 18 (p. 1246) raises this question again, and I am not aware of any definite judicial decision having been declared in this country as to whether ownership vests in the radiologist, the general practitioner, or the patient.

Unfortunately, radiologists are not uniform in their procedure, and it is conceivable that the looseness observed may create difficulty in the future if and when the opinions of the courts are sought by some zealous patient. For example, some radiologists send their films and report to the general practitioner without any intimation concerning the ownership or any request for return. The practitioner, equally careless, passes them on to the patient. In other instances the practitioner retains the films as part of the confidential report supplied by the radiologist, and also for his protection in the event of any litigation ensuing. Again, in some cases the radiologist will send a film direct to the patient without making any express contract stating in whom the ownership vests.

The importance of some uniformity in procedure is obvious, and it would strengthen the radiologist's position materially if the custom were established of supplying only the patient's medical adviser with the film and report, and intimating that possession vests in him, the radiologist.

The radiologist, like the biochemist and the bacteriologist, and possibly others in a team, contributes his skill as an aid to diagnosis, and it is the opinion based upon such skill and knowledge alone for which payment is made, and not anything tangible such as a mere photograph. It must nevertheless be clear that the non-medical radiographer who receives an order direct from a person merely to take a photograph of some particular region, and not a request to make a diagnosis, is an entirely different proposition. Here it may be held that payment is made just for work done in producing an x-ray film or print, and not for the expert professional opinion expressed in a report, which is based upon the technical interpretation of a skilled medical radiologist.—I am, etc.,

Bournemouth, Dec. 20, 1937.

WALTER ASTEN.

*• The question of ownership of x-ray films was discussed in the *Journal* of January 13, 1934, by a medico-legal correspondent, who was unable to trace any English legal decision on this point. He quoted three cases in the United States in which judgment had been given against a patient. In one of these it was decided that the films in dispute had no intrinsic value, and the court found that it was customary for the physician to retain the films as part of the records. Our correspondent said: "The point that the films had no intrinsic value seems sound as expressing the view that the patient pays for service and skill only." In one of the other cases, in which the patient had refused to pay a hospital bill unless the films were delivered to him, the court held that the patients bought and the hospital sold knowledge and experience,

not the material of an x-ray film, which was the property of the hospital. This and other medico-legal articles which had appeared in these columns were published in book form by Edward Arnold and Co., under the title of *Legal Problems in Medical Practice*, by D. Harcourt Kitchin.—Ed., *B.M.J.*

Auguste Forel and His Work

SIR,—I am sorry Dr. J. D. Rolleston disapproves so strongly of my review of Auguste Forel's autobiography. I tried to convey something of the vivid personality of the man as revealed therein, of the way in which he overcame early repressions and later opposition. I thought this would be more interesting to your readers than a list of laudatory references such as is contained in Dr. Rolleston's letter. Can I fairly be accused of failing to appreciate the greatness of Forel in writing such sentences as: "From a series of valuable observations on the structure and functions of the brain he was led to take up psychiatry, in which he made a name so soon that at the early age of 31, etc."; "a practical reformer achieving useful results"; "a single-minded fighter to the last for the truth as he saw it"; "his best memorial will be his work for psychiatry"? My "few slighting words" on his campaign against alcoholism are, presumably, "he never seemed to think that alcoholism was a symptom—for him it was a prime cause." Surely alcoholism is generally regarded to-day as a symptom of psychological or social disorder? I apologize for calling Forel a Bolshevik and will substitute anti-Tsarist. As for omitting any reference to his cerebral thrombosis, I put one into my original draft but cut it out for reasons of space. It is impossible to give a complete summary of a long and full life in the compass of a review. One must select those aspects which one found interesting and thinks may interest others. No two readers will see a pen portrait exactly alike. I might even disagree with the review Dr. Rolleston would have written; but I would assure him, on this appropriate date, that I had no intention of depreciating a great man whose work I have admired but of whose personality I was unaware until revealed by himself.—I am, etc.,

London, W., Dec. 25, 1937.

YOUR REVIEWER.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

THIRD M.B.—PART I (*Surgery, Midwifery, and Gynaecology*): J. Arnott, J. L. W. Ball, C. H. Bartlett, A. H. Baynes, J. R. Bignall, G. Bourne, R. I. C. Bradford, B. R. Bray, R. W. W. Brown, L. H. Cane, D. M. Carding, I. C. Chopra, M. J. Clow, J. Clutton-Brock, P. C. Conran, E. Cronin, A. J. Daly, E. B. Davies, C. H. C. Dent, A. P. Dick, W. D. Doey, K. W. Donald, G. W. N. Dunn, N. B. Eastwood, T. A. W. Edwards, G. P. Fox, E. K. Gardner, O. D. Gilmore, M. H. Harmer, W. J. Hay, J. S. Heller, H. G. W. Hoare, R. D. Holloway, G. N. Hunt, H. M. James, R. M. Johnstone, E. P. Jowett, P. A. Knill Jones, J. Laughlin, J. W. Lillico, G. M. Little, A. G. Marshall, B. E. Miles, R. O. Murray, J. C. B. Nesfield, G. F. Pantton, J. S. Phillpotts, J. G. B. Platts, B. H. Price, J. S. Prichard, G. C. Prichard, J. H. B. Round, D. Russell-Davis, J. Smith, P. M. Smythe, H. Stott, J. Sutcliffe, R. J. D. Temple, J. R. T. Turner, A. J. Walton, J. M. Watson, H. F. Whalley, D. O. Wharton, B. D. Whitworth, E. H. L. Wigram, M. M. Wilson, J. W. Wood, P. J. Wormald, G. M. Wright, J. Yudkin. WOMAN: A. C. Clark. PART II (*Principles and Practice of Physic, Pathology, and Pharmacology*): G. E. Adkins, D. A. P. Anderson, T. L. Barbour, C. F. Barwell, R. D. I. Beggs, A. S. Bookless, A. W. Box, J. B. Bunting, G. A. Burfield, A. L. Cochran, S. B. Darbishire, J. K. Denham, W. D. Doey, E. W. Dorrell, L. C. de R. Epps,

examine and license many, at a profit of £16,000 a year. It may be that the President of the Royal College of Physicians has wisdom to impart to a Viscount Dawson of Penn who is a representative of the Faculty of Medicine on the University Senate. It is just possible that the wisdom of Dr. Gray, a member of the President's Advisory Committee, will mellow the fiery eloquence of Dr. Gray, a senator of the University. But these seem rather metaphysical arguments. Until something more solid is produced, the Graduates' Association will not be alone in viewing with suspicion the gyrations of the Board of the Faculty of Medicine.—I am, etc.,

Loughton, Dec. 27, 1937.

MAJOR GREENWOOD.

Applying for Hospital Posts

SIR,—I am sure that everyone who has applied for a post on the honorary staff of a hospital will agree wholeheartedly with Mr. Kenneth Walker. Most of these elections involve a tremendous waste of time, particularly for the candidates. Personally I bitterly regret the hours which I have wasted in calling upon electors. It is high time that a committee was appointed to look into the whole system, with particular reference to the wording of the advertisements which invite application.

At the Cook County Hospital, Chicago, election to the staff is by examination conducted by an impartial body drawn from all parts of America save Chicago, and the appointment is for seven years. At the end of seven years every member of the staff must re-enter into open competition. Such a system has obvious advantages, both to the hospital and to the staff as a whole. In my opinion this is the fairest and most efficient system of election that has yet been devised.

The seven-yearly examination has recently taken place, and it might interest your readers to see the surgical paper.

CIVIL SERVICE COMMISSION OF COOK COUNTY ORIGINAL ENTRANCE EXAMINATION—No. 1471

ATTENDING STAFF—COOK COUNTY HOSPITAL

SURGERY

Class A. Rank 2. Grade 1.

Special Subject: Weight 5.

1. Discuss the types, symptoms, and treatment of diaphragmatic hernia.
2. Discuss appendicitis in children.
3. Discuss the aetiology, symptoms, complications, and treatment of gastro-jejunal ulcer.
4. Give the indications for exploration of the common bile duct during operations on the biliary system.
5. Discuss "water balance" and the methods to maintain it post-operatively.
6. Discuss causes, diagnosis, and treatment of palmar abscess.
7. Differentiate as to diagnosis and treatment between mechanical and paralytic ileus.
8. Give the symptoms, pathologic physiology, and treatment of a traumatic fistula between the femoral artery and vein at the level of Hunter's canal.
9. Discuss malignancies of the thyroid gland.
10. Discuss the symptoms, diagnosis, and treatment of carcinoma of the right colon.

—I am, etc.,

London, W.1, Dec. 17, 1937.

HAMILTON BAILEY.

West London Post-Graduate College

SIR,—I am sure that all my colleagues at the West London Hospital would wish me to thank your correspondent, "Postgraduate" (December 18, p. 1251) for his generous tribute to the value of the work of the West London Post-Graduate College. We share his regrets at the prospect of its passing, although these regrets are to

some extent softened by the birth of the new medical school which is to take its place.

If "Postgraduate" will read the detailed account of the history of the new school which appeared in the *British Medical Journal* on December 4 (p. 1124) he will appreciate that our policy has been largely forced upon us by circumstances outside our control. When the British Postgraduate Medical School was in process of formation some ten years ago it seemed natural that it should be established at the hospital which had, for thirty years, devoted itself exclusively to this branch of medical education. The School was, in fact, offered to the West London Hospital and the offer was accepted. Some months later the offer was withdrawn, to the detriment of our Hospital and College, as was fully explained in your article to which reference has been made.

In 1934 the new Postgraduate School, which had originally been promised to us, was about to open almost on our doorstep. Staffed by men of the greatest eminence and equipped and maintained by the unlimited resources of the State, the British Postgraduate Medical School seemed a grave menace to the future of the West London College, whose income was derived solely from students' fees and whose staff consisted of busy consultants with only limited time available for teaching purposes.

Our present action is therefore the natural outcome of past events. Although many thousands of postgraduate students from all parts of Great Britain, the Empire, and foreign countries have passed through our college no official encouragement or recognition was forthcoming until the idea of the British Postgraduate Medical School began to mature. The fulfilment of that scheme, at first so full of hope for the West London, ended by threatening the very existence of its College. In self-defence we had to consider other spheres of educational service, as we fully realized the great value to a hospital of some form of teaching activity.

"Postgraduate" asks why the West London should be chosen for the new medical school. If the need for a new undergraduate school is admitted, there could be no better argument in favour of its present location than his own flattering comments on the work of our Post-Graduate College. The establishment of a new school at a hospital without teaching experience or traditions would offer great difficulties, and, just as the West London once seemed the obvious place for the official Postgraduate School, so now its destiny seems to point no less clearly to a future of undergraduate teaching.

I do not think it is either practicable or advisable to teach graduates and undergraduates in the same institution unless entirely separate classes can be organized, and this would be impossible at a hospital of the size of the West London, and of which the clinical staff are all engaged in private practice. When the number of undergraduate students has increased to a substantial figure—and the applications indicate that this may be sooner than we once thought—it will be necessary at first to limit the entries of graduates and finally to exclude them altogether.

But is not "Postgraduate" taking an unduly pessimistic view of the future of graduate students in London? Surely the British Postgraduate Medical School at Ducane Road, in whose favour we are, in effect, retiring, can carry on our work with even greater efficiency. They have both a larger hospital and a larger staff—with the advantage that the latter are mostly devoting their whole time to the service of the School. Our annual number of students is rarely more than 250, and it would be very surprising if this relatively small number could not be adequately dealt with at Ducane Road. And, in spite

pathology of the blood he protested against the excessive importance then attached to counts of red corpuscles, to the neglect of more instructive methods of investigation.

The last teaching post held by Buckmaster was that of professor of physiology in the University of Bristol. From his home in Victoria Square, Clifton, he often returned to London to attend meetings of the Physiological Society and renew friendships at the Savile Club, where he was a well-known and much-liked figure. On retirement from the chair at Bristol in 1929 he was elected emeritus professor, and in recent years made long voyages to overseas Dominions, in company with the late Professor William Wright, as travelling examiner for the Primary Fellowship. In recognition of these and many other services to the Royal College of Surgeons he was elected F.R.C.S. in 1934. He had long been a member of the Pathological Society and of the British Medical Association. A man of striking personality, with a vivid mind and an inexhaustible stock of ideas and phrases, his eloquence was almost a by-word among congenial companions. He was a good and faithful friend and a formidable adversary.

Mr. Gordon Gordon-Taylor, F.R.C.S., writes:

A multitudinous host of friends both at home and across the seas will deeply deplore the death of George Buckmaster, for he possessed that genius for friendship which is granted to all too few. A devoted and faithful servant of the Royal College of Surgeons of England, he twice made the journey to Australia and New Zealand when he had already exceeded man's allotted span, and only two years ago he visited India to conduct the physiology part of the Primary Fellowship examination in Calcutta. It was my privilege to be associated with him on the occasion of two visits abroad, and the pilgrimage with him on his second visit towards the Southern Cross strengthened the bond of friendship and augmented one's admiration for this marvellous old man. His contacts had always been many and wide, and I am sure that no more popular visitor has ever been a guest within the hospitable walls of the Melbourne or the Adelaide Clubs in Australia, or in the Wellington or any other of the Clubs in New Zealand where we were so warmly received and welcomed. He was blessed with a wonderful memory; and his brilliant conversation, the interesting anecdote about Victorian or Edwardian times, and the clever story could hold spellbound any audience comprised of any profession or rank. He was liked by all with whom he was associated; he was on respectful yet easy terms with Governors of State or Dominion; he was loved by the officers of the great College of Surgeons of Australasia, by his colleague-examiners as well as by the candidates. He was immensely proud of the Fellowship of the English College of Surgeons, which was conferred on him in the evening of his life. Death has broken an initial link that helped to forge the early friendship between the English College of Surgeons and that of Australasia. "C'est l'homme qui compte"; George Buckmaster, like William Wright who so recently predeceased him, did much to cement that liaison between these two great surgical colleges, sundered by so wide a waste of seas.

Atque in perpetuum, frater, ave atque vale.

A friend writes:

By the death of Professor Buckmaster Bristol has lost one of its most lovable characters. His personality was a unique combination of scholar and man of the world, bookman and clubman, and to those who were fortunate

enough to share his interests he was able to reveal a fascinating charm and an erudition which was never ponderous. He had great power as a raconteur, and his knowledge of that interesting age of men and things termed Victorian enabled him to give an unforgettable picture of that London and those people which are no more. During the first half-century he had met many of the celebrities of his day, he had read much and travelled much, and all his impressions he was able to describe in a way which was as illuminating as it was amusing. I can recall many unforgettable evenings spent in his company when the pleasure was tinged with the regret that in this age of potted music and potted literature the inestimable advantages of conversation as an art and education were gone beyond recall. Professor Buckmaster hid his great love of his fellow creatures and his innate kindness and generous feeling behind a veil of amiable eccentricity, but his inner nature once discerned was an inspiration and a delight. With his passing a link has been snapped with an age which, with all its faults, produced not robots but individuals of whom he was such a notable example.

CHARLES SANDERS, M.B., M.R.C.S.

Late Medical Officer of Health, West Ham

Dr. Charles Sanders died on December 18 last at his residence in Ennerdale Road, Kew Gardens, in his seventy-ninth year. He obtained his medical education at St. Bartholomew's, and after holding posts at the Queen's Hospital, Birmingham, the London and India Docks, and the West Ham Hospital he was appointed medical officer of health to the county borough of West Ham; this became his life's work. He held the appointment for a long term of years with great distinction until he reached the retiring age at 65. A more happy and contented M.O.H. could not be met with, and to his intimates he was ever ready, from his extended experience, to exemplify how this and that difficulty could be surmounted. And to the writer he seemed perhaps even more happy and contented when he quitted official life, emigrated from the East to the West, and settled down in Kew, not omitting to recommend the move to his younger colleagues as it appealed both to himself and his dear wife.

Sanders was a staunch B.M.A. man, having been a member for fifty-five years, elected in 1882; he was president of the Metropolitan Counties Branch in 1923-4, a member of the Council 1923-5, a member of the Public Health Committee 1920-5, of the joint committee on minimum salaries for public appointments 1920-1, and of the superannuation subcommittee. He was also on several occasions a Representative at the A.R.M.; it was here where his quick wit and humour frequently intervened when apparent misunderstandings arose between preventive and curative medicine. Sanders was one who saw no room for misunderstandings; this was probably the keynote of his success.

In 1917-18 Charles Sanders was president of the Society of Medical Officers of Health. The opening words of his presidential address were typical of the man and his modesty. He said: "Disraeli is credited with the remark that when he wanted to read a good novel he wrote one. Would that I could apply this statement to a presidential address, with the eminent statesman's self-reliant assurance of resulting enjoyment, and this not more on my own behalf than yours, for I know how much more pleasant it is to listen to one who wants to speak because he has something to say than to one who has to say something because he wanted to speak." The address dealt with the Prophylaxis of Venereal Disease, and unlike most similar

T. J. Fairbank, A. L. Fawdry, W. Goulstone, J. L. Griffith, E. B. Hacking, S. W. G. Hargrove, F. E. S. Hatfield, H. G. W. Hoare, J. H. S. Hopkins, C. W. Hutt, R. T. Johnson, H. S. Kellett, G. J. G. King, A. P. Kitchin, J. I. H. Laurie, S. A. H. Lesser, R. W. Mason, R. M. Miller, K. S. Mullard, T. L. Oliver, B. G. Parsons-Smith, G. R. C. Peatfield, P. A. T. Phibbs, A. L. Phillips, H. L. Porter, C. G. Rob, D. Rubin, G. Sheers, J. Sutcliffe, R. D. Teare, D. J. D. Torrens, R. L. Townsend, R. C. H. Tripp, S. C. Truelove, N. Vere-Hodge, J. H. Ward, S. R. F. Whittaker, J. M. G. Wilson, M. C. Woodhouse, G. H. Wooler, J. D. Young-husband. *Woman: V. E. A. Sykes.*

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN CLINICAL PATHOLOGY.—Tatjana von Haebler.

EXTERNAL DIPLOMA IN CLINICAL PATHOLOGY.—C. E. W. Hoar.

UNIVERSITY OF DURHAM

KING'S COLLEGE, NEWCASTLE

Dr. S. Thompson has been appointed Lecturer in Skin Diseases in place of Sir Robert Bolam, who has resigned.

UNIVERSITY OF LEEDS

The Council of the University has appointed Dr. Geoffrey Holmes to a newly instituted honorary Lectureship in Medical Hydrology.

Dr. Charles Ludwig has been appointed to a Demonstratorship in Physiology.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—Part II: R. F. Ball, Gretel Bergheimer, G. Berry, Hilda Brice, C. D. Coe, D. B. H. Dawson, D. Jackson, T. H. Lawton, G. B. Locke, N. J. de V. Mather, Mary A. Rogerson, D. A. Fletcher Shaw, E. P. Whitaker, A. B. White, J. H. Wilding. Part I: P. N. Holmes, D. N. Kiff, Constance M. F. Lyth, J. C. Ramsden, J. F. Rickards, H. E. Thackray.

THIRD M.B., CH.B.—Pathology and Bacteriology: A. P. Bates, D. Bolchover, Irene M. Bower, J. B. Brownlie, Frances M. Bullough, R. Cocker, G. R. Crawshaw, Olive I. E. Elkin, Barbara H. Fiddian, *Mary Fleure, R. T. Grime, Joan Halstead, C. Hamwee, P. Haslam, J. E. Horrocks, Hannah Horton, W. L. R. Kenyon, J. Latham, Joyce Leach, *A. D. Leigh, A. Manch, R. A. Martin, A. P. Massie, Asa Mills, *M. D. Milne, M. J. Parsonage, J. R. Platt, T. H. Redfern, J. C. A. Renshaw, E. Ridehalgh, W. E. Rigby, G. G. Robertson, B. Roditi, E. S. Rogers, M. S. Rowley, L. D. Rutter, J. E. Schofield, F. W. Taylor, G. K. Tutton, G. H. Whittle, A. F. Williams, R. M. Winston. Pharmacology: Eva Abrahamson, A. Ashworth, J. H. R. Barker, F. R. Brebner-Smith, I. C. Campbell, G. Caplan, Rachel Chaiman, Margaret Clucas, Elizabeth J. Davy, I. Dickson, W. Dickson, H. Diggles, J. W. Emerson, G. R. Ferguson, J. G. Ferguson, *E. S. Frazer, R. J. Gampell, L. A. Gifford, Hilda R. Harris, H. Hassall, S. Haythornthwaite, B. L. Hoffman, Irene E. Howorth, Margaret Jacques, O. Janus, E. W. Jones, G. Lancaster, J. T. A. Lloyd, J. L. Maclean, W. Mellor, Elsie L. Mettam, C. Parish, K. C. Prausnitz, T. F. Redman, *F. Robinson, Margaret H. Roscoe, J. K. Steward, T. A. Taylor, Edith M. Thorp, A. L. Tulk, Ena M. Walmesley, Mary J. Walmesley, Elizabeth C. S. Williams, Joyce Worthington.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—Part II: Eleanor B. Schill.

* With distinction.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 17, when the following degrees were conferred:

M.D.—†J. A. Chapel, *R. V. Christie, F. L. A. Gacé (*in absentia*), W. Henderson, Helen McD. Hendrie (*née* McDougall) (*in absentia*), *T. B. Johnston (*in absentia*), W. M. McIntyre, W. R. H. Mackay, Jean MacD. MacLennan, W. R. Martine, R. C. M. Pearson, †A. Penman, L. V. Roberts, A. M. Ross, J. O. Westwater.

D.Sc.—T. B. Menon, M.D.
Ph.D. (*Faculty of Medicine*).—A. Haddow, M.D.
M.B., CH.B.—C. A. Anderson, I. L. Briggs, P. E. Brown, A. G. Brownlie, J. A. Cooper, C. F. Coultis-Wood, Millicent C. Dewar, Frances H. Drew, A. El Shaded, A. Farquhar, M. Goldberg, A. Goldblatt, G. H. Hughes, W. Hunter, J. Hurwitz, A. Jeannaco, poulo, R. W. Jones, R. D. Kennedy, R. Kerr, J. W. Leslie, D. P. Macmillan, I. A. G. McQueen, Robina M. Marwick, J. Miedema, J. Milligan, A. D. Mitchell, J. R. Moffat, R. Saffley, R. L. Sanderson, G. Sawh, D. Roworth, J. Runcie, R. Saffley, Stewart, L. Tecluck, W. D. A. Silvera, I. F. Smith, Lesley I. R. B. W. Walker, P. Walton.

DIPLOMA IN PUBLIC HEALTH.—R. P. Jack, K. C. Mathew (*in absentia*).

* Awarded gold medal for thesis. † Commended for thesis.

Obituary

GEORGE A. BUCKMASTER, D.M., F.R.C.S.

Emeritus Professor of Physiology, University of Bristol

We regret to announce that Professor George Alfred Buckmaster, the distinguished physiologist, died at his house in Clifton, Bristol, on December 21, 1937, after some weeks of incapacitating illness.

He was born at Clapham on February 7, 1859, the second son of John Charles Buckmaster of the Science and Art Department, South Kensington. One of his younger brothers was the late Viscount Buckmaster, some time Lord Chancellor of England, and another is Mr. Martin A. Buckmaster, for many years head of the Art Department at Tonbridge School. George Buckmaster was sent to Magdalen College School, Oxford, and entered Magdalen College as a Science Demy at the age of 18. At the University he distinguished himself in the schools, obtaining a first-class in Natural Science in 1881 and the Burdett-Coutts



scholarship in geology in 1882. He studied medicine at St. George's Hospital, and after qualifying in 1883 as M.R.C.S. won a Radcliffe travelling fellowship, which he held for three years. He graduated B.M. in 1885 and D.M. and B.Ch. in 1887, in which year he also took the Oxford D.P.H. During his tenure of the travelling fellowship he worked in physiological laboratories at Leipzig, Kiel, Göttingen, and Berlin. After a period of teaching and research at St. George's he was appointed professor of physiology at the Royal Veterinary College, London, and assistant professor at University College; and for many years served as examiner in physiology for the Primary Fellowship of the Royal College of Surgeons of England and for the medical degrees of the University of London. He was a member of the Leprosy Investigation Commission to India, 1890-1, and made contributions to the *Leprosy Investigation Journal* and to the report of the Commission. He wrote with Mr. J. A. Gardner many papers on the physiology of anaesthesia, blood gases in anaesthesia, rate of elimination of chloroform, and oxygen administration, which appeared in the *Proceedings of the Royal Society* and other journals from 1906 onwards. He also wrote on haemoglobin in the *Journal of Physiology*. Under the title of *The Morphology of Normal and Pathological Blood* Buckmaster published in volume form in 1906 a course of lectures which he had delivered at the Physiological Institute of London University. This book, which was by no means restricted to considerations of morphology, gave a detailed study of some of the latest methods of blood investigation at that time available. It included also an interesting account of an investigation of polycythaemia at high altitudes, which he had conducted in the Alps in conjunction with Dr. Charles Slater and the late Clinton Dent, his former colleagues at St. George's Hospital. Buckmaster devoted special attention to the vexed question of the origin and nature of blood platelets, and in discussing the clinical

There was only one colony for twelve patients suffering from leprosy in this country. As prolonged and close contact with an infected person was necessary for the transmission of this disease the risk of transmission in the conditions normally existing in this country was negligible. A Middlesex patient about whom Mr. Messer asked was now in a London hospital, and she would be admitted to the colony as soon as a bed was available. The local authority in whose area the patient resided was prepared to make a substantial contribution to her maintenance. Steps were being taken by the managers of the colony to raise voluntary funds for an extension of the accommodation.

Typhoid in s.s. "Strathaird"

In reply to Mr. James Hall on December 23, Sir KINGSLEY WOOD said there was an outbreak of typhoid on board the s.s. *Strathaird* on her last homeward voyage in October. It did not appear that any passengers suffering from typhoid were landed at Marseilles. The members of the crew were not inoculated. The names and addresses of the 329 passengers and of the 233 European members of the crew were sent by the London port health authority to the medical officers of health of the districts of destination. Three passengers and two members of the crew gave addresses in Croydon. These were followed up, and were reported by the local authority to have remained in good health. The drinking-water on this ship was adversely reported on when she arrived at Aden. In consequence the water in all the tanks was chlorinated. On arrival at Tilbury instructions were given that all fresh-water tanks should be emptied, cleansed, and cement-washed, and then refilled from the quay hydrant and the water chlorinated. Precautions were taken to the satisfaction of the port health authority to prevent tainted water being pumped into a tank which had been cleansed.

Sir Kingsley Wood further explained on December 23 that notifications of carriers of disease were not included among notifications of disease sent to his department. The statutory obligation to send notice of disease to the medical officer of health of the district concerned related only to persons suffering from the disease. Only such persons were appropriate for admission to an isolation hospital. Persons known to be potential sources of infection but not showing any clinical symptoms of disease should be normally the subject of appropriate precautionary measures at home.

Treatment of Prisoner in Barlinnie Prison

Mr. ELLIOT told Mr. McGovern on December 23 that he had investigated the treatment of a prisoner in Barlinnie Prison, Glasgow, on September 10, 1937, and had that week interviewed the medical superintendent of Gartloch Asylum. After the man had become violent in his cell on September 10 a struggle occurred with warders and he was certified by the assistant medical officer and by another doctor to be of unsound mind. The man, who made no complaint to the governor that he had been ill used, was removed to Gartloch Asylum and was examined there by the assistant medical officer, and on the following day by the medical superintendent. On September 17 the medical superintendent of this asylum certified the man to be of unsound mind. On December 9 the man was fully examined by a deputy commissioner of the General Board of Control, who reported that he was still convalescent from maniacal excitement amounting to certifiable insanity, and should be detained for some time. Since then the medical superintendent had informed Mr. Elliot that he could not at present recommend the liberation of the man, even on probation. Mr. Elliot said that he was satisfied the man's certification on September 10 and his subsequent detention in Gartloch were fully justified by the facts as known to the medical officers concerned.

There was no evidence that he was subjected to force or restraint beyond what was necessary. Consideration of the case had, however, shown the desirability of ensuring that if a prisoner whose sanity was in doubt became violent the medical officer, or in his absence the prison governor, should be present from the earliest possible moment. Directions had

been given accordingly. Where force had to be used against a prisoner and he was bruised or wounded a report would in future be made to the chairman of the visiting committee as well as to the Prisons Department.

Subsequently Mr. McGovern opened a debate on this case, and Mr. MONTAGUE asked for an inquiry. Mr. ELLIOT replied that no further inquiry could now bring out relevant facts.

Mortality of War Pensioners

On the motion for the Christmas adjournment on December 23 Mr. F. O. ROBERTS discussed ex-service men's pensions. He said the death of 51,000 pensioners between 1929 and 1936 showed a mortality rate of 16 per cent. among ex-service men, compared with a rate of 7.6 per cent. for males of similar age among the general population. The time was opportune for a complete survey.

Dr. HADEN GUEST said a review should be undertaken of cases where men had neglected to apply for pensions after the war but had subsequently broken down with maladies such as neurasthenia.

Mr. H. RAMSEOTHAM said there was no evidence of general discount, and he could see no case for an inquiry. It would be impossible to remodel the pensions scheme. The percentage death rate among pensioners was 15.5, compared with 10.5 for the civil population. That was 45 per cent. above the rate for the civilian population for the same age, whereas in the United States the excess was 71 and in South Africa 77. The lower figure in the United Kingdom was attributable to the wonderful health services. He had an open mind about the British Legion inquiry into the question of the prematurely aged ex-service man. He could not now tell the House that there was no such thing as premature ageing by war service.

Fatal Encephalitis following Vaccination.—On December 21 Mr. LEACH asked the Secretary of State for War whether he was aware that Cyril Francis Youngman of Charlton, aged 14, died from encephalitis resulting from vaccination, on December 2, the vaccination having been undergone so that the lad could take up a situation at Woolwich Arsenal: that the Minister of Health, in his recent annual reports, had recommended that children of school age and young adults should not be primarily vaccinated unless in special danger of small-pox, as this operation might cause or activate encephalitis; and whether, in view of this case, he would abolish the regulation requiring certain workers at Woolwich Arsenal to be vaccinated. Mr. HORE-BELISHA said that he had been made aware of the unfortunate circumstances in which this lad died. Such cases were very rare, but he was considering whether the present regulation requiring the vaccination of entrants to the Royal Arsenal should be relaxed. Replying to Mr. Kelly on the same date, Mr. Hore-Belisha said that before an employee was engaged at the Royal Arsenal he was required to be vaccinated. As the vaccination was done by his own private arrangement, he had no information whether any case had resulted in the death of the man vaccinated.

Investigation into Prevention of Silicosis.—On December 21 EARL WINTERTON informed Mr. J. Griffiths that the progress of the investigation conducted by a group of scientists at the McIntyre Mine, Ontario, Canada, into the possibility of the prevention of silicosis by the admixture of metallic aluminium with silica dust was being followed with interest by the special committee advising the Medical Research Council in this subject. Some experiments on similar lines had already been initiated in this country.

Appointment of Salaried Midwives.—On December 21 Mr. BERNAYS, replying to Sir Robert Young, said that the number of salaried midwives included in the proposals of local authorities under the Midwives Act, 1936, was approximately 7,550. It was safe to assume that a large majority of the midwives had already been appointed. Returns showing the exact numbers appointed by the end of this year would be available next February. The Minister of Health was not aware that any serious difficulty had been experienced in any part of the country in securing the requisite number of midwives.

addresses was intended to open a discussion. The subject was much in the air at that time, and the meeting was a notable one in the history of the Society; Sir James Crichton-Browne, Sir Frederick W. Mott, and Miss Ettie Rout among others took part. One of his first presidential duties was to head a deputation to the President of the Local Government Board (Mr. Hayes Fisher) in favour of better co-ordination of the public health services by the appointment of a Minister of Health.

There are many who will greatly miss the cheery word and countenance of Charles Sanders, who for so long had been a stalwart in the Public Health Service.

E. H. S.

Dr. CECIL ERNEST JONES-PHILLIPSON, who died on November 13 at Capetown, aged 67, was a student of St. Bartholomew's Hospital, and took the English Conjoint diplomas in 1896, obtaining the F.R.C.S.Ed. and the M.D.Brux. in 1903. He settled in South Africa soon after qualification, and practised at Port Alfred from 1906 to 1916. He then went on active service to France with a commission in the R.A.M.C., and served as an aural specialist to the British Expeditionary Force. After the armistice he returned to South Africa and started practice as an ear, nose, and throat specialist. Dr. Jones-Phillipson joined the British Medical Association in 1898. He was president of the Cape of Good Hope (Eastern Province) Branch in 1906 and president of the Cape Western Branch of the Medical Association of South Africa (B.M.A.) in 1924-5. He published several papers on oto-rhino-laryngological subjects in the *South African Medical Journal*.

We regret to announce the death of Dr. JAMES MCKAY of Coatbridge on December 9 after a short illness. A native of Dumbarton, Dr. McKay graduated M.B., C.M. in 1892 and M.D. in 1911 at Glasgow University. He practised in Coatbridge for about forty years as a general practitioner, was an active member on the staff of the Alexander Hospital, Coatbridge, and retained that connexion until a few years ago. For the past thirty-six years he had been a member of the British Medical Association. Dr. McKay was a man of outstanding character, quiet and unassuming, who devoted his whole life to the interests of his patients and profession. He was held in high esteem by his professional colleagues, and his death is deeply regretted by a wide circle of friends.

On October 30, 1937, aged 63, there passed away in the person of Mr. HARRY HOLMES, B.A., M.B., B.Ch., one of the best friends of the voluntary hospital system of Merseyside. Springing from sturdy yeoman stock in Lincolnshire, he had all the good qualities of the typical Englishman, sharing also the reticence and self-effacement. From St. John's College, Cambridge, he entered St. Bartholomew's Hospital, and graduated in medicine in 1896, and early in his career became associated with the Wigan Infirmary as junior and then as house-surgeon. Appointed in 1904 to the honorary staff of the Eye and Ear Infirmary, Myrtle Street, Liverpool, he spent the best of his life, health, and energy in unostentatious work in Wigan as ophthalmic and aural surgeon. Mr. Holmes (writes C. A. H.) was a brilliant chess player who held many championships; he nevertheless put his duty to his work first; and, indeed, there were few who maintained a more consistent level of all-round good results in his clinical work year in, year out. Joining the North of England Ophthalmological Society as a foundation member in 1914, he served on its council in 1925, and he had been a member of the British Medical Association for the past twenty-seven years. His skill and ability often went unnoticed, so modestly was it tendered; but it was on the point of character that he will be best remembered by his medical friends as one "more skilled to raise the wretched than to rise."

Medical Notes in Parliament

In the House of Lords, on December 22, a Royal Commission, consisting of the Lord Chancellor, Viscount Dawson of Penn, and Lord Stanmore, signified the Royal assent to the Air Raid Precautions Act. On the same day the Unemployment Insurance Bill, which has passed the House of Commons, was read a first time, the Criminal Procedure (Scotland) Bill was presented by Mr. Elliot and read a first time, and the Dogs Act (1871) Amendment Bill, which is introduced by Sir Robert Gower, a second time. The Criminal Procedure Bill is to amend the law of Scotland relating to criminal procedure and to incest and to fatal accident inquiries.

A motion was adopted by the House of Commons on December 22 which called for further measures, including more strict and uniform administration of the Shops Acts, to raise the conditions of employment in the distributive trades.

Mr. Elliot announced on December 22 that it had been decided to appoint a representative committee to review the whole field of public health law and local government law in Scotland and to prepare the necessary measures for its revision and consolidation. Sir John Jeffrey had been appointed chairman of the committee.

The House of Lords adjourned on December 22 till February 1, and the House of Commons on December 22 to the same date. Provision was made for an earlier summoning of Parliament in the event of urgent need. On February 1 the House of Commons will take the committee stage of the Population (Statistics) Bill and will further consider the Blind Persons Bill.

A motion to set up the projected committee on road accidents will be among the earliest business of the House of Lords after its reassembly.

Inquiry into Tuberculosis Services in Wales

Sir KINGSLEY WOOD told Mr. Jenkins, on December 22, that the report of the committee of inquiry into the anti-tuberculosis services in Wales and Monmouthshire was not completed. Bodies who wished to give evidence before the committee were asked to complete and submit a written summary of their evidence before the end of the year. The committee hoped to hold a public sitting in Cardiff early in the New Year. Further sittings would be necessary. He would consider publication of the report as soon as he received it.

Ophthalmic Benefit

Sir KINGSLEY WOOD announced on December 23 that ophthalmic benefit was included among the additional benefits available to the members of 730 approved societies and 4,769 branches, with a total membership of 11,300,000. Members of these societies became entitled to the benefit after a waiting period of 2½ years on average, but after the completion of the waiting period the benefit was available to all classes of members. Legislation to make ophthalmic benefit available to all members of all approved societies could not at present be contemplated.

Leprosy Incidence and Treatment

Sir KINGSLEY WOOD, in a reply to Mr. Messer on December 23, said cases of leprosy were not required to be reported to his Department, but he had information of thirty-eight cases in this country. In only four over a long period of years was it considered that the infection was incurred in this country. In each of these there was a history of prolonged and intimate contact with a person who contracted the disease abroad.

EPIDEMIOLOGICAL NOTES

Typhoid Fever.—The number of cases notified in the Croydon epidemic at the time of going to press was 289, with 31 deaths. It will be observed that for the week ended December 18 there were 24 notifications of enteric fever; the "expected" figure based on the median value for the last nine years was 27, the figure which was returned for the corresponding week last year.

Measles.—Measles is not generally notifiable in the British Isles. In some areas in which notification is in force only the first case in a household is required to be notified unless a period of two months intervenes. Reports of absences from school on account of measles only partially fill the gap, as measles is essentially a disease of children under school age in large centres of population. In Scotland and Northern Ireland notifications suggest that an epidemic is in progress at the present time. Measles is expected in London this year according to the law of biennial periodicity in densely populated areas, and already some boroughs, notably Fulham, in London have reported large numbers of cases. The weekly number of deaths from measles provides a fairly reliable guide to the prevalence of the disease; it is evident that the figures for the deaths from measles in our table reflect the prevalence of the disease two to three weeks previously.

Medical News

A meeting of the West London Medico-Chirurgical Society will be held at the De Vere Hotel, Kensington Road, W., on Friday, January 7, at 7.45 p.m., when there will be a discussion on "Sterility," to be opened by Messrs. Eardley Holland, Kenneth Walker, V. B. Green-Armytage, and F. J. McCann.

A meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, W., on Tuesday, January 11, at 4 p.m., when papers will be read by Dr. W. Norwood East on "Some Official Contacts with Addiction (National)" and by Major W. H. Coles on "Some Official Contacts with Addiction (International)." A discussion will follow.

A discussion on "Recent Advances in Methods of Bed-bug Disinfection" will take place at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Tuesday, January 11, at 5.30 p.m. Mr. S. A. Ashmore and Dr. B. T. J. Glover will open the discussion, and a demonstration of the methods described will be given by Dr. J. Macmillan.

The tenth annual Congress of the Egyptian Medical Association will be held at Baghdad from February 9 to 13, when the following subjects among others will be discussed: surgery of the liver and gall-bladder, malaria, cholera, and undulant fever. The subscription is one Egyptian pound. Further information can be obtained from the General Secretary, Kasr-el-Aini, Post Office, Cairo.

At the annual meeting of the Save the Children Fund, whose offices are at 20, Gordon Square, W.C.1, Lord Noel-Buxton stated that the basis of its work at home and abroad was the Declaration of the Rights of the Child (Declaration of Geneva), to which the Prime Minister had recently given his approval. Sir Francis Fremantle said that the Fund in its work in this country was helping to protect from the worst evils the sensitive minds of children and the bodies they controlled. It was also helping to fill a gap in the public health services for "toddlers," aged 2 to 5, by the provision of nursery schools, particularly in the special areas. Dame Rachel Crowley commended the work of the Fund for the victims of the war in China. Lord Snell, chairman of the London County Council, said that one of the Fund's principal claims to support was that in setting out to help a child it took into consideration neither his race nor the religious convictions of his parents.

At a meeting of the Governing Body of University College Hospital on December 16 it was announced that Sir Herbert Samuelson, the former chairman and treasurer of the hospital, had made a gift of £10,000 towards reduction of the debt on the building fund. The debt, amounting to £200,000, was incurred as the result of the building of the private patients' wing and sisters' home, and extensions to the ante-natal and child welfare departments.

The issue of the *South African Medical Journal*, the organ of the Medical Association of South Africa (B.M.A.), for November 27, 1937, is a special tuberculosis number, with an account by Sir Edward Thornton of the policy of the Union Public Health Department for dealing with tuberculosis in South Africa. Other contributors are Drs. D. P. Marais, Strafford Hewitt, P. Allan, J. A. Macfadyen, W. H. Horne, and A. Bloom. Surgical tuberculosis is deferred to a later occasion, the present articles dealing solely with the medical side of the problem.

The issue of the *Bulletin de l'Office International d'Hygiène Publique* for October, 1937, is devoted to plague in the French colonies, India, and Tunisia; infantile paralysis in the United States, Italy, New Zealand, Sweden, and Yugoslavia; and cerebrospinal fever in the United States and Turkey.

The issue of *Paris médical* for December 4 is devoted to therapeutics; that of the *Journal de Médecine de Lyon* for November 20 to legal and social medicine; and that of *Le Bulletin Médical* for November 27 to paediatrics.

Mr. E. W. Meyerstein has given to St. Mary's Hospital £32,576 for the purpose of acquiring the freehold of a site of 10,500 square feet adjoining the hospital in Praed Street, Paddington, thus providing land needed for the extension of the hospital. In appreciation of this and his earlier gift of the Meyerstein Dental Research Laboratory at St. Mary's, Mr. Meyerstein has been elected a vice-president of the hospital.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
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Westcent, London.

SECRETARY, Medisecra Westcent, London.
The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: Associate, Edinburgh; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: Bacillus, Dublin; telephone 62550 Dublin).

QUERIES AND ANSWERS

Frumenty

Dr. ARCH. R. MILLER (Glasgow) writes: In the *Journal* of December 18 Dr. Josiah Oldfield urges the use of "frumenty" for the prevention of constipation in "normal human beings." Would it be convenient for Dr. Oldfield to supply the recipe for "frumenty" to one of the conquerors who is not above learning if possible from the conquered?

* "Frumenty" and "furmety" are alternative names for a sort of porridge made with hulled wheat boiled in

EPIDEMIOLOGY AND VITAL STATISTICS

No. 50

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 18, 1937.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Irish Free State. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in the Irish Free State. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1937					1936 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	24	2	5		—	17	5	8	1	—		
Deaths	—	—	2		—	—	1	1	—	—		
Diphtheria	1,568	201	183	63	34	1,283	162	244	44	63	1,302	217
Deaths	49	6	4	3	1	43	—	6	3	1		
Dysentery	411	127	43		—	36	7	17		—		
Deaths												
Encephalitis lethargica, acute	2	—	—		—	5	—	1		—		
Deaths		1					1					
Enteric (typhoid and paratyphoid) fever	24	1	3	15	2	27	—	6	5	1	27	—
Deaths	6	—	—	—	—	2	—	—	1	—		
Erysipelas			91	9	9			75	8	5		
Deaths		1					1					
Infective enteritis or diarrhoea under 2 years	57	15		8	2	44	14		5	—		
Deaths												
Measles	22	—	427	8	279*	2	—	105		1		
Deaths			8	2	4							
Ophthalmia neonatorum	89	8	35		—	84	8	26		1		
Deaths												
Pneumonia, influenzal	11188	124	21	6	9	8518	95	15	—	8	997	106
Deaths (from Influenza)	52	11	12	4		54	11	9	—			
Pneumonia, primary		30	404	18			17	378	10			
Deaths												
Polio-encephalitis, acute	1	—			—	—	—			—		
Deaths												
Polio-myelitis, acute	10	1			—	12	2			—		
Deaths												
Puerperal fever		1	25	1	—	34	4	25	4	2		
Deaths							1†					
Puerperal pyrexia	152	9	21		—	97	10	25		3		
Deaths												
Relapsing fever												
Deaths												
Scarlet fever	2,565	159	505	82	81	1,906	173	368	102	64	2,504	325
Deaths	4	—	1	—	—	7	1	—	1	—		
Small-pox	—	—	—	—	—	5	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Typhus fever			46		5			323		11		
Deaths			1	—	2			9	6	1		
Whooping-cough		8										
Deaths												
Deaths (0-1 year)	444	92	100	38		355	70	86	46			
Infant mortality rate (per 1,000 live births)	74	76				57	58					
Deaths (excluding stillbirths)	5,881	129	858	245	170	4,973	956	801	222	131		
Annual death rate (per 1,000 persons living)	14.5	15.2	16.7	16.7	15.1	12.4	11.9	15	15.4	12.5		
Live births	6,037	1,195	804	325	240	5,614	1,082	842	300	227		
Annual rate per 1,000 persons living	14.9	15.0	16.4	22.2	21.3	14.0	13.5	17.3	20.9	21.7		
Stillbirths												
Rate per 1,000 total births (including stillborn)	294	38				279	45					
	46	31				47	40					

* 271 cases in Belfast alone
† All cases notified as puerperal pyrexia
after October 1, 1937

‡ Death from puerperal sepsis
§ Comprises primary and influenzal forms

(i) 122 great towns in 1936
(ii) 12 " " "
(iii) 9 " " "

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

1

Non-tropical Sprue

H. STALDER (*Schweiz. med. Wschr.*, November 13, 1937, p. 1091) describes briefly the symptomatology of non-tropical sprue and reports two personal cases. He believes that non-tropical sprue is probably a secondary B. avitaminosis. The administration of vitamin B₂, which is a compound of flavine and phosphoric acid present in yeast, has brought about a cure in one of the cases after all other therapy had failed. The blood picture was improved at the same time. The necessary dose of vitamin B₂ varies according to the gravity of the case. The favourable effect of campolon on non-tropical sprue is probably due to the presence of small quantities of flavine-phosphoric acid in it. These small quantities may, however, be insufficient for certain grave cases of sprue. In such patients large doses of yeast may prove effective. The effect of the hormone of the adrenal cortex in sprue is uncertain, although the weakness, hypotension, anaemia, hypoglycaemia, and pigmentation certainly indicate an adrenal insufficiency.

2

Diphtheria Immunization

D. T. FRASER and K. C. HALPERN (*J. Immunol.*, October, 1937, p. 323) report an investigation in children of the antitoxic response to diphtheria toxoid, and the persistence of the antitoxin in the blood during the three years following inoculation. In all 244 children were studied in various groups. Of 108 children tested three months after a course of three injections of toxoid, 107 had developed such a concentration of antitoxin as would render them Schick-negative, and their degree of immunity as judged from antitoxin concentration was as good as that of 175 "naturally immune" women. The authors regard these results at three months as a standard of response against which other responses may be measured. After three months there was a gradual fall in the mean antitoxin concentration in the blood of the groups of children studied, so that after twelve months the mean concentration had fallen to 50 per cent., and in three years to 34 per cent., of the mean value at three months. On the other hand, in thirty of thirty-three "naturally immune" adults the antitoxin concentration did not change in four to six years, while in two of them it increased. It appears, therefore, that naturally acquired immunity is more lasting than that artificially acquired. During the three years' period of the observations diphtheria was not prevalent in the district, so that the effects of secondary stimuli were absent. From a comparison of the antitoxic responses evoked by different toxoids with the standard results obtained three months after three doses of toxoid, the authors suggest a method of assessing the antigenic value of toxoids.

3

School Epidemics of Tuberculosis

C. WISHMAN (*Tidsskr. norske Laegeforen.*, September 1, 1937, p. 885) justifies the Norwegian law of 1935 concerning the medical examination of school teachers by an account of a small epidemic of tuberculosis among adolescents, their infection being traced to a tuberculous school master who had already undergone sanatorium treatment. In February, 1936, he developed "influenza," which required medical treatment but did not lead to his discharge as a teacher. His class consisted of nine boys and fifteen girls between the ages of 14 and 18. Late in April of the same year one of the scholars developed erythema nodosum. Four new cases of erythema nodosum occurred in May and June, and three other scholars

developed high fever without physical signs. Mantoux's subcutaneous tuberculin test was positive in twenty of the twenty-four—a remarkably high proportion of positive reactions considering that there was very little tuberculosis in the district, and only two of the scholars were known to have been exposed to infection before joining the particular class in question. These two scholars remained perfectly well. All twenty-four scholars save one not thus examined showed an abnormally high sedimentation rate, but in those who were in other respects symptom-free the rate returned to normal after some time. Apart from the seven scholars who developed erythema nodosum or high and protracted fever, there were seven others with a sub-febrile temperature, general malaise, and a definitely abnormal sedimentation rate. The remaining ten scholars, six of whom were tuberculin-positive, remained comparatively well. But all twenty-four showed hilar shadows which, in some cases, were associated with lung shadows.

4 A. SASSE (*Nord. med. Tidskr.*, October 9, 1937, p. 1664) gives an account of an epidemic of tuberculosis in a school in Sweden. In this school in 1934 tuberculin tests showed ten of the forty-four older children and only one of the fourteen younger children to be positive reactors. When the tuberculin testing was repeated in the autumn of 1935, little change was found in the older children, ten out of thirty-five proving to be positive reactors. But among fifteen younger children there were now five positive reactors. In December of the same year the woman teacher in charge of the younger children was found to be suffering from infectious pulmonary tuberculosis. Though she ceased to teach and the school was disinfected, tuberculin testing of the children in the spring of 1936 showed that all the younger children had become positive reactors, whereas there was no change in this respect in the older class. Radiological changes were demonstrable in all the younger children, the rate of sedimentation was accelerated in most cases, several had been ailing in the winter, but the symptoms were for the most part slight or limited to catarrhal phenomena. The investigation was now extended to the families of all the school children who were positive reactors, and as many as fifteen children were given sanatorium treatment as a prophylactic measure. The lessons of this epidemic are, in the author's opinion, that school teachers should be medically examined before they are appointed and at any time when they are ailing, and that successive tuberculin surveys of school children should be carried out systematically. For if the State compels parents to send their children to school, the parents are entitled to expect the State to take the necessary medical precautions.

Surgery

5

Pyogenic Pelvic Osteomyelitis

J. KULOWSKI (*Arch. Surg.*, Chicago, September, 1937, p. 571) points out that, although pyogenic osteomyelitis of the pelvis is a relatively common disease, the primary lesion is often overlooked or subordinated to the predominant simulative signs and symptoms or to the more extensive secondary parosteal purulent infiltrations. In a series of 1,496 cases of pyogenic osteomyelitis there were ninety, or 6 per cent., in which the focus of infection was in the pelvis. The ratio of males to females in the group was approximately 2 to 1. Pelvic osteomyelitis is primarily a disease of the growing period, and in the series about 60 per cent. of cases occurred in the second decade. Boils were the most common localized infection of the skin. Antecedent trauma was recorded in thirty-five instances, and in most of these the onset of symptoms

milk and seasoned with cinnamon, sugar, etc., which was popular as an English dish in former times. The name is derived from *frumentum*, Latin for corn. Dr. Lionel Picton or Dr. Oldfield will no doubt be able and willing to give details of how to prepare frumenty. We have had inquiries from several readers.

Painful Tongue

Dr. R. D. MOYLE (Eastbourne) writes in reply to "Worried" (*Journal*, December 18, p. 1259): In the past month I have seen two patients (females) who complained of this "burning pins and needles" affecting the tongue. In one case nothing abnormal was seen, while in the other there was a mild erythema over the anterior part of the tongue. Microscopical examination of a scraping in this second case showed a monilia-like fungus, but this is not uncommon in the mouth. A pigment containing liq. arsenicalis, tinct. ipecacuanha, and glycerine, one drachm of each to an ounce of aqua menth. pip., well rubbed in with cotton-wool on a match-stick three times daily, has been successful in clearing up the complaint.

Incapacitating Diarrhoea

Dr. VICTORIA H. KING (Birmingham) writes in reply to "Emdee" (*Journal*, December 11, p. 1206): The morning diarrhoea suggests to me pancreatic deficiency. If so, it would be relieved by enteric-coated pancreatin tablets. I have found Parke, Davis's efficacious in a similar case.

Dr. W. M. M. JACKSON (Folkestone) also writes: I would suggest to "Emdee" that he should stop smoking and take twice daily in a little water 30 minims of mist. bismuth. & pepsin. If this is ineffective an analysis of the faeces might be of value.

Income Tax

Sale of Book Debts

"PERPLEXED" bought a practice as from January 1, 1936, and sold it as from December 31, 1936. The cash receipts were £2,000 and the outstanding debts, amounting to £1,000, were sold for £600. What should be regarded as the amount of the gross receipts of the practice for 1936?

The answer is £3,000 less such an amount as can be deducted from the £1,000 book debts for anticipated losses by bad and doubtful debts. Clearly there would be some loss, but the allowance is not necessarily as much as £400—the difference between the gross amount and the sum received on the lump sum sale. That form of realization has special features—for example, anticipation in point of time and saving of cost of collection—for which no allowance can be claimed. The correct basis of calculation would be to draw up a schedule of the debts at December 31, 1936, and value each one on the question of recoverability; the aggregate of the differences would be the amount by which the £3,000 can be reduced to represent the gross receipts.

LETTERS, NOTES, ETC.

Subcutaneous Emphysema during Labour

Mr. VAUGHAN PENDRED, F.R.C.S. (Tilford, Surrey), writes: In connexion with the case reported by Dr. F. H. Nussbaum in the *Journal* of December 11 (p. 1169), I should like to record that of a relative of mine, aged 25. For the last three months of gestation she had been severely dieted for albuminuria. The baby, her first, was born normally, and the doctor in attendance called me up to report hours later the patient's husband called me up to report that there was a swelling of his wife's left face and neck. On my suggestion he palpated it and found that the area "crackled" when he pressed it. A consultant was called, who found that the emphysema affected the left arm and a considerable part of the left side of the body. In a few days the air had been absorbed, the albuminuria disappeared, and the patient returned to her usual excellent health; two years later a second healthy son was born. Some years before the first pregnancy a mass of tuberculous glands was dissected from the right side of her neck. We thought that a small tuberculous infiltration had occurred in the left lung, sealing the overlying pleura, and had ruptured into the subcutaneous tissues during the straining of delivery.

Dr. P. PHILLIPS (Bristol), in connexion with Dr. Nussbaum's memorandum, writes: This unusual happening is certainly one of the rarer accidents of labour, for in over 3,000 maternity cases delivered in the Southmead Hospital under my supervision, between 1923 and 1932, it was not observed in a single case. However, from 1932 to 1936 five such cases have been recorded out of 3,650 deliveries. All the patients were young primiparae, aged 18, 18, 19, 21, and 21 years, and delivery was normal. Their efforts during the second stage of labour might be described as unusually vigorous, and in each case restlessness was noted. In four of the patients emphysema did not develop until after the completion of labour, while the fifth complained of a sudden pain in the right side of the chest and face about forty minutes before the actual delivery. This was followed by rapid swelling of the right side of the face and neck, the right eyelid becoming swollen first; delivery was taking place in the left lateral position. About twelve hours later the emphysema had extended down the neck and chest to the level of the breasts, but still remained more marked on the right side. All five made uninterrupted recoveries, though the pulse rate usually remained rapid at about 90 to 100 for some seven days. I have photographs of one case and a short cinematographic record of the day-to-day recovery in another. With regard to the aetiology of this condition, all my cases were examined for carious teeth or possible abnormal communications between the mouth and nasal sinuses; none was found. In no case was there a history of chest trouble or tuberculosis; x-ray examinations of the chest were made within twenty-four hours of the onset of the emphysema, but no evidence of pneumothorax was found. Consequently it seems unlikely that the condition resulted from rupture of air vesicles in the lung, unless at some point very near to its root. In the straining of labour it would appear that the glottis must be closed during the act of bearing down. Consequently one would imagine that the escape of air most probably takes place at some point between the root of the lung and the glottis, whence it tracks up through the mediastinum and usually appears first on the face. In my opinion a tenable theory is that in a few rare cases there is some anatomical weakness or deficiency in the structure of the trachea or bronchi. Straining produces a slit-like rupture in the wall which, acting as a valve, allows the intermittent escape of small quantities of air into the mediastinum. This would also account for the cases in which emphysema does not appear until labour is complete. Obviously such a theory is difficult of proof, but with continuous observation and interest a satisfactory explanation may be found. The first case I witnessed caused me considerable alarm, but it is some consolation to know that the prognosis is invariably good and the swelling disappears in a few days without treatment.

Herpes and Varicella

Dr. I. H. LLOYD-WILLIAMS (Southport) writes: The relationship between herpes zoster and varicella is one that is ventilated in the *Journal* from time to time but apparently without any definite conclusions being arrived at, except that they are both virus diseases. The following notes of cases are forwarded as a further small contribution to the problem. I have had lately under my care a man of 65 who on November 10 developed herpes zoster of the second and third left sacral nerves, the eruption affecting the back of the thigh and side of the scrotum and penis. On November 25 his grandson, who lives in the same house, developed a typical varicella. These dates agree with the incubation period of chicken-pox. I met, about ten years ago, a somewhat similar coincidence, where the child had varicella and the mother, who had nursed her, developed herpes. These cases, and similar ones which have been noted in the *Journal* before, suggest that the disease which is developed by the transmitted virus depends on the soil as to whether the infection becomes general or local. It is unusual for a second attack to occur or for the same patient to have both diseases. In view of the latter it is perhaps worth recording that as a child I had chicken-pox, and about ten years later at school I had herpes zoster. Accepting the theory that it is the same virus causing both diseases, one wonders whether in my own case the immunity developed from the first attack was not quite complete and that with a second infection (source unknown) only a local manifestation was produced. An alternative theory occurs to me is that there may be different strains of the same virus causing the two diseases.

larly, the month of pregnancy of the donor being the same as that of the actual mother), but 10 to 50 mouse units per kilogramme of body weight of follicular hormone may be used. Thyroxine is called for not only in the cretin, but also in the child with partial thyroid insufficiency, shown by some or all of the following symptoms: slight retardation of mental and physical growth; oedematous, dry skin; swollen tongue; broad nasal summit; and severe constipation. Cryptorchism, usually combined with infantilism, eunuchoidism, or dystrophia adiposogenitalis, should always be treated primarily by anterior pituitary hormones, those derived from whole gland being preferable to those from pregnancy urine. Several months' oral administration is required. Other fields for hormone therapy in childhood are found (1) in vulvo-vaginitis, in which folliculin medication induces cornification and thickening of the vaginal epithelium, and (2) in toxic diphtheria, in which adrenal cortical hormone, given together with vitamin C, is said to have saved desperate cases. The swelling of the breasts; growth of pubic hair, and even menstruation which have followed sex hormone treatment in children have regressed after its suspension, and injurious effects have not been reported.

10

Gonorrhoeal Arthritis

E. WANDERER (*Wien. klin. Wschr.*, September 17, 1937, p. 1300) divides gonorrhoeal arthritis into four types: (1) with serous inflammation of the joint; (2) with serofibrinous inflammation; (3) with purulent inflammation; and (4) gonorrhoeal articular cellulitis. The inflammation may be either monarticular or polyarticular. Of fifty-four cases of gonorrhoeal arthritis forty-one were males (76 per cent.), twelve females (22 per cent.), and one a child (2 per cent.). In 43 per cent. of cases the inflammation was monarticular and in 57 per cent. polyarticular. The knee-joint was involved in thirty-three cases, the ankle in nineteen cases, the wrist in twelve cases, the toes and fingers in twelve cases, the shoulder-joint in eight cases, and the sterno-clavicular joint in one case. The articular inflammation occurred usually at the end of the third week. The author advocates non-specific local therapy in the form of compresses, Bier's hyperaemia, hot-air baths, etc., specific therapy such as injections of trypaflavine or vaccines, and specific local treatment.

Ophthalmology

11

Operation for Adherent Leucoma

A. BUSACCA (*Klin. Mbl. Augenheilk.*, October, 1937, p. 472) describes the first stages of an operation for adherent leucoma in which post-corneal adhesions make keratoplasty impossible. In the first stage a very thin ivory shell corresponding to the surface of a lens of 40 D was implanted through a limbic external incision after freeing of the irido-corneal angle. After five weeks the eye condition settled down, and the periphery of the shell was visible by the slit-lamp three weeks later. In the second operation, five months after the first, the cornea from an enucleated eye was transplanted: it regained its transparency in eight weeks. In a third stage Busacca proposes to remove the ivory, together with the cicatricial tissue and the lens.

12

Allergic Oedema

L. WEEKERS (*Arch. Ophthalm.*, Paris, September, 1937, p. 769) describes a paroxysmal type of allergic oedema affecting the globe and giving rise to oedema of the cornea with hypercholesterolaemia. It can be unilateral and associated with a similar affection of the iris and a

punctate keratitis; the aqueous and vitreous may contain fine opacities, and sometimes the tension may be raised. The attacks correspond with violent headaches not to be confounded with migraine. The intervals between attacks vary and, in the worst forms, loss of the eye results. The condition in most cases has a definite connexion with digestion and with angioneurotic oedema. Dieting, desensitization, protein therapy, histamine ionization, and the use of calcium, magnesium, sodium hyposulphate, and adrenaline are of great value. The syndrome is related to alterations in the sympathetic system and the permeability of the capillaries.

13

Problems in Refraction

A. DEH. PRANGEN (*Arch. Ophthalm.*, Chicago, September, 1937, p. 432) insists that refraction cannot be successfully practised without taking into consideration the inalienable relationships between the ophthalmic, general medical, and neurological aspects of the case. There are definite differences in the visual capability and reactions of the emmetropic, the myopic, the hypermetropic, and the astigmatic eye, nor can the same performance be expected from each one. The measurement and correction of aniseikonia is still in the experimental stage, and not yet a matter of general clinical application. The accommodation should be estimated and a watch kept for spasm of the ciliary muscle; cycloplegics are essential. The author gives rules to be observed in the treatment of muscular imbalance, in the correction of astigmatism, and in finding the spherical equivalent of an astigmatic correction. He describes fully the unequal prismatic effect which may be due to using an eccentric part of a lens for reading, and the difference in power caused by alteration in the distances of lenses from the cornea.

14

Tonometry

J. S. FRIEDENWALD (*Amer. J. Ophthalm.*, October, 1937, p. 985) points out the errors which may affect readings taken with a Schiötz tonometer. For the same intraocular pressure, the greater the rigidity of the globe the higher the reading. An empirical formula evolved to correct this variation, and calculations of the intraocular pressure with each weight, led to the formation of a nomogram from which the coefficient of rigidity of an eye can be calculated; by allowing for the indentation of the cornea caused by the foot-plate the true intraocular pressure may be computed. The coefficient of rigidity in a normal eye is inversely proportional to the volume and is affected by the refraction, the corneal curvature, age, inflammation, congestion, and the use of vasodilators and vasoconstrictors.

15

Divergent Strabismus

E. E. CASS (*Brit. J. Ophthalm.*, October, 1937, p. 538) adopts Duane's classification of convergence insufficiency and divergence excess with the addition of "consecutive divergence" for cases which, previously convergent, have had no operation. She records many cases with detailed notes on aetiological factors, refraction, and binocular vision. Except in myopes, glasses are of little use, hypermetropes and those with consecutive divergence being best left uncorrected. Occlusion should be as complete as possible where amblyopia is present, and orthoptic treatment is most successful in cases of divergence excess and consecutive divergence. After promoting diplopia and improving the fusion power, convergence is encouraged finally with the use of prisms. Cases with false correspondence have a bad prognosis. Training should be given before and after operation when this is indicated. The external rectus should be recessed and the internal advanced, but the results of operation are not as favourable as in convergent squint.

followed direct or indirect injury. Pelvic osteomyelitis may be a direct or a haematogenous infection; there were twenty-three cases of the former and sixty-seven of the latter type of infection. Staphylococci were recovered in the majority of instances. The most striking pathological feature is the relatively "dry" bony reaction, while extensive suppuration in the soft tissues is characteristic. Suppuration was observed in over 83 per cent. of cases. Radiography is essential for diagnosis and prognosis, particularly in the subacute and chronic stages of the disease. The entire pelvis and the lumbar portion of the spine must be examined, and lateral views of the iliac bones and hips are of value. The essential changes shown are osteoporosis, sequestration, and bone production. The injection of a sinus with a radiopaque substance is strongly urged as an aid to diagnosis. Treatment at the onset must be non-operative until localization in the soft tissue has taken place. Simple incision and drainage is then usually sufficient until more definite pathological skeletal changes are manifest. Wide excision of the affected bone is the ideal to be aimed at, but complications may render this difficult. Eighteen cases are described in which operation following the technique of Orr was carried out in nearly every instance.

6 Carcinoma of the Lung

P. LIVRAGA (*Arch. ital. Chir.*, 1937, 47, 1, 63) gives radiographs and clinical descriptions of twenty-two cases, from Sauerbruch's clinic, in which exploratory thoracotomy was done to establish the diagnosis between cancer of the lung on the one hand, and abscess, gangrene, bronchiectasis, tuberculous cavitation, interlobar empyema, infarction, syphilis, or hydatid cyst on the other. He notes that some two-thirds of the cases were of hilar growths, and that although early bronchial carcinomata are removable by the bronchoscopic route, they commonly first come to observation when mediastinal metastases have made them inoperable. In biopsy during a thoracotomy operation the tissue should be taken as far as possible from the parietes, for there it is usual to find signs of secondary atelectasis or pneumonic infiltration without evidence of the neoplasm which causes them. Abscess formation is a frequent complication of pulmonary neoplasm, and cancer may supervene in a tuberculous or bronchiectatic cavity. Tomography facilitates diagnosis. Detection of numerous soot granules in the pus from a pulmonary abscess is said to exclude a neoplastic source. Intercostal thoracotomy usually suffices for growths in the lower thorax, but near the apex costal resections are required; ether anaesthesia is essential for the intrathoracic part of the operation. For lobar or total pneumectomy the two- or three-stage operation is generally preferable; the one-stage operation with opening of the pleura is unsuitable for cases with secondary infection. Among palliative operations, which in Livraga's experience may be of great help, are: (1) wide costal resection, possibly combined with phrenic resection, for late pleural syndromes and for dyspnoea accompanying tracheal distortion or displacement; (2) antero-superior longitudinal mediastinotomy for the mediastinal syndrome of facial and brachial oedema and cyanosis, with which may be associated recurrent laryngeal and phrenic paralyses and signs of stimulation or paresis of the cervical sympathetic; (3) section of the posterior spinal roots; and (4) chordotomy. Gowers's tracts being divided within the spinal cord. Two antero-superior longitudinal mediastinotomies which took place in Stropeni's clinic are described.

7 Fracture of the Base of the Skull

A. FEHR and E. J. MEIR (*Beitr. klin. Chir.*, 1937, 166, 2, 177) review 417 cases of fracture of the base of the skull (gunshot injuries excluded) treated conservatively by at least three to four weeks' rest, ice applications, hexamine, lumbar puncture, and daily intravenous injections of 40 to 100 c.c.m. of 20 to 40 per cent. dextrose

solution, to which hexamine is sometimes added. Only thirty-two cases needed operation to relieve increasing intracranial tension; the mortality in these cases was 81 per cent., compared with 72 per cent. in 385 cases not operated on. It has been suggested that fractures of the base of the skull should be treated by otorhinologists, of the vault by general surgeons; but Fehr and Meir point out that in the large majority of cases (four-fifths according to Schönbauer and Brunner) both base and vault are broken. The review does not support the suggestion that the mortality would be diminished by early prophylactic operation on fractures of either anterior or middle fossa. Operation is called for, however, in the former case, when intracranial extension of a demonstrable infection of the accessory nasal cavities is to be feared. Meningitis more commonly follows anterior fossa fractures, but has recently been found less frequent than has been believed—for example, 4.8 per cent. in the present series. In fractures of the middle fossa it is important, although not always easy, to find out if the fracture is longitudinal, or transverse with opening of the labyrinth: the latter fracture, although much less common, carries a greater danger of meningitis. Clinically, the transverse fracture is associated with deafness, insensitiveness to heat, permanent facial palsy in half the cases, and absence of bleeding from the ear or rupture of the tympanum; the longitudinal fracture with aural discharge of blood and liquor, fracture of the bony canal, rupture of the drum, a moderate degree of middle-ear deafness, sensory chorda tympani changes, and sometimes a transitory facial paralysis. The discharge of cerebrospinal fluid in Fehr and Meir's experience is not a specially dangerous sign. In transverse temporal fractures operation must be considered, especially if a purulent middle-ear infection is present or if signs of incipient meningitis are noted; patients having these fractures are specially prone, owing to the fibrous nature of the union, to late meningitis, and should therefore remain under observation.

8 Pseudarthrosis of the Shoulder

M. M. KASAKOV (*Vestnik Chirurгии*, 1937, 52, 138, 200) reports thirteen cases of pseudarthrosis of the shoulder treated with bone grafts taken from the patient's tibia. The main technical points of the operation are: the resection of the false joint together with the cicatricial tissues; the firm fixation of the ends of the graft in the medullary canal of the humerus; and the thorough enveloping of the graft with muscular tissue. Following the operation the limb is fixed in an abduction splint for two and a half to three months. In severe cases of pseudarthrosis the author uses two bone grafts, one intramedullary, the other juxtadiaphysial. The additional support supplied by the second graft together with the lengthened period of fixation after the operation secures the necessary strength of the limb. In cases in which the radial nerve is either injured or compressed the author recommends freeing the nerve during the main operation and separating it from the bone graft by a layer of muscle.

Therapeutics

9 Hormone Therapy in Children's Diseases

H. MOMMSEN (*Fortschr. Ther.*, October, 1937, p. 575) points out that during foetal life the child is dependent on maternal hormones, its own not being produced until near term. During gestation the maternal organism shows overproduction of the follicular, luteal, and anterior pituitary hormones (chiefly of placental origin), and sexual hormones are present in the infant's urine at birth. Martin's recommendation in 1929 of administration of these hormones to premature infants has proved its value; they are given preferably in the form of the blood of a pregnant person (according to Hollosi 5 c.c.m. intramuscu-



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Obstetrics and Gynaecology

16 Follicular Hormone in Urinary Incontinence

HOFFMANN (*Zbl. Gynäk.*, October 30, 1937, p. 2545) has successfully used follicular hormone in the treatment of six cases of incontinence of urine in women about the menopause; some were patients with minor degrees of prolapse, but the incontinence was regarded as chiefly functional. From 20,000 to 50,000 units were given during the week, usually in two injections. Somewhat larger doses cured the diurnal and improved the nocturnal incontinence in a girl, aged 12, who had been unsuccessfully operated on for epispadias. The good results are attributed to an increase by folliculin of the neuro-hormonally regulated tonus of the bladder musculature—evidence of such an action is afforded in recent animal experiments by several workers. The treatment, it is concluded, is worthy of consideration in cases in which mechanical causes for incontinence, cystocele, etc., cannot be found.

17 Tuberculosis and Pregnancy

G. FALKENFLETH (*Ugeskr. Laeg.*, October 14, 1937, p. 1080) has studied the influence of pregnancy on pulmonary tuberculosis in women between the ages of 15 and 50 treated in a Danish tuberculosis hospital between 1923 and 1932. The disease was "open" in 237 cases in which pregnancy did not complicate the tuberculosis, and it was so also in the sixty-three cases in which the patients became pregnant. The mortality was 73 per cent. in the first group, 67 per cent. in the second. Though the figures are too small to justify any statistical conclusion as to the influence—good, bad, or indifferent—of pregnancy on pulmonary tuberculosis, and though in some isolated cases the pregnancy probably did aggravate the tuberculosis, the author is in principle disinclined to advocate the induction of abortion in the hope that it will improve the prognosis. He notes that the cases of pulmonary tuberculosis most likely to be aggravated by pregnancy are for the most part already hopeless. This being so, the arguments for saving the life of a viable infant are strengthened. The problem of combined pregnancy and pulmonary tuberculosis can, he believes, best be solved by giving the patient thorough treatment for her tuberculosis during and after her pregnancy. In his survey of the literature the author points out that Pankow has found pulmonary tuberculosis to run an unfavourable course in 74 per cent. of the women whose pregnancy was not interrupted, and that Scherer has found the same fate to overtake 74 per cent. of the women whose pregnancies were interrupted. These conflicting conclusions are all the more perplexing for the fact that Pankow and Scherer adopted the same clinical classification.

18 Menstruation and Gonorrhoea

V. PUGLISI (*Rinasc. med.*, October 15, 1937, p. 659) studied the effect of menstruation on gonorrhoea by searching for the gonococcus before, during, and after the menstrual period. (1) In twelve cases the examination, which was negative before menstruation, became positive at the onset of the period, and still more so after its termination. In only two cases were the results the same during and after menstruation. (2) In two cases the examination, which had been negative on the first day of the period and throughout its course, became positive after the period. (3) In four cases the examination, which was positive before menstruation, remained so during and after the period. (4) In two other cases the examination for the gonococcus was persistently negative. Puglisi's results therefore lend support to those who emphasize the importance of examination for the gonococcus in connexion with menstruation.

54 D

Pathology

Alcoholic Sleep

I. BOBNOV and N. ASTAPOV (*Arch. Sci. biol.*, 1937, 45, 2, 59) have studied the conditions affecting the action of alcohol on rabbits and dogs. The cerebrospinal fluid of the animals was withdrawn through a cisternal puncture, and twenty-five to thirty minutes later the rabbits were given 4 to 6 c.cm. of pure alcohol per kilogramme of body weight, and the dogs 6 to 8 c.cm. per kilogramme. The alcohol was given in a 30 per cent. solution through a stomach tube. The animals from which the cerebrospinal fluid had been withdrawn became very rapidly drunk, and went into a narcotic sleep lasting five to seven hours. In the control animals the drunkenness was not marked and complete narcosis was not observed. The authors assume that the removal of the cerebrospinal fluid lowers the pH in the region of the brain, and because of that the alcohol penetrates into the brain more easily. The authors have been able to prove this assumption experimentally. "Acidified" dogs became drunk very quickly, while "alkalized" dogs did not seem to be affected by the alcohol.

20 Complement-fixation Reaction in Tuberculous Monkeys

The frequency of tuberculosis in monkeys kept in laboratories and zoological gardens, and the unreliability of the tuberculin reaction in its diagnosis, lend considerable interest to the report by A. URBAIN and J. NOUVEL (*C.R. Soc. Biol.*, Paris, 1937, 126, 25, 165) on the diagnostic value of the complement-fixation reaction. Besredka's technique and antigen were used. Blood was drawn from the saphenous vein, and the serum was heated to 56° C. for thirty minutes in the usual way. Fifty-seven sera from monkeys of different species that were proved at necropsy to be free from tuberculosis gave completely negative results. On the other hand, 139 out of 140 sera from animals that were found at necropsy to be tuberculous yielded positive results. The single negative serum was from a monkey that was suffering from generalized tuberculosis and was on the point of death. It is concluded, therefore, that the complement-fixation reaction is of great value in the diagnosis of tuberculosis in monkeys.

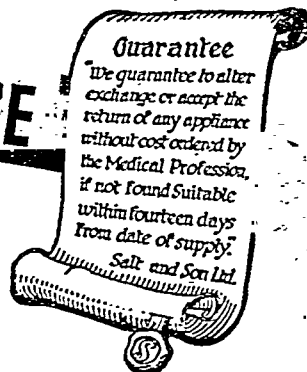
21 Intranuclear Inclusion Bodies

P. K. OLITSKY and C. G. HARFORD (*Amer. J. Path.*, September, 1937, p. 729) have demonstrated that intranuclear inclusion bodies similar to those found in virus diseases may be formed in guinea-pigs as the result of the subcutaneous injection of sterile suspensions of aluminium hydroxide, aluminium, ferric hydroxide, and carbon. Barium sulphate, silver chloride, paraffin, and agar did not evoke inclusion bodies. Generally a foreign-body nodule formed at the site of injection. The tissue response varied with the substance injected, but phagocytic mononuclears and giant cells preponderated in most cases, and their nuclei contained the inclusion bodies when these occurred. Characteristic differences were found between nuclei containing and not containing inclusions. The inclusions were acidophilic and multifocal, and could not be shown to contain nuclear material, "masked" iron, or the substance inducing them. From their general appearance and morphology they were not distinguishable from the inclusions found in virus-containing tissues. Careful search for a virus associated with the inclusions failed to reveal any; the presence of the inclusions must therefore be attributed to the injected foreign substance. Since inclusion bodies of similar appearance and properties may be induced by certain foreign substances as well as by viruses, it is unsafe to infer the presence of a virus from the occurrence of inclusion bodies alone, especially if such a substance as aluminium has been used in grinding tissues to be tested for the presence of virus.

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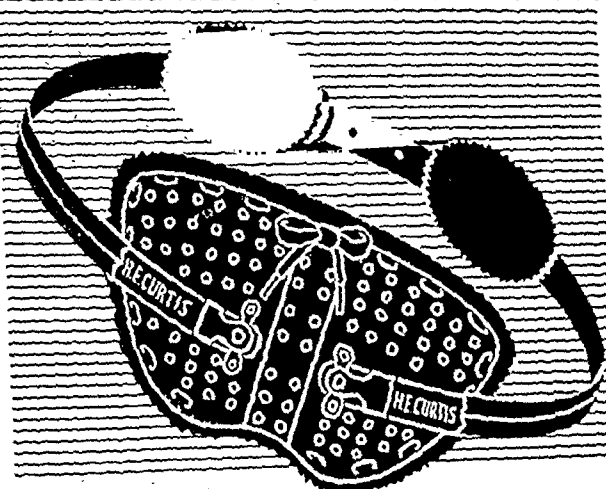
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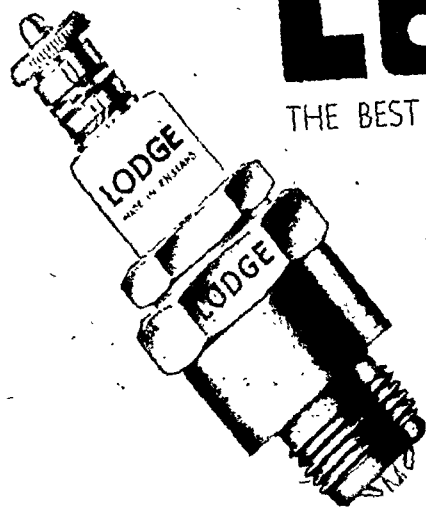
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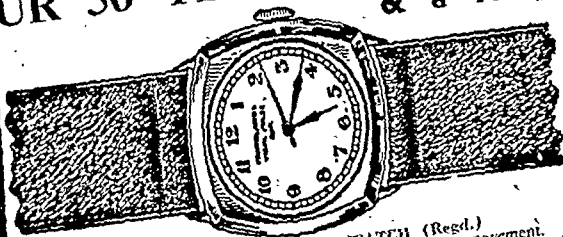
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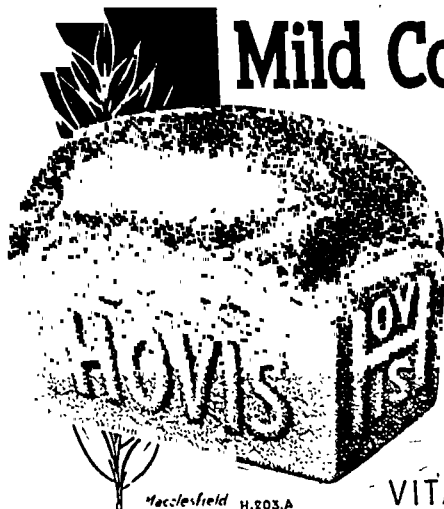
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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL

The seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate, a mile of sea coast forms the boundary. Patients may visit this Branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton) who can be seen in London by appointment.

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Large gardens and own dairy.

CLIFFDEN, TEIGNMOUTH, for early and convalescent cases. A well-appointed house, with spacious balconies, and extensive views of the South Devon coast. Sub-tropical gardens, own dairy in 25 acres. Private road to beach.

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Convalescent Home, KEARSNEY COURT, DOVER For further particulars apply to the Medical Sup.

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Tele.: Street, Ashton-in-Makerfield

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Terms include (with rare exceptions) all forms of treatment for which there are exceptional facilities, as there is a staff of Consultant Specialists, and the Central Laboratory of London County Mental Hospitals is attached to the hospital. Inquiries of EDWARD MANTON, M.D., F.R.C.P., F.R.C.S., Medical Superintendent.

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to—G. W. T. Telephone: ...

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FUNCTIONAL NERVOUS DISORDERS, MEDICAL AND CONVALESCENT CASES.

The Home is a Mansion of historical interest, standing in 15 acres of garden and grounds, and is situated 14 miles from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psychotherapeutic Treatment is used extensively in suitable cases. Radiant Heat, X-Ray and Ultra-Violet Light, Diathermy and Foam Baths, Billiards, Tennis, etc.

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(20 miles from London)

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For further particulars, apply to the Medical Superintendent, W. L. J. KIMBLE, F.R.C.P., D.P.M.

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GEORGE H. DAY,
M.D.(Cantab.).

For all information apply:
THE SANATORIUM, MUNDESLEY,
NORFOLK.

Telephone: Mundesley 94 and 95
(2 lines).

The buildings face S.S.W. and are sheltered from the sea by a pine-clad ridge. The sunshine record and dry air complete a perfect site. The medical equipment is of the latest kind, and there is a day and night nursing staff.

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This Institution is situated in a beautiful and healthy locality within easy reach of London. It is fitted with every comfort. Patients can have Private Bedrooms and Special Nurses, as well as the use of General Sitting Rooms, at moderate rates of payment. Voluntary Patients can be admitted.

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For Terms, apply to the Resident Medical Superintendent—

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CHEADLE, CHESHIRE

This REGISTERED HOSPITAL, with a SE-SIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISORDERS. The Hospital is governed by a Committee appointed by the Trustees of the Manchester Royal Infirmary. In addition to the Main Building there are separate villas, extensive grounds, Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational therapy. VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received. The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London. For terms and further particulars apply to the Medical Superintendent, who may be seen in MANCHESTER by APPOINTMENT. Telephone: GATLEY 2231 (3 lines).

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Including Alcoholism and other Addictions

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Postgraduate students who require information or advice as to courses of study and Postgraduate facilities in England should apply to the Dean. Information is also available regarding postgraduate facilities in America and on the Continent.

For the convenience of postgraduate students who are strangers to London and students who require advice as to postgraduate facilities and courses of study, a sub-office has been opened at:

The London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. (Mus. 0943)

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Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

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Apply FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.1. (Langham 4266.)

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

ROYAL NAVAL DENTAL SERVICE

Vacancies exist for DENTAL OFFICERS in the ROYAL NAVY, and applications for entry are invited from Registered Dental Surgeons. Candidates must be British subjects of pure European descent, below 28 years of age on the day of entry and physically fit for service in any part of the world. Unmarried candidates are preferred. Candidates will be required to attend at the Admiralty for physical examination and interview by a Selection Board. Copies of the regulations for entry and conditions of Service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of Dental Schools.

ROYAL AIR FORCE DENTAL BRANCH

TEMPORARY CIVILIAN APPOINTMENTS

Vacancies exist at certain Royal Air Force Stations for temporary appointments as whole-time civilian dental surgeons. Preference will be given to applicants under 30 years of age.

Further information may be obtained by applying to the Secretary, Air Ministry (D.M.S.), Admiralty House, Kingsway, W.C.2.

CITY OF MANCHESTER

Crumpall Hospital, (1,543 Beds.)

The Public Health Committee invites applications from registered medical men for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Sunlight House, Quay Street, Manchester, 3, and applications for the post must be received by him not later than January 12th, 1938.

F. E. WARBRECK HOWELL,

Town Hall, Manchester, 2, Town Clerk.

December 2nd, 1937

GOVERNMENT OF INDIA

1. Applications are invited from women candidates for the appointment of PROFESSOR OF MATERNITY AND CHILD WELFARE at the ALL-INDIA INSTITUTE OF HYGIENE AND PUBLIC HEALTH, Calcutta.

2. Candidates must possess a registrable medical qualification and must have experience of the executive and administrative aspects of Maternity and Child Welfare. Preference will be given to candidates possessing also experience in directing or conducting research and in lecturing to students.

3. Agreement for five years in the first instance pay according to age and qualifications in scale Rs. 450, rising by triennial increments of Rs. 50 to Rs. 550 a calendar month, plus Overseas Pay of Rs. 100 when salary is Rs. 600 or less, or Rs. 150 when salary is Rs. 650 or more, (Rupee = 1s. 6d. approximately). House allowance, Provident Fund first-class passage to India and return passage on satisfactory termination of service (overseas pay and return passage admissible only to appointee of non-Asiatic domicile).

4. Further particulars and forms of application may be obtained, on application by postcard, from the High Commissioner for India, General Department, India House, Aldwych, London, W.C.2. Last day for receipt of completed applications January 17th, 1938.

CITY AND COUNTY OF THE CITY OF CHESTER

DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY SCHOOL MEDICAL OFFICER.

Applications are invited for the above-mentioned appointment from duly registered medical practitioners of not more than 35 years of age.

The salary offered will commence at £500 per annum rising by annual increments of £25 to a maximum of £700 per annum.

Further particulars of the duties, terms and conditions of the appointment and application form can be obtained from the Medical Officer of Health, Town Hall, Chester, to whom applications (to be made on the form provided) accompanied by copies of three recent testimonials are to be delivered not later than Wednesday, January 12th, 1938.

The successful applicant will be required to pass a medical examination and to contribute 5 per cent of his salary to the Council's superannuation fund.

Conveying directly or indirectly will be a disqualification.

I. H. DICKSON,

Town Clerk

SURREY COUNTY COUNCIL

WARREN ROAD HOSPITAL, GUILDFORD

APPOINTMENT OF MEDICAL SUPERINTENDENT.

Applications are invited from registered medical practitioners for the appointment of Medical Superintendent at the Warren Road Hospital, Guildford (255 beds), which at present forms part of a Public Assistance Institution, but which will, subject to the Minister of Health's approval, be appropriated for Public Health purposes on April 1st, 1938. The Medical Superintendent will be required to commence duty as from the date of appointment.

The Medical Superintendent may also be required to act without additional remuneration as Medical Officer of the remainder of the Institution accommodating 153 persons, which will be retained for Public Assistance purposes.

Candidates should have had considerable experience in Hospital Administration, and should possess a higher qualification.

The salary will be at the rate of £500 per annum, rising, subject to satisfactory service, by annual increments of £50, to a maximum of £1,000 per annum.

The Medical Superintendent will in due course be provided with an unfurnished house (free of rates), valued at the rate of £100 per annum, in which he will be required to live when it is provided. Until such time the cash value of this emolument will be paid to the Medical Superintendent.

The appointment will be subject to the staffing regulations of the Council, and the officer appointed will be required to devote his whole time to the service of the Council, and any fees he may receive must be paid into the County Fund.

The officer appointed will be required to pass a medical examination, and the post will be a designated one for the purposes of the Local Government and Other Officers' Superannuation Acts.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be endorsed "Medical Superintendent" and sent to the County Medical Officer, County Hall, Kingston-upon-Thames, so as to reach him not later than 12 noon on January 8th, 1938.

Conveying will disqualify.
County Hall, DUDLEY AUKLAND,
Kingston-upon-Thames, Clerk of the Council,
December 16th, 1937.

THE HOSPITAL FOR SICK CHILDREN
GREAT ORMOND STREET, LONDON, W.C.1

MEDICAL SCHOOL FOR POST-GRADUATES

THE HOSPITAL CONTAINS 257 BEDS, with an average admission of over 7,000 in-patients per annum, whilst in the year 1907-8 about 15,000 new patients are seen each year.

THE MEDICAL SCHOOL is recognised by the Universities of Oxford, Cambridge, and London, and by the Conjoint Board of the three London Teaching Hospitals where students receive instruction in the diseases of children for such period as is required.

POST-GRADUATE INSTRUCTION, open to all qualified medical men and women, is given daily at both morning and afternoon sessions. Morning sessions 10 to 12 noon include Medical and Surgical Out-patient Clinics; Ear; Nose and Throat Clinic; and Ophthalmology. Afternoon sessions include Ward Visits and Surgical Operations; Eye Clinic once a week; and Post-graduate Clinics once a week; Morbid Anatomy Demonstration, Wednesday 11 to 12 noon. Instruction is also given in the Venereal Disease Department, and in the use of anaesthetics in dental and tonsillectomy operations.

There are three terms yearly, each of approximately 13 weeks, during which lectures (particulars of which are published in prospectus) are given on Thursday afternoons:—Clinical 2 to 3 p.m. and Clinical-pathological or Biochemical 3 to 4 p.m.

For One week, 11 guineas; two weeks, £3 3s.; one month, £5 5s.; two months, 7½ guineas; three months, or whole term, £10 10s. Clinical Clerkships in the wards are available for fourth and fifth year undergraduates. Special Clinical Assistantships for Post-Graduate Students for periods of three months and upwards can be arranged.

SPECIAL COURSES IN PRACTICAL PATHOLOGY, consisting of six demonstrations, are also given at the Hospital. These are designed to show the methods as can be usefully carried out away from a laboratory and are of general application. Fee for each course, £5 10.

COPIES OF THIS may be obtained from the Secretary at the Hospital.

RECEIVED
JUL 1 1960

W. G. WYLLIE, Dean.

EXAMINING BOARD IN ENGLAND

BY THE
ROYAL COLLEGE OF PHYSICIANS
OF LONDON
AND THE
ROYAL COLLEGE OF SURGEONS
OF ENGLAND

It is noted that the following
 information is pertinent to the case
 of the above named individual and
 is being furnished for your information.

But the following list.

On January 20, 1942, the National Student Reliance Fund presented themselves for the purpose of raising money in support of the National Student Reliance Fund, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487, 489, 491, 493, 495, 497, 499, 501, 503, 505, 507, 509, 511, 513, 515, 517, 519, 521, 523, 525, 527, 529, 531, 533, 535, 537, 539, 541, 543, 545, 547, 549, 551, 553, 555, 557, 559, 561, 563, 565, 567, 569, 571, 573, 575, 577, 579, 581, 583, 585, 587, 589, 591, 593, 595, 597, 599, 601, 603, 605, 607, 609, 611, 613, 615, 617, 619, 621, 623, 625, 627, 629, 631, 633, 635, 637, 639, 641, 643, 645, 647, 649, 651, 653, 655, 657, 659, 661, 663, 665, 667, 669, 671, 673, 675, 677, 679, 681, 683, 685, 687, 689, 691, 693, 695, 697, 699, 701, 703, 705, 707, 709, 711, 713, 715, 717, 719, 721, 723, 725, 727, 729, 731, 733, 735, 737, 739, 741, 743, 745, 747, 749, 751, 753, 755, 757, 759, 761, 763, 765, 767, 769, 771, 773, 775, 777, 779, 781, 783, 785, 787, 789, 791, 793, 795, 797, 799, 801, 803, 805, 807, 809, 811, 813, 815, 817, 819, 821, 823, 825, 827, 829, 831, 833, 835, 837, 839, 841, 843, 845, 847, 849, 851, 853, 855, 857, 859, 861, 863, 865, 867, 869, 871, 873, 875, 877, 879, 881, 883, 885, 887, 889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959, 961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1007, 1009, 1011, 1013, 1015, 1017, 1019, 1021, 1023, 1025, 1027, 1029, 1031, 1033, 1035, 1037, 1039, 1041, 1043, 1045, 1047, 1049, 1051, 1053, 1055, 1057, 1059, 1061, 1063, 1065, 1067, 1069, 1071, 1073, 1075, 1077, 1079, 1081, 1083, 1085, 1087, 1089, 1091, 1093, 1095, 1097, 1099, 1101, 1103, 1105, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1131, 1133, 1135, 1137, 1139, 1141, 1143, 1145, 1147, 1149, 1151, 1153, 1155, 1157, 1159, 1161, 1163, 1165, 1167, 1169, 1171, 1173, 1175, 1177, 1179, 1181, 1183, 1185, 1187, 1189, 1191, 1193, 1195, 1197, 1199, 1201, 1203, 1205, 1207, 1209, 1211, 1213, 1215, 1217, 1219, 1221, 1223, 1225, 1227, 1229, 1231, 1233, 1235, 1237, 1239, 1241, 1243, 1245, 1247, 1249, 1251, 1253, 1255, 1257, 1259, 1261, 1263, 1265, 1267, 1269, 1271, 1273, 1275, 1277, 1279, 1281, 1283, 1285, 1287, 1289, 1291, 1293, 1295, 1297, 1299, 1301, 1303, 1305, 1307, 1309, 1311, 1313, 1315, 1317, 1319, 1321, 1323, 1325, 1327, 1329, 1331, 1333, 1335, 1337, 1339, 1341, 1343, 1345, 1347, 1349, 1351, 1353, 1355, 1357, 1359, 1361, 1363, 1365, 1367, 1369, 1371, 1373, 1375, 1377, 1379, 1381, 1383, 1385, 1387, 1389, 1391, 1393, 1395, 1397, 1399, 1401, 1403, 1405, 1407, 1409, 1411, 1413, 1415, 1417, 1419, 1421, 1423, 1425, 1427, 1429, 1431, 1433, 1435, 1437, 1439, 1441, 1443, 1445, 1447, 1449, 1451, 1453, 1455, 1457, 1459, 1461, 1463, 1465, 1467, 1469, 1471, 1473, 1475, 1477, 1479, 1481, 1483, 1485, 1487, 1489, 1491, 1493, 1495, 1497, 1499, 1501, 1503, 1505, 1507, 1509, 1511, 1513, 1515, 1517, 1519, 1521, 1523, 1525, 1527, 1529, 1531, 1533, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1551, 1553, 1555, 1557, 1559, 1561, 1563, 1565, 1567, 1569, 1571, 1573, 1575, 1577, 1579, 1581, 1583, 1585, 1587, 1589, 1591, 1593, 1595, 1597, 1599, 1601, 1603, 1605, 1607, 1609, 16

DECLASSIFIED BY: 6880, Secret/20

ROYAL COLLEGE OF SURGEONS
OF ENGLAND

THESE IN DENTAL SURGERY.

Notice is hereby given that the First Examination will commence on Wednesday, January 26th.

Candidates who have fulfilled the necessary conditions, and who desire to present themselves for Examination, must give notice in writing to the Director of Examinations, Examination Hall, 8-11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination, transmitting at the same time such certificates as may be required by the Regulations of the Board.

HORACE H. REW, Director of Examinations.

UNIVERSITY OF LONDON.

The Senate invite applications for the UNIVERSITY READERSHIP in MEDICAL PARASITOLOGY, tenable at the London School of Hygiene and Tropical Medicine. It is desirable that candidates should be competent in medical protozoology and should have had experience overseas. Salary £900 a year. Applications (12 copies) must be received not later than first post on February 18th, 1948, by the Academic Registrar, University of London, W.C.1, from whom further particulars should be obtained.

EXAMINING BOARD IN ENGLAND

BY THE
ROYAL COLLEGE OF PHYSICIANS
OF LONDON
AND THE
ROYAL COLLEGE OF SURGEONS
OF ENGLAND

Notice is hereby given that the following examination will commence on the date stated below:

DIPLOMA IN MEDICAL RADIOLOGY.
Friday, January 21st, 1938.

Candidates who have fulfilled the necessary conditions and who desire to present themselves for Examination, must give notice in writing, to the Secretary, Examination Hall, 8-11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination, transmitting at the same time such certificates as may be required by the Regulations of the Board.

HORACE H. REW, Secretary.

ROYAL COLLEGE OF SURGEONS
IN ENGLAND

DIPLOMA OF FELLOW

Notice is hereby given that the next FINAL EXAMINATION for the DIPLOMA OF FELLOW will commence on THURSDAY, FEBRUARY 3rd.

Candidates who have fulfilled the necessary conditions, and who desire to present themselves for examination, must give notice in writing to the Director of Examinations, Examination Hall, 8-11, Queen Square, London, W.C.1, at least twenty-one days before the date of the examination, transmitting at the same time such certificates as may be required by the Regulations of the Board.

HORACE H. REW, Director of Examinations.

HORACE H. REW, Director of Examinations.

UNIVERSITY OF LONDON.

The Senate invite applications for the UNIVERSITY CHAIR OF SURGERY, tenable at University College Hospital Medical School. Salary £2,000 a year. Applications (12 copies) must be received not later than first post on January 20th, 1938, by the Academic Registrar, University of London, W.C.1, from whom further particulars should be obtained.

LONDON HOSPITAL MEDICAL
COLLEGE
F.R.C.S.

A COURSE in OPERATIVE SURGERY for the Final Fellowship Examination in February next will begin on Monday, January 17th, 1938. The fee for the course will be Ten Guineas.

Further particulars may be obtained from Dr. A. E. CLARK-KENNEDY, M.D., F.R.C.P., Dean, London Hospital Medical College, Turner Street, E.1.

THE INCORPORATED LIVERPOOL SCHOOL
OF TROPICAL MEDICINE
(University of Liverpool).

Applications are invited for the post of ASSISTANT LECTURER and DEMONSTRATOR in the Department of Entomology at the above School.

Candidates should be graduates of a British or Colonial University, and must hold a medical qualification or a good degree in zoology.

Applications should be made not later than January 31st, 1938, to the Secretary, School of Tropical Medicine, Pembroke Place, Liverpool, 3, from whom further particulars may be obtained.

THE UNIVERSITY OF LIVERPOOL.
GEORGE HOLT CHAIR OF PATHOLOGY.

The Council of the University will proceed in February, 1938, to make an appointment to the CHAIR OF PATHOLOGY.

The emoluments of the post are £1,200 per annum. Those who desire that their names should be considered are invited to make application (before February 12th) to the undersigned, who will, on request, furnish full particulars regarding the terms and conditions of the appointment.

December, 1937. **STANLEY DUMBELL,**
Registrar.

EXPERIENCED COACHING IN PHYSIOLOGY, Pathology, and Medicine, by M.D. Lond. (Hons.), M.R.C.P. Lond., B.Sc., Physiology, Lond. All exams. Classes held—Address, No. 7902, B.M.A. House, Tavistock Square, W.C.1.

MANCHESTER ROYAL INFIRMARY.

HOUSE PHYSICIANS (4 Vacancies).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments, which become vacant as follows: one on February 15th, and two on March 15th, 1938. Applications will be considered to be for any of these posts unless it is specially stated to the contrary. Applicants must be registered and hold a medical and surgical qualification.

The appointments are for six months, subject to the provisions of the By-laws as to notice, etc. Salary at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,
December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEON (Neuro-Surgical Department) HOUSE SURGEON (Orthopaedic Department).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments, which become vacant on February 15th, 1937. Applicants must be registered and hold a medical and surgical qualification.

The appointments are for six months, subject to the provisions of the By-laws as to notice, etc. Salaries at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,
December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEON (Aural, Gynaecological and Ophthalmic Departments).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, vacant on February 15th, 1938. Applicants must hold a medical and surgical qualification and be registered.

The appointment is for six months, subject to the By-laws as to notice, etc. Salary at the rate of £50 per annum; with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,
December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEONS (4 Vacancies).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments, vacant on February 15th, 1938. Applicants must hold a medical and surgical qualification and be registered.

The appointments are for nine months, subject to the provisions of the By-laws as to notice, etc. Salary at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,
December 21st, 1937. Gen. Supt. and Secretary.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.

(Beds 272. Six R.M.O.s.)

CASUALTY HOUSE SURGEON (Male) required February 1st next. Salary £120 p.a., with board, residence and laundry.

Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts.

They must be unmarried, and, when elected, under thirty years of age.

Applications, with copies of recent testimonials, to be forwarded to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

ROYAL EYE & EAR HOSPITAL, BRADFORD

(94 Beds.)

HOUSE SURGEON (lady) required. Salary £140, with board, residence and laundry.

Applications, stating age, qualifications, age, etc., with copies of recent testimonials, should be sent to the undersigned on or before January 12th.

F. BRIGGS,
Secretary-Superintendent.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the following Resident Medical Appointments for the six months commencing March 1st, 1938.

3 **HOUSE PHYSICIANS** (one of whom also acts as House Physician to the Cancer Dept.).
4 **HOUSE SURGEONS** and 1 **ASSISTANT HOUSE SURGEON**.

1 **HOUSE SURGEON** to the Casualty Department.
1 **HOUSE SURGEON** to the Fracture Department.

1 **HOUSE SURGEON** to the Ear, Nose and Throat Department.

1 **SENIOR OBSTETRIC HOUSE SURGEON**.
1 **JUNIOR OBSTETRIC HOUSE SURGEON**.
Salaries at the rate of £50 per annum, except in the case of the Senior Obstetric House Surgeon, who will receive a salary at the rate of £100 per annum, and the Senior Casualty House Surgeon, who will receive a salary at the rate of £150 per annum.

Candidates, who must be duly qualified, to send in their applications on forms to be obtained from the undersigned, which must be returned on or before January 15th, 1938, together with copies of not more than three recent testimonials.

The elected candidates must become members of the Medical Defence Union before taking up their appointments.

ELLIS C. SMITH, F.C.S.,
Secretary and House Governor.

PRINCE OF WALES'S HOSPITAL,

Greenbank Road, Plymouth
(Formerly South Devon and East Cornwall Hospital). (264 Beds.)

Applications are invited for the post of **HOUSE SURGEON**. Salary £120 per annum, with board, residence and laundry.

Appointment is tenable for six months and is subject to renewal. Duties to commence January 26th. The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by January 14th.

ARTHUR R. CASH,

Gen. Supt. and Secretary
Prince of Wales's Hospital,
Greenbank Road, Plymouth.

PRINCE OF WALES'S HOSPITAL,

Devonport
(Formerly the Royal Albert Hospital, Devonport). (64 Beds.)

Applications are invited for the post of **JUNIOR HOUSE SURGEON**. Salary £120 per annum, with board, residence and laundry.

Duties to commence January 29th, 1938. Appointment is tenable for six months and is subject to renewal, or promotion to the senior position when this post becomes vacant. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than January 14th.

ARTHUR R. CASH,

Gen. Supt. and Secretary
Prince of Wales's Hospital,
Greenbank Road, Plymouth.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY.

Applications are invited for the post of non-resident **ASSISTANT MEDICAL OFFICER** at the Out-patient Department, Garside Street, Manchester. Salary at the rate of £150 per annum, and the appointment is for a period of six months as from January 15th, 1938. Candidates must be on the Medical Register.

Particulars of duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number about 100,000 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned immediately.

Canvassing, directly or indirectly, may disqualify. By Order,
H. HEARDMAN,
Secretary.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS, St. Albans, Herts.

ASSISTANT MEDICAL DIRECTOR to the Clinic required, £500 p.a. (non-pensionable). Four afternoon sessions weekly. Experience in adult psychotherapy and child guidance essential.

Applications, with particulars of experience and testimonials, to Medical Director.

COUNTY MENTAL HOSPITAL,

Armagh, N.I.

ASSISTANT MEDICAL OFFICER.

The Committee of Management of above Mental Hospital, at its meeting on January 10th, 1938, will consider applications for vacant post of Assistant Medical Officer. Commencing salary £350 per annum, rising by £25 annually to £450 per annum, and on obtaining the Diploma in Psychological Medicine, a further £50 will be granted.

The post will also carry allowances of £50 cash in lieu of rations, also furnished apartments, fuel, light and attendance, fruit and vegetables for one person, all valued at £50 per annum.

The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909.

Candidates must be fully qualified and registered, and not over 32 years of age, and the appointment will be made in the first instance for a probationary period of six months.

Applications stating qualifications, with copies of recent testimonials, to be furnished on or before Friday, January 7th, 1938, to the undersigned.

RESIDENT MEDICAL SUPERINTENDENT.

MATER MISERICORDIAE HOSPITAL,

DUBLIN.

SURGICAL ASSISTANT.

Applications are invited for the post of Surgical Assistant from January 17th, 1938. Honorarium 150 guineas per annum. The appointment is for twelve months, renewable for a further twelve months on the recommendation of the Medical Board. Applications, stating qualifications and academic distinctions, must reach the Secretary of the Medical Board on or before January 8th, 1938. Each candidate is required to forward at the same time three copies of his application, and also three copies of not more than three recent testimonials. Canvassing, either direct or indirect, will render a candidate liable to disqualification. The Medical Board will arrange, in order of merit, the names of the candidates whom they deem suitable and whose appointment they would advise and will submit the list to the Authorities of the Hospital, with whom the final act of appointment rests.

Candidates who require further information are requested to communicate with the Secretary of the Medical Board.

WINSLEY SANATORIUM,

near BATH.

The Governors invite applications for the appointment of a whole-time **ASSISTANT RESIDENT MEDICAL OFFICER (Male)**. Salary £250, with apartments, board, laundry, etc.

The appointment will be made for a period of six months (subject, however, to termination during such period by one calendar month's notice on either side).

Forms of application can be obtained from the undersigned, to whom all applications should be addressed, accompanied by not more than three recent testimonials, not later than first post January 14th, 1938.

T. A. W. CARLISLE,

Winsley Sanatorium,
near Bath. December 22nd, 1937. Secretary.

ST. BARTHOLOMEW'S HOSPITAL,

ROCHESTER. (126 Beds.)

FOUR RESIDENTS.

The House and Finance Committee invite applications for the post of **CASUALTY OFFICER**, which will become vacant on February 1st, 1938.

Candidates must be unmarried, qualified and registered medical men. The appointment is for six months. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, qualifications, experience, etc., accompanied by copies of two testimonials, or one from the Dean of the candidate's Medical School, should be received by the Superintendent-Secretary not later than January 15th, 1938.

Canvassing the Honorary Staff will disqualify.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence early in February. There are 15 beds for in-patients and a large Out-patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials to reach the Secretary not later than first post January 14th.

EUSTACE LEES,
December 30th, 1937. Secretary.

COUNTY BOROUGH OF WEST BROMWICH.

HALLAM HOSPITAL (472 beds).

HOUSE PHYSICIAN.

Applications are invited from duly qualified Male Registered Practitioners for the above-mentioned post.

The appointment is for six months, with eligibility for a further six months. Either party may give or work notice terminating the appointment. There is a waiting staff of eight physicians and surgeons, one resident surgical officer and three resident medical officers.

The person appointed will be required to act under the general direction of the Medical Officer of Health and the Medical Clinical Superintendent. Salary £250 per annum, and board residence. All fees received by the person appointed will be payable into the funds of the Council.

Applications, stating age, experience and qualifications, together with copies of three recent testimonials, must be forwarded to the Medical Officer of Health, 2, Foster Road, West Bromwich, so as to arrive not later than by first post on Thursday, January 14th, 1938.

Town Hall, ALFRED WICKHAM, Town Clerk.
West Bromwich, December 24th, 1937.

BOROUGH OF MORCUMBE AND HUYSAM**APPOINTMENT OF MEDICAL OFFICER OF HEALTH, etc.**

Applications are invited from duly qualified and registered medical practitioners who have a Diploma in Sanitary Science, Public Health, or State Medicine, not expired, and 46 years of age, for the appointment of Medical Officer of Health, School Medical Officer, and Medical Officer to the Port Health Authority. Salary £600, rising (subject to satisfactory service) to £650, with increments of £50 to £650 per annum. There is a per allowance of £50 per annum.

Forms of application and particulars and conditions of appointment will be supplied on application to the undersigned.

The closing date is January 10th, 1938.

Canvassing will be deemed a disqualification.
Town Hall, MORCUMBE AND HUYSAM, Town Clerk.
December 14th, 1937.

CITY OF MANCHESTER.

BOOTH HALL HOSPITAL FOR CHILDREN, (270 Beds.)

The Public Health Committee invites applications from registered medical women for the post of **RESIDENT ASSISTANT MEDICAL OFFICER** at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Sunlight House, Quay Street, Manchester, 3, and applications for the post must be received by him not later than January 8th, 1938.

Town Hall, F. E. WARBRECK HOWELL, Town Clerk.
Manchester, 2, December 1st, 1937.

COUNTY COUNCIL OF SUTHERLAND.

PARISH OF DURNNESS.

Applications are invited from registered medical practitioners for the appointment of **LOCAL MEDICAL OFFICER** of the Parish of Durness, in the County of Sutherland.

Salary from the County Council in respect of services, income from other sources, Highlands and Islands Medical Service Fund, and the panel practice approximately £540 per annum, with free house and private practice in addition.

Applications, with statement of qualifications and experience, accompanied by twenty copies of three recent testimonials and of the application, to be lodged with the undersigned on or before January 20th, 1938.

County Clerk's Office, ARCHD. ARGO, County Clerk.
Golspie, December 24th, 1937.

S. SMEDLEY'S HYDROPATHIC ESTABLISHMENT, MATLOCK.

HOUSE PHYSICIAN, male, unmarried, and fully qualified, required. Salary to commence at £300 per annum, with residence, board, and laundry. Appointment with view to permanency with good prospects. Previous experience in resident Hospital appointment necessary. Duties include attendance at local Hydropathic Hospital. Applications, stating age, qualifications, experience, age, and nationality, to be sent to Dr. Harbinson, Smedley's Hydro, Matlock.

CITY OF LEEDS.

KILLINGBECK SANATORIUM.

SENIOR ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited from registered medical practitioners (male) for the post of Senior Assistant Resident Medical Officer at the Tuberculosis Sanatorium, Killingbeck (242 beds).

Applicants must be unmarried, and preference will be given to those who have held a general hospital appointment and had experience in the treatment of pulmonary and surgical tuberculosis in sanatoria. Under the present salaries scale of the Council, the commencing salary for the post is £425 per annum and the maximum salary £500 per annum, with board, residence and laundry, these emoluments being valued for superannuation purposes at £120 per annum, together with annual increments of £25 subject to satisfactory service. The first increment will take effect on April 1st following the completion of twelve months' service.

The person appointed will be required to pass a medical examination and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Tuberculosis Officer," must be received at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on Saturday, January 15th, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.
J. JOHNSTONE JERVIS, Medical Officer of Health.

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL

ASSISTANT MEDICAL OFFICER

Applications are invited from duly qualified persons for the appointment of Assistant Medical Officer at the above Hospital, which contains 303 beds. (Admissions number nearly 4,000 yearly.) The applicants should have had experience in general medicine.

Commencing salary £150 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with the usual residential allowances.

The appointment will also be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

The person will be required to act under the general direction of the Medical Superintendent, from whom any further particulars of the appointment may be obtained.

Forms of application may be obtained from the undersigned, and should be returned to me, accompanied by copies of not more than three recent testimonials, not later than January 8th, 1938.

JAMES A. M. CLARK, Medical Officer of Health.

Health Department,
Council House, Walsall.
December 23rd, 1937.

BOROUGH OF WORTHING.

MEDICAL OFFICER OF HEALTH.

Applications are invited from duly registered medical practitioners possessing a diploma in Sanitary Science, Public Health or State Medicine for the appointment of Medical Officer of Health of the Borough.

Salary £1,000 per annum, rising by annual increments of £50 to a maximum of £1,200 per annum, plus motor-car allowance of £50 per annum.

Terms and conditions of appointment and forms of application will be supplied on receipt of a stamped and addressed foolscap envelope.

Applications, with not more than three recent testimonials, must be received by the undersigned not later than January 15th, 1938.

Town Hall, J. KENNEDY ALLERTON, Town Clerk.
Worthing, December, 1937.

BRITISH POSTGRADUATE MEDICAL SCHOOL.

Applications are invited from fully qualified medical practitioners for the post of **CASUALTY OFFICER**, to commence duty on March 1st, 1938.

The appointment is for six months and non-resident. Salary is at the rate of £150 per annum, and the post is specially suited to candidates studying for higher qualifications.

Applications, accompanied by two testimonials, should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12, to arrive not later than the first post on Monday, January 10th.

BOROUGH OF MORLEY.

APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from registered medical practitioners (male or female) for the above-named post. It is desirable that applicants should hold a Diploma in Public Health.

Applicants should have had at least three years' experience in the practice of their own profession and have had special experience in Maternity, Child and Infant Welfare work and in the administration of Dental and other Anaesthetics.

The person appointed will be required to work under the direction of the Medical Officer of Health and the School Medical Officer and to devote the whole of his or her time to the duties of the office, which will consist chiefly of School Medical, Maternity and Child Welfare work together with such other duties in the Public Health Department as may be required.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Salary will be at the rate of £500 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700 per annum. The appointment will be determinable by one month's notice on either side.

Forms of application may be obtained from the undersigned to whom they should be returned, completed, in a sealed envelope endorsed "Assistant Medical Officer," together with copies of three recent testimonials, on or before January 10th, 1938.

E. V. FINNIGAN, Town Clerk.
Town Hall, Morley, Leeds.

CITY AND ROYAL BURGH OF DUNFERMLINE.**RESIDENT OBSTETRICAL OFFICER.**

Applications are invited for the post of Resident Obstetrical Officer at the Maternity Hospital.

Candidates should have held previous resident appointments in a Maternity Hospital and have had experience in ante-natal and post-natal work. Preference will be given to candidates who hold or are reading for membership of the College of Obstetricians and Gynaecologists. The officer appointed will be called on to act as outdoor consultant under the Maternity Services (Scotland) Act, 1937, and will also be required to assist in the Maternity and Child Welfare Scheme and to undertake such other duties as may be assigned to him by the Medical Officer of Health.

The salary will be at the rate of £400 per annum rising by annual increments of £25 to £475 per annum with emoluments valued at £150 per annum and travelling expenses.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination. The appointment will be terminable by three months' notice on either side.

Forms of application may be obtained from Dr. C. Barclay Reekie, Medical Officer of Health, 1, Douglas Street, Dunfermline, and must be returned to him, accompanied by copies of three recent testimonials, not later than January 15th, 1938. Canvassing will disqualify.

ANDREW SHEARER, Town Clerk.
City Chambers, Dunfermline.
December 20th, 1937.

CITY OF LEICESTER.**RESIDENT MEDICAL OFFICER.**

Resident Medical Officer (Male) required for the **CITY ISOLATION HOSPITAL AND SANATORIUM**, Groby Road. Appointment for a period of six months, renewable if service is satisfactory for a further period of six months.

Salary at the rate of £300 per annum, with the usual residential emoluments. The officer appointed may be required to assist with Infant Welfare work.

Applications, on forms to be supplied, to be sent to the undersigned not later than January 10th, 1938.

Health Offices, E. K. MACDONALD, Medical Officer of Health.
Grey Friars, Leicester, January, 1938.

DURHAM COUNTY HOSPITAL

Durham City. (100 Beds.)

MALE HOUSE SURGEON required; duties to commence February 1st, 1938.

Salary at the rate of £150 per annum, with board, residence and laundry. Appointment for six months, subject to renewal for similar period.

Applications, stating age, experience, and testimonials, accompanied by three recent testimonials, should be addressed to the undersigned not later than January 14th, 1938.

NORMAN BROWN, Secretary.
December 22nd, 1937.

APPOINTMENTS—Important Notice

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.)	NEATH AND DISTRICT. (Medical Aid Association.)	PUBLIC HEALTH
LLWYNYPIA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)	FIFE AND KINROSS JOINT SANATORIUM BOARD. (Resident Medical Officer.)

(b) Overseas

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments)	The Medical Secretary, New South Wales Branch, 135, Macquarie St., Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practices.)	Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

December 29, 1937.

By Order of the Council.

G. C. ANDERSON, Secretary.

MANCHESTER ROYAL INFIRMARY. MEDICAL CHIEF ASSISTANT (Non-Resident).

The Board of Management invite applications for the above appointment.
Applicants must be registered medical practitioners. Higher qualifications desirable.

The candidate appointed will be attached to a medical unit and will be required to attend on seven half sessions per week, of which at least four will be morning sessions. Duties will include work in the in-patient and Out-patient departments and participation in teaching. There will be facilities for research work.

Salary £300 per annum. The appointment will be for one year in the first instance but may be renewed for two further periods of one year subject to the provisions of the By-Laws as to notice, etc.

Candidates should forward fifteen copies of their applications, giving particulars of age, experience, etc., together with copies of recent testimonials, not later than 9 a.m. on Wednesday, January 19th, to the undersigned, from whom further information may be obtained.

By Order.

W. R. TINDALE,
General Superintendent and Secretary.
December 20th, 1937.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds.)

Applications are invited for the post of **SECOND HOUSE SURGEON (male)** for the three months commencing January 1st, 1938. Salary £100 per annum, with board, residence and laundry.

Applications, stating age, nationality and qualifications, together with three recent testimonials, to reach the undersigned as early as possible.

W. H. DANIELS,
Secretary-Superintendent.

BEDFORD COUNTY HOSPITAL.

Wanted, an **HONORARY PATHOLOGIST** for Bedford County Hospital. Facilities given for private work. Applications to be sent to the Secretary.

CITY MENTAL HOSPITAL, HUMBERSTONE, LEICESTER. ASSISTANT MEDICAL OFFICER (Male).

Residential General Hospital experience is desirable. Salary £350, rising by £50 per annum to £450 per annum, together with board, lodging, washing and attendance, valued for purposes of superannuation at £150 per annum. If the applicant be married he will be permitted to live out, and the salary will commence at £500 rising by £50 per annum to £600. An additional £50 per annum will be paid for possession of a D.P.M.

The appointment is subject to the provision of the Asylums Officers' Superannuation Act, 1909. There is a good laboratory and two active Psychiatric Clinics, one attached to the Leicester Royal Infirmary.

Applications, giving particulars of experience, etc., together with names of three references—one of which should be non-professional—and marked "A.M.O." to be sent to the Medical Superintendent.

DONCASTER ROYAL INFIRMARY. (4155 Beds.)

HOUSE SURGEON (male) required immediately. Six House Surgeons are resident.

Salary at the rate of £175 per annum, with residence, board, and laundry.

This large industrial area offers excellent opportunities for gaining experience.

Applications, accompanied by not more than three testimonials, to be sent to the undersigned immediately.

R. LANCASTER,
Secretary-Superintendent.

MIDLAND HOSPITAL, EASY ROW, Birmingham. (50 Beds.)

Applications are invited for the post of **HOUSE SURGEON**. Duties to commence January 1st, 1938. Salary £200 per annum, with board, residence, and laundry. Applications, stating when at liberty, age, and qualifications, together with copies of recent testimonials, to be addressed to the undersigned.

OLIVE FURNEAUX,
Secretary.

BIRMINGHAM AND MIDLAND EYE HOSPITAL. (114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of **HOUSE SURGEON** at the above Hospital.
Salary £130 per annum (rising to £150 at the end of six months' satisfactory service), and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, must be received not later than Thursday, January 6th, 1938.

J. W. PEARCE,
General Superintendent.
Church Street, Birmingham, 3.

ROYAL BERKSHIRE HOSPITAL, READING. (338 Beds.)

Applications are invited for the post of **CASUALTY OFFICER (male)** which falls vacant on February 1st, 1938.

The appointment is for six months, and candidates must be fully qualified and registered.

Remuneration at the rate of £150 p.a. with board, residence and laundry.

Applications, stating age and experience, with copies of three recent testimonials, to be sent to the undersigned on or before January 14th, 1938.

H. E. RYAN,
Secretary and House Governor.

WARWICKSHIRE AND COVENTRY MENTAL HOSPITAL. Hutton, near Warwick.

TEMPORARY MEDICAL OFFICER required for at least twelve months. Salary £350 per annum, plus emoluments valued at £150 per annum, consisting of quarters and full board, together with an additional £50 per annum if the candidate should hold a Diploma in Psychological Medicine.

Applications, with copies of two recent testimonials, to be sent to the Medical Superintendent by January 10th, 1938.

(Advertisements continued on p. 52)

WEST END HOSPITAL FOR NERVOUS DISEASES.

In-Patient Department: Gloucester Gate, Regent's Park, N.W.1.
Out-Patient Department: 73, Welbeck Street, W.1.

The Committee of Management invites applications for the following vacancies:—

REGISTRAR, Out-Patient Department.—British Male Candidates. Remuneration £200 per annum. Duties include afternoon attendance at the Out-Patient Department five days a week. Candidates must have neurological experience.

TWO RESIDENT HOUSE PHYSICIANS (Male). Duties to commence March 1st, 1938. Salary at the rate of £125 per annum, with board, residence and laundry.

Preference will be given to candidates who have held a resident appointment in a General Hospital.

HONORARY MEDICAL PSYCHOLOGISTS.—Candidates (Male and Female) having previous experience are required for appointment in the Child Guidance Department (Out-Patient Department).

Further information in regard to any of the above appointments can be obtained from the undersigned at the address below, to whom applications stating experience, together with copies of three recent testimonials, must be sent not later than Wednesday, January 19th. Candidates for the Registrarship are requested to send twelve copies of their application and testimonials.

J. P. WETENHALL.

Secretary and House Governor.

73, Welbeck Street, W.1.

WEST LONDON HOSPITAL.
(Hammersmith, W.6. (239 Beds.))

Applications are invited for the post of **HONORARY OPHTHALMIC SURGEON**, for which the present Honorary Assistant Ophthalmic Surgeon is a candidate. In the event of his election there will be a vacancy for a **HONORARY ASSISTANT OPHTHALMIC SURGEON**, for which post applications are also invited.

Candidates must be Fellows of one of the Royal Colleges of Surgeons of England, Edinburgh or Ireland. The successful candidate will be required, in addition to his other duties, to undertake such teaching for the Postgraduate College as the Board may approve.

Applications, with copies only of testimonials, must reach me not later than Thursday, January 20th. Candidates must attend a meeting of the Medical Council at 4.30 p.m. on Friday, January 21st and prior to that date call upon, and send copies of application and testimonials to, each member thereof. They must not canvass members of the Board, but nevertheless must send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board of Management at 5 p.m. on Tuesday, January 25th when the election will be made.

H. A. MADGE, Secretary

ROYAL FREE HOSPITAL.
Gray's Inn Road, London, W.C.1.

Applications are invited from duly qualified and registered medical men or women for the half time post of **REGISTRAR in the Ear, Nose and Throat Department**. Preference will be given to candidates with the Fellowship of England, Edinburgh or the D.L.O. qualification. Intending candidates should submit applications stating age, and accompanied by copies of three recent testimonials to the undersigned (from whom all information may be obtained) on or before January 8th, 1938. Period of appointment February 1st, 1938–December 31st, 1938.

RICHARD T. BARTLEY, Secretary.

BOLINGBROKE HOSPITAL.
Wandsworth Common, S.W.11.
(135 Beds.)

HOUSE PHYSICIAN (male, unmarried) required. The appointment is for six months, commencing on February 1st, 1938. Salary £120 per annum, with board, residence and laundry. Candidates must be fully qualified and registered. Applications, stating age, qualifications and experience, with copies of not more than three testimonials, should be sent to the undersigned on or before January 12th, 1938.

W. S. RANDOLPH BISS, Secretary-Superintendent.

KING EDWARD MEMORIAL HOSPITAL.
Ealing, (145 Beds.)

CASUALTY OFFICER AND DEPUTY RESIDENT MEDICAL OFFICER (male) required for February 1st, 1938. Six months' appointment, with possibility of re-election for a further period. Salary £225 per annum, with usual residential emoluments.

Applications, stating age, experience, and qualifications, together with copies of two recent testimonials, should be sent to the undersigned by January 6th, 1938.

R. A. MICKELWRIGHT, House Governor.

WEST HAM MENTAL HOSPITAL.
Goodmayes, Ilford, Essex.

Applications are invited for Two Male **JUNIOR ASSISTANT MEDICAL OFFICERS** at the above Hospital. Candidates must be unmarried.

The commencing salary in both cases is at the rate of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum, together with emoluments consisting of board, laundry and attendance, valued for superannuation purposes at £150 per annum. The persons appointed will also be paid, in addition to their salary, the sum of £50 per annum on obtaining the Diploma of Psychological Medicine. The appointments are subject to six months' probation and to the provisions of the Asylums Officers' Superannuation Act, 1909, Class 1, and to a satisfactory medical examination. A knowledge of bacteriological work will be an advantage.

Applications, stating age and experience, accompanied by copies of three testimonials, must reach the Medical Superintendent not later than January 3rd, 1938.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON, S.W.3.

The Committee of Management invite applications for the following posts:

HOUSE PHYSICIAN, for which there are three vacancies. The duties include work in the Out-patient Department as well as in the Wards. The appointment is for six months, commencing February 1st, 1938, with an honorarium of £50.

HOUSE PHYSICIAN (male) at the SANATORIUM at Frimley. The appointment is for six months, commencing February 1st, 1938, with an honorarium of £50.

Applications, with copies of testimonials, must reach the undersigned not later than Saturday, January 8th, 1938.

F. G. ROUVRAY,

Secretary.

Brompton,
December, 1937.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH.
60, Grove End Road, N.W.8

Applications are invited for the post of **RESIDENT HOUSE PHYSICIAN (male)**. The post is recognized for the degree of M.D., London University. The appointment will be for six months from February 1st, 1938. Salary at the rate of £100 per annum, with full board. Applications, together with copies of three testimonials, should reach the undersigned by January 3rd, 1938.

Applicants will be required to attend a meeting of the Medical Committee at 8.30 p.m. on January 4th at the Hospital.

F. DUDLEY HOBBS, B.A., Secretary

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

Applications are invited from qualified medical women for the honorary appointments of **FIRST ASSISTANT AND CLINICAL ASSISTANT, Ophthalmic Clinic**. Particulars of the posts may be obtained from the undersigned to whom applications, enclosing copies of three testimonials, should be addressed not later than January 6th, 1938.

JEAN R. MURRAY, Secretary.

KING GEORGE HOSPITAL, ILFORD
(Nr. London). (207 Beds.)

CASUALTY OFFICER AND SURGICAL REGISTRAR (male) required immediately for 12 months. Salary £150 p.a. Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, as soon as possible.

G. AUSTIN HEPWORTH, Secretary and Superintendent.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.
(238 Beds.)

Applications are invited for the post of **HONORARY CLINICAL ASSISTANT** in the Children's Department of the Hospital for the year 1938.

Applications for appointment should be sent to the undersigned on or before Thursday, January 6th, 1938.

J. C. BURDETT, Director and House Governor.

ST. THOMAS'S HOSPITAL.
VACANCY.

An **ASSISTANT PHYSICIAN** to Department of Psychological Medicine.
Applications, with full details of academic career and copies of testimonials, to be sent to Clerk to the Governor not later than January 22nd.

ROYAL LONDON OPHTHALMIC HOSPITAL
(Moordfields Eye Hospital), City Road, E.C.1.**REGISTRAR.**

Applications are invited for the office of Registrar. Candidates must be registered Medical Practitioners.

Salary will be at the rate of £200 per annum. The Registrar will be appointed for one year, and will be eligible for reappointment.

Duties will embody the general supervision, indexing and classification of In- and Out-patient notes.

Applications, stating age and qualifications, with copies of testimonials, must be received by the undersigned not later than January 7th, 1938.

A copy of the Regulations governing the post will be sent on application.

The present holder is applying for the post.

A. J. M. TARRANT, Secretary.

THE INFANTS HOSPITAL.
Vincent Square, Westminster.

The Committee of Management invite applications for the post of **RESIDENT MEDICAL OFFICER**.

Candidates must have held previous resident hospital appointments for not less than six months, and must have had Paediatric experience. The appointment is for one year from March 1st, with eligibility for reappointment. Salary £300 per annum, with board, lodging, and laundry.

Candidates are expected to call upon, and send a copy of application and testimonials to, each member of the Honorary Medical and Surgical staff.

Applications, with copies of testimonials, should be sent not later than January 29th to the undersigned, from whom copies of the rules may be obtained.

ALFRED J. SMALL,

Secretary.

THE ROYAL CANCER HOSPITAL (FREE)
(Incorporated under Royal Charter).
Fulham Road, London, S.W.3.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**, to commence duties on February 1st, 1938.

The appointment is for twelve months at a salary of £200 per annum, together with board, residence, and laundry. At the end of this period reappointment for a further twelve months may be applied for.

Applications, to be made on a form which will be supplied by the Secretary, with copies of not more than three recent testimonials, to be sent to the Secretary not later than the first post on January 13th, 1938.

CLEMENT COBBOLD,

Secretary.

VICTORIA HOSPITAL FOR CHILDREN.
Titie Street, Chelsea, S.W.3. (138 Beds.)

The Committee of Management invite applications for the posts of

(a) **HOUSE PHYSICIAN.**

(b) **HOUSE SURGEON.**

Both vacant February 1st, 1938. The appointments are for six months. Salaries at the rate of £100 per annum, with board, lodging, and washing.

(c) **OUT-PATIENT ANALYSTHETIST.** To attend on three half-days a week. A payment of 10s. 6d. per attendance will be made.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than first post on Tuesday, January 11th, 1938.

D. ST. JOHN BAMFORD, Secretary.

VICTORIA HOSPITAL FOR CHILDREN.
Titie Street, Chelsea, S.W.3.

Applications are invited for the post of **OPHTHALMIC SURGEON**. Candidates must be Fellows of the Royal College of Surgeons of England, and are expected to call on members of the Medical Staff.

Applications, with copies of testimonials, are to be sent to the Secretary at the Hospital on or before Saturday, January 15th, 1938.

D. ST. JOHN BAMFORD, Secretary.

ST. BARTHOLOMEW'S HOSPITAL.
WHOLE-TIME CHIEF ASSISTANT
in the X-ray Diagnostic Department

Applications are invited for the post of Whole-time Chief Assistant in the X-ray Diagnostic Department of the above Hospital.

The salary will be at the rate of from £400 to £500 per annum, and appointment will be made as from February 1st, 1938.

Candidates, who must possess a Diploma in Medical Radiology, should send in their applications to the undersigned not later than Saturday, January 15th, 1938.

C. C. CARUS-WILSON, Acting Clerk to the Governors.

December 11th, 1937.

PARTNERSHIPS

EAST ANGLIA PARTNERSHIP THIRD OR HALF SHARE in good middle-class practice in country town, averaging £4,000, panel 3,000. Hospital 60 Beds, surgery essential. Premium 21 years' purchase, house available to rent.—Address, No. 1605, B.M.A. House, Tavistock Square, W.C.1.

LARGE MIDLAND TOWN.—FIVE-TWELFTHS SHARE of old-established Non-panel Practice. Receipts average £3,000 p.a. House on rental. Premium open to discussion.—Apply, Peacock and Hadley, Ltd., 67/68, Chandos Street, Strand, W.C.2.

PARTNER REQUIRED. COUNTRY TOWN Practice in East Anglia averaging £6,700 p.a. One-seventh share for sale to well-qualified man; 1 later. House available.—Address, No. 2602, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP HALF-SHARE in old-established practice in West Riding Urban District. Average £2,800; panel 2,450. House to rent, no branch surgeries. Premium for practice, drugs, etc., £3,000.—Address, No. 2710, B.M.A. House, Tavistock Square, W.C.1.

TWO-FIFTHS SHARE. INDUSTRIAL PRACTICE done £1,600, with new branch surgery for immediate development. Panel 1,700. Automatic half share after 2 years, no extra premium. At first must live in. Premium £1,100 (guaranteed locally if desired). Or, alternatively 3 years assistantship, £1 weekly. Board in lieu of premium for partnership.—Address, No. 2714, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED. PRACTICE, £500-£1,100, WITHIN 40 miles of London. Panel of at least £50 preferred. House with garden desired. Capital available.—Address, No. 2501, B.M.A. House, Tavistock Square, W.C.1.

A NUMBER OF SMALL PRACTICES available at low premiums. Excellent opportunities for practitioners wishing to get a practice with scope.—Apply, Peacock and Hadley, Ltd., 67/68, Chandos Street, Strand, W.C.2.

GENERAL PRACTICE, ESTABLISHED thirty-seven years, absolutely private, could easily be doubled. Western Glasgow; no midwives, no societies, almost no night work. Good house, main road.—Address, No. 2517, B.M.A. House, Tavistock Square, W.C.1.

G.P., ELEVEN YEARS' EXPERIENCE, requires PRACTICE (panel and private), or Partnership. South England, coast preferred.—Address, No. 2718, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL PRACTICE FOR SALE in Renfrewshire town; large panel; income over £1,800; modern house.—Apply, Crawford, Haddon and Cameron, Solicitors, 257, West George Street, Glasgow, C.2.

NEAR HOLBORN, W.C.—WELL-ESTABLISHED PRACTICE. Receipts average £1,000 p.a., large panel. Splendid surgery accommodation. Good introduction. Premium £2,000.—Apply, Peacock and Hadley, Ltd., 67/68, Chandos Street, Strand, W.C.2.

NORTH WALES, SEASIDE AND COUNTRY PRACTICE for sale, income about £1,400. Good house, c.l., zarazas. Welsh an advantage.—Chemicals, 40, Hamilton Street, Hoole, Chester.

PLEASANT SUBURBAN PRACTICE, MIDLAND UNIVERSITY CITY; 500 houses building. Panel 770; receipts £700-£800. Good house; unusual opportunity, ideal branch surgery available. Price £1,600; house £900; rent £78.—No. 2712, B.M.A. House, Tavistock Square, W.C.1.

20 MINS. GOLDERS GREEN, N.W.— Old-established PRACTICE. Receipts last year £1,125, fair panel. Nice house, garden, etc., on rental. Offers.—Apply, Peacock and Hadley, Ltd., 67/68, Chandos Street, Strand, W.C.2.

HOUSES, CONSULTING ROOMS

For available
CONSULTING ROOMS, PROFESSIONAL HOUSES & FLATS in Harley Street and the medical area generally, including Mayfair

LEY CLARK & PARTNERS
AUCTIONEERS, SURVEYORS, & VALUERS
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H. J. ELEY,
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RECEIVING ROOM OFFICER, who must be a Paediatrician, to attend from 9 a.m. to 1 p.m., and who will see all new cases attending in the mornings including casualties. Salary £250 p.a.

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In addition to the above, the personnel of the Out-Patient Department includes a whole-time First Assistant to the Ear and Throat Department and a Junior Casualty House Surgeon.

The appointments are for one year, with eligibility for reappointment.

Particulars of duties, etc., can be obtained from the undersigned. The duties to commence on March 31st, 1938. Applications, together with copies of testimonials, should be sent to the undersigned.

HAROLD F. SHRIMPTON,

House Governor.

December 21st, 1937.

PETERBOROUGH AND DISTRICT MEMORIAL HOSPITAL.

The Management Committee of the Peterborough and District Memorial Hospital invite applications for the post of a **NON-RESIDENT PATHOLOGIST**.

The salary offered is £500 per annum, with share of private fees.

Applicants should have the higher qualifications, or comprehensive experience.

Applications, with copies of three recent testimonials, to be forwarded on or before January 11th next to the undersigned, from whom further particulars may be obtained.

F. A. C. TAYLOR,

Secretary-Superintendent.

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M. H. HUNTLEY,

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Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, 7, on or before Monday, January 10th, 1938.

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Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street, Liverpool, 7, on or before Monday, January 10th, 1938.

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The appointment is for six months, commencing December 26th, 1937.

Salary £125 per annum, with board, residence and laundry.

Applications, together with copies of recent testimonials, should be forwarded immediately to the undersigned.

F. KENT,

Secretary-Superintendent and Secretary

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Applications, stating age, nationality, etc., together with copies of testimonials, should reach the undersigned not later than Tuesday, January 11th, 1938.

FRANK INCH,

House Governor and Secretary.

December 31st, 1937.

THE STOCKPORT INFIRMARY. (140 Beds.)

The Board invite application for the post of **RESIDENT SURGICAL OFFICER** (male and unmarried). Salary £150 per annum, together with board, residence and laundry.

Previous residential hospital experience essential. The resident staff consists of a Resident Surgical Officer, two House Surgeons and a House Physician.

Applications, with copies of three recent testimonials, stating age, nationality, qualifications and experience, to be sent to the undersigned on or before January 4th, 1938. Duties to commence February 15th, 1938.

H. G. PRICE,

Secretary-Superintendent.

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Required, an **ASSISTANT MEDICAL OFFICER** (male), at the above-named Hospital.

Persons registered under the Medical Acts, with experience of a residential appointment in a General Hospital, are invited to apply for the appointment.

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The appointment is subject to the terms of the Asylums Officers' Superannuation Act, 1909.

Applications, stating full particulars of qualifications, experience, age, etc., to be addressed to the Medical Superintendent.

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ARTHUR MOORE,

Secretary-Superintendent.

Lincoln.

November 24th, 1937.

VICTORIA HOSPITAL, DEAL. (59 Beds.)

Applications are invited for the post of **RESIDENT MEDICAL OFFICER** (male, British nationality, unmarried), the appointment for six months from January 15th, 1938. Salary £150 per annum, with board, lodging and laundry. Special knowledge of anaesthetics desirable.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be sent not later than January 10th to the Secretary of the Medical Board, Victoria Hospital, Deal.

SALFORD ROYAL HOSPITAL. (256 Beds.)

Applications are invited from duly registered candidates (Male) for a **HOUSE SURGEON** for six months, ending June 30th next. Salary £125 per annum.

Forms of application, obtainable from the undersigned, must be delivered without delay.

By Order of the Board,

H. B. SHELSWELL,

General Superintendent and Secretary.

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The Visiting Consultant posts carry honoraria at the rate of £200 p.a. except that of the Radiologist which is £150 p.a.

Applicants, stating full particulars and accompanied by not more than three copy testimonials, to be received by the Secretary-Superintendent not later than January 5th, 1938.

THE ROYAL INFIRMARY, SHEFFIELD. (590 Beds.)

The Board of Management invite applications for the post of **SENIOR CASUALTY OFFICER**.

The salary attached to the post is £150 per annum, with board and residence. The appointment will be for the period of six months from January 1st, 1938. This post is next in seniority to that of Resident Surgical Officer.

Applications, with copies of testimonials, to be sent to the General Superintendent and Secretary forthwith.

December 26th, 1937.

WORTHING HOSPITAL.

Applications are invited for the post of **HOUSE SURGEON**, vacant on January 26th. The appointment is for six months, salary at the rate of £150 per annum, with board, lodging and laundry.

Candidate (male) should forward application, stating age, nationality, qualifications and experience, accompanied by testimonials, to the undersigned.

A. V. OAKTON,

December 25th, 1937. Secretary-Superintendent.

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Wanted an **ASSISTANT MEDICAL OFFICER** (male, unmarried). Salary £600 per annum, with residence, board, and laundry. Application, with testimonials (copies only), to be sent to the Chairman as soon as possible.

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YORKSHIRE.—Old-established UNOPPOSED COUNTRY PRACTICE in delightful district. Cash receipts last year £1,500. Panel 700, yields £450 p.a. Transferable appointments over £200 p.a. Excellent house, 3 reception, 5 bedrooms, garage and garden with tennis court, electric light, etc. Rent £50 p.a. Premium—2 years' purchase, or near offer.—No. 1048.

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SHEFFIELD.—Well-established mixed Panel and Private PRACTICE. Average cash receipts about £1,100 p.a. Panel 1,223. Good house, 2 reception, 6 bedrooms and nice garden. To rent or purchase. Premium—best offer.—No. 1051.

NEAR MANCHESTER.—PARTNERSHIP (after six months' Assistantship) in good PRACTICE in residential district. Cash receipts £4,000 p.a. Panel 2,500. Applicants should be English or Scottish, about 30. Good house available to rent. Salary £400 p.a., plus car allowance and free house. Premium—one-third share—to be arranged.—No. 1045.

LIVERPOOL.—Very old-established middle-class PRACTICE in residential district. Cash receipts £1,100 p.a. Panel 599. Good scope for energetic man. Excellent house, 2 reception, 5 bedrooms, etc. Price £700. Premium—£1,600. Vendor retiring.—No. 1046.

MANCHESTER.—PARTNERSHIP in mixed Panel and Private Practice. Average cash receipts £2,875 p.a. Panel over 2,500. Scope. Excellent house, 3 reception, 4 bedrooms, small garden. Rent £52 p.a. Premium—one-half share—2 years' purchase.—No. 1038.

NEAR BLAXTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £745 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 949.

NORTH-WEST COAST.—Old-established middle-class PRACTICE in seaside town. Cash receipts £1,100. Panel 550. Nice house, garage and garden. Premium—1½ years' purchase.—No. 961.

LANCS TOWN.—Old-established mixed-class PRACTICE capable of increase owing to liberality of Vendor. Cash receipts over £600 p.a. Formerly doing over £1,200 p.a. Panel 620. Good house (fitted), 2 reception, 5 bedrooms, garage and garden. Premium—Practice and house—£2,100.—No. 1018.

DERBYSHIRE.—Old-established PRACTICE in pleasant district near large town offering great scope for increase owing to building developments. Suitable for two men in partnership. Cash receipts last year £3,484. Panel 3,294. Two good houses, with ample accommodation and modern conveniences, built on garage, garden and tennis court. Premium—2 years' purchase.—No. 953.

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LIVERPOOL.—Well-established PRACTICE in pleasant district. Receipts £803 p.a. Panel 650. Good house, 5 bedrooms, garden and garage. Premium—1 year's purchase.—No. 923.

LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE in present hands 35 years. Cash receipts last year £916. Panel 1,223. Scope. Excellent detached house, 2 reception, 5 bedrooms, garage and small garden. For sale, or would rent on lease. Premium—1½ years' purchase. Vendor retiring.—No. 1004.

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NORTH WALES.—Good-class long established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with two small gardens to rent or purchase. Good 1½. Satisfactory premises. Premium—£1,500. Vendor retiring.—No. 968.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a. Panel 570 and transferable appointments £200 p.a. Scope. Nice detached house, 2 reception, 6 bedrooms, garage and large garden. Freehold. Premium—1½ years' purchase.—No. 991.

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PRINCIPAL CONTENTS

Angina of Effort : A Clinical Study	P. 55	Leading Articles	p. 76
Shortage of Calcium in the "Poorer-Class" Diet	59	Surgery in General Practice: Abrasions and Contusions ..	82
Sonne Dysentery	64	Correspondence	91
Blood Serum of Man Injected with Gonadotropic Extracts ..	66	Weekly Table of Infectious Diseases	102
Water Requirements of Surgical Patients	67	New Year Honours	88
		Reviews	72
		Croydon Epidemic Inquiry ..	86

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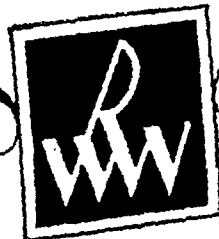
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TABLE OF CONTENTS

ADDRESSES AND PAPERS

Angina of Effort: A Clinical Study. GEOFFREY BOURNE, M.D., F.R.C.P., and R. BODLEY SCOTT, D.M., M.R.C.P.	55
The Shortage of Calcium in the "Poorer-class" Diet. KATHARINE H. COWARD, D.Sc., ELSIE W. KASS- NER, F.I.C., and LETITIA W. WALLER (With Chart)	59
Sonne Dysentery. REGINALD MILLER, M.D., F.R.C.P.	64
The Absence of Anti-gonadotropic Substances in the Blood Serum of Man Injected with Gonadotropic Extracts. A. W. SPENCE, M.D., F.R.C.P., E. F. SCOWEN, M.D., and I. W. ROWLANDS, Ph.D.	66
The Water Requirements of Surgi- cal Patients. D. L. C. BINGHAM, F.R.C.S.ED.	67

SURGICAL SERIES

Abrasions and Contusions. R. J. MCNEILL LOVE, M.S., F.R.C.S.	82
---	----

CLINICAL MEMORANDA

Insulin in the Local Treatment of Persistent Septic Cutaneous Con- ditions. NEVIL LEYTON, M.R.C.S.	70
Treatment of Mooren's Ulcer with Liver Extract. CHARLES J. CANTILLON, M.B., B.Ch.	71
A Method of Treating Fractures of the Lower Leg. DOUGLAS LANG STEVENSON, F.R.C.S.ED.	71

REVIEWS

Radiotherapy for Cancer	72
Operative Obstetrics	72
Post-mortem Technique	73
Neurological Studies	73
Poisonous Organic Solvents	73
The Nature of Crime	74
Notes on Books	74

GENERAL ARTICLES AND NEWS

New Year Honours, 1938	83
Croydon Typhoid Inquiry: Report continued	86
Nova et Vetera: Edinburgh Royal Infirmary	85
Annals of Medical History	85
Congresses on Rheumatism and Hydrology	84
Universities and Colleges	101
Medical News	103

LEADING ARTICLES

Serum Treatment of Pneumonia	76
Evaluation of Disability	77

ANNOTATIONS

Industrial Poisoning	78
Progress in Asthma Research	78
World Requirements of Narcotic Drugs	79
A New Food and Drugs Bill	79
Suicide in America	80
The Honours List	80
Everyday Problems of Income Tax	81
Calcium Deficiency	81

SUPPLEMENT

Duties of the Medical Officer of Health

MEDICO-POLITICAL COMMITTEE OF THE B.M.A.
INSURANCE MEDICAL SERVICE WEEK BY WEEK
PUBLIC MEDICAL SERVICE FOR LONDON
THE GENERAL PRACTITIONER AND PREVENTIVE MEDICINE
GENERAL MEDICAL COUNCIL EXECUTIVE
CORRESPONDENCE
NAVAL, MILITARY, AND AIR FORCE APPOINTMENTS
MEETINGS OF BRANCHES AND DIVISIONS
POSTGRADUATE COURSES
DIARY OF SOCIETIES AND LECTURES
Association Notices: Vacancies and Appointments; Diary

LOCAL NEWS

SCOTLAND—	
Payment of Hospital Staffs	89
Institutional Maternity Services...	89
ENGLAND AND WALES—	
London's New Midwifery Service	89
Queen's Institute of District Nursing	89
The Heberden Society	90
Medical Society of London	90

REPORTS OF SOCIETIES

LIVERPOOL MEDICAL INSTITUTION: Femoral Embolectomy	90
---	----

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS	102
EPIDEMIOLOGICAL NOTES	103

CORRESPONDENCE

The Science of the Health Resorts. R. FORTESCUE FOX, M.D.	91
Applying for Hospital Posts. HUGH THURSFIELD, D.M.	91
Gastro-enteritis due to <i>B. dysenteriae</i> Sonne. THOMAS G. OSLER, M.B.	91
Use and Abuse of Antiseptics. CHARLES CORFIELD, M.D.	92
Who Owns X-Ray Negatives? H. A. T. FAIRBANK, F.R.C.S.	92
Treatment of Burns. GERALD H. C. OVENS, F.R.C.S.	93
Treatment of Psychoneuroses. J. E. MIDDLEMISS, F.R.F.P.S.	93
Hormone Treatment of Prostatic Hypertrophy. S. M. DOWLING, M.R.C.S.	94
Causation of Rickets. J. P. MCGOWAN, M.B.	94
The Problem of the Final M.B. B.S.Lond. PHILIP H. MITCHNER, F.R.C.S.; SIR E. GRAHAM-LITTLE, M.P., M.D.	94
Opportunities for Women in Medi- cine. EVA MCCALL, M.B.; DOUGLAS E. BARTON, M.B.	96
Correct Footwear. C. GIBSON, F.R.C.S.ED.; ALFRED C. JORDAN, M.D.; G. G. COOPER, M.B.	96
Partial Glossectomy for Stuttering. H. ST. JOHN RUMSEY, M.A.	97

OBITUARY

H. B. Butler, F.R.C.S.ED. (With Portrait)	98
Malcolm Brice Smyth, M.B., B.Ch.	98
George Burrows Brown, M.B.	99
Joseph Harold Ashworth, M.B., D.P.H.	99
Thomas Gordon Starkey-Smith, M.D.	99
Donald Douglas Day, F.R.C.S.	99
David Morgan, M.B.	99
Robert Wilson Stuart, L.R.C.P. & S.	99
Daniel Frederick Rambaut, M.D.	100
Alex. Hill Griffith, F.R.C.S.ED.	100
Abraham Hepworth Robinson, M.B.	100

MEDICO-LEGAL

Complaint of Faulty Diagnosis	100
Lead Poisoning from Water	100

THE SERVICES

Director of R.A.F. Medical Services	101
Honours	101
Deaths in the Services	101
(For Naval, Military, and Air Force Appointments see SUPPLEMENT)	

LETTERS AND ANSWERS

Painful Tongue	104
Income Tax	104
Chlorine Mixture for Typhoid	104
The Quintuplets and Their Doctor	104
Cambridge Medical Women	104
Local Application of Prontosil Red	104

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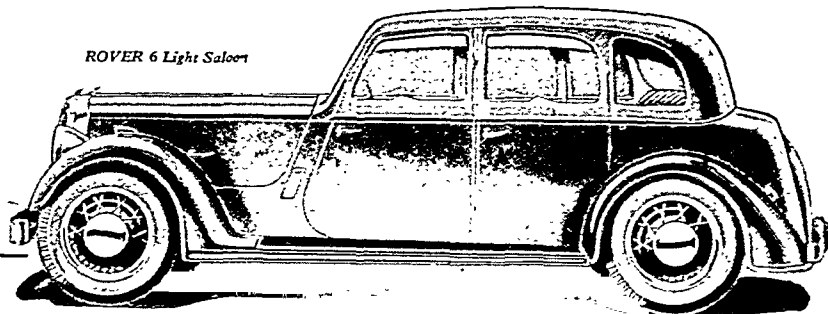
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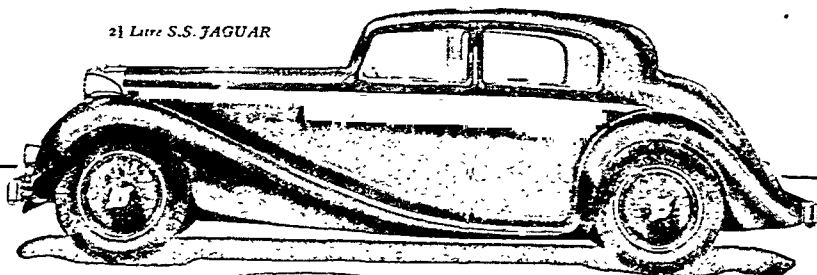
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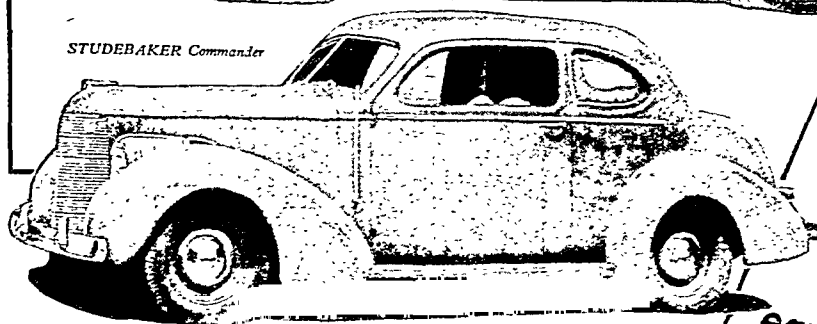
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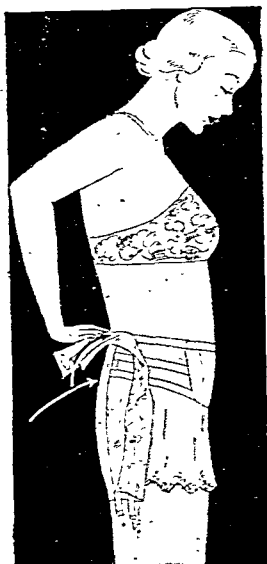
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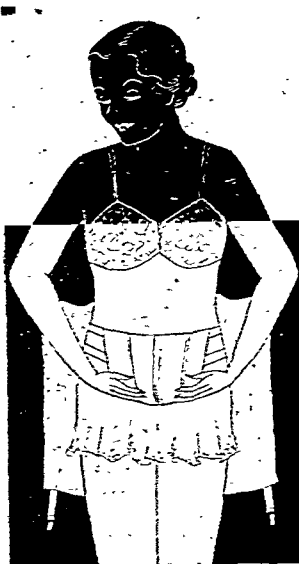
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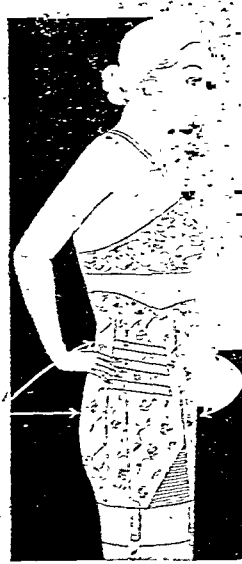
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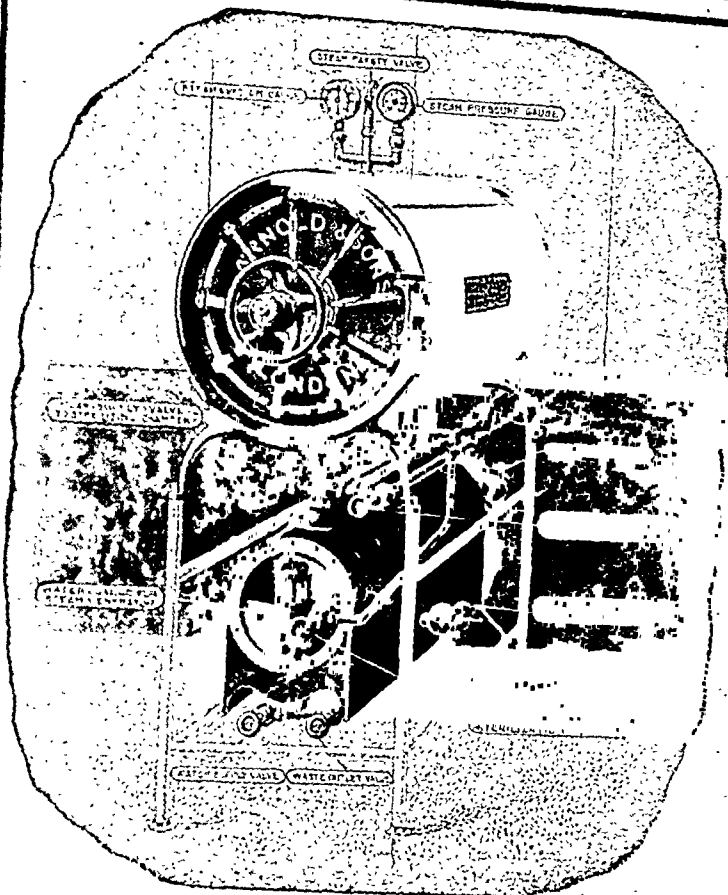
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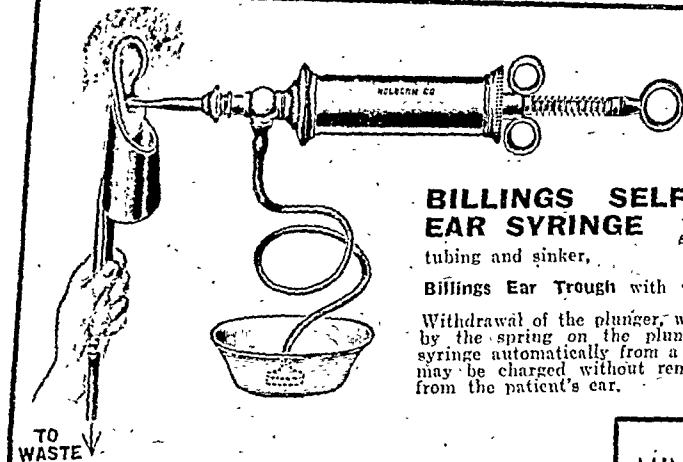
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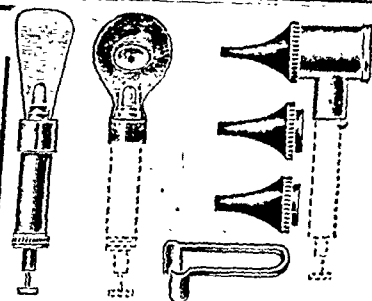
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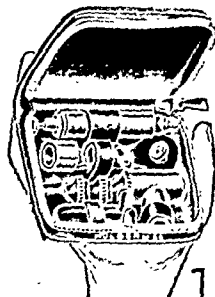
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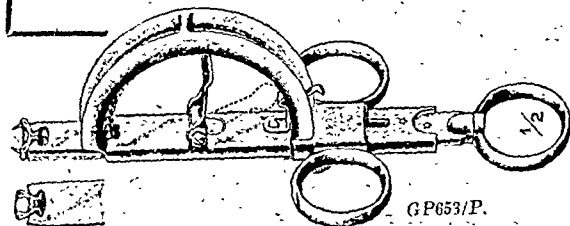
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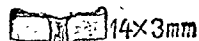
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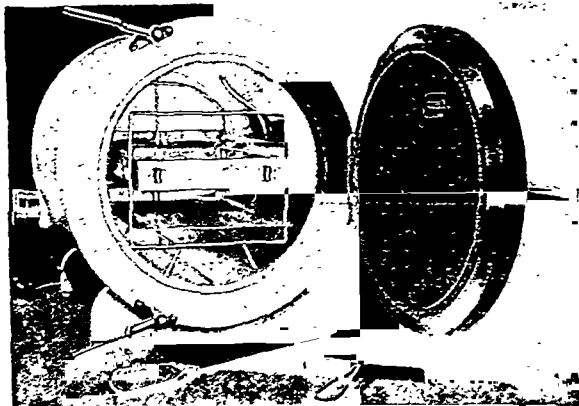
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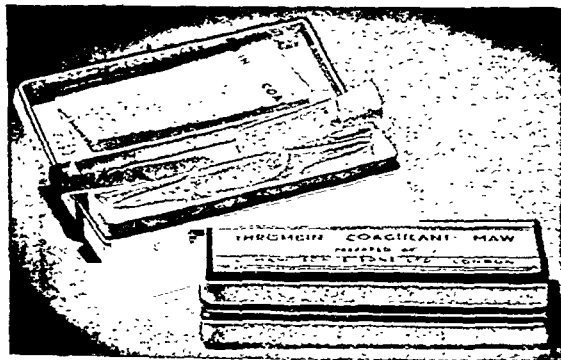


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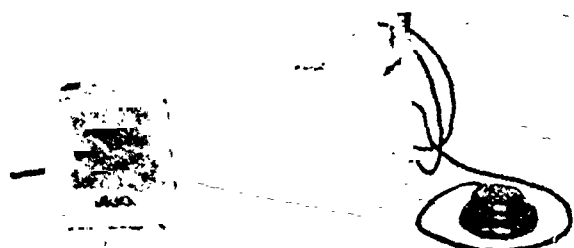
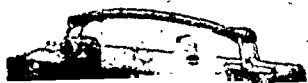
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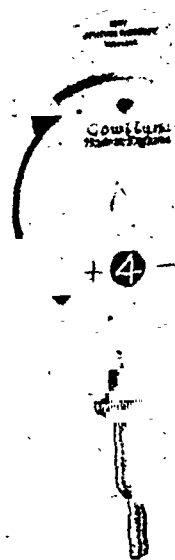
106, George Street, Portman Sq., London, W.1. Telephone: Welbeck 2591/2
19, St. Vincent Place, Glasgow, C.1. Telephone: Central 3097
62a, Bold Street, Liverpool, 1. Telephone: Royal 4944

THE AMPLIVOX is obtainable in the United Kingdom only from the manufacturers—AMPLIVOX, LTD.—and from Messrs. T. Hawksley, W. H. Pettifor, and Aids for the Deaf. There are appointed representatives in Australia, New Zealand, Canada, South Africa, India, the I.F.S., Northern Ireland, France, Holland, Norway, Sweden, and Denmark.

For the person who puts sound quality first in purchasing a hearing aid the model M8 AMPLIVOX is the obvious choice. This instrument is designed to run entirely from the electric mains, there being no batteries whatsoever. The piezo-electric crystal microphone is a separate unit to place on the table; the amplifier weighs less than 4 lbs. Through the use of unlimited voltage the clarity and power are of a higher order than with any other electrical hearing aid. The amplifier embodies automatic volume compression and the exclusive AMPLIVOX feature of a 3-position switch permitting adjustment of the frequency characteristic to compensate for the most common forms of hearing loss. This instrument will pay for itself in a short time through the economy of upkeep (1d. per 200 hours). For the home, office, etc., it is indispensable.

An AMPLIVOX deaf aid will gladly be sent for clinical test, and may be taken away for a week on trial before purchase for a small fee.

A copy of the AMPLIVOX brochure describing all models and giving much interesting information on hearing aids will be sent on application.



AN IMPROVED May Ophthalmoscope

At only slightly increased cost the Gowlland Ophthalmoscope can now be supplied having illuminated and magnified numbers. These are magnified to nearly twice the size of the older pattern and positioned well away from the sight hole; they are brilliantly illuminated, can be read easily in the brightest surroundings and cannot possibly interfere with the observation. The illumination of the numbers is effected by the ordinary Ophthalmoscope Lamp, and there is no additional load on the battery.

The patch of light projected by this instrument is bright, circular and absolutely homogeneous, making close examination easier. The reflecting prism is adjusted so that there are no shadows on the fundus, and corneal glare is reduced to the lowest possible amount. The focussing system (Patent No. 358766) and movements are exceptionally smooth in use.

WITH
ILLUMINATED
AND
MAGNIFIED
NUMBERS

Gowlland
electric diagnostic instruments
can be obtained from all Surgical Supply Houses.

Untouched photograph actual size of patch of light.

ERGOMETRINE B.D.H.

Ergometrine is the rapidly-acting water-soluble alkaloid of ergot described by Dudley and Chassar Moir (Brit. Med. Journ., 1932, I, 1119). It is administered as a routine after parturition, and as an emergency measure during postpartum hæmorrhage.

Ergometrine is as effective orally as by injection, and there is very little reduction in the delay of onset of action when parenteral administration is substituted for oral administration. Indeed, injection need only be

employed if the patient is unable to swallow or to retain an orally administered medicament.

Ergometrine B.D.H. is available in tablets for oral administration and for injection; it is available also in ampoules for intra-muscular or intravenous injection.

For the production of the prolonged contractions required during the puerperium Ergotoxine Ethanesulphonate B.D.H. is available.

Literature and samples on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1

Ergometrine B.D.H.

Valentine's Meat-Juice

IN Dyspepsia, Catarrh of the Stomach or Intestines, or Gastric Irritability from any cause, when the Digestive Organs reject milk and other foods, Valentine's Meat-Juice will be Retained and demonstrate its Power to Restore and Strengthen.

It is in constant use in Hospital and Private Practice and endorsed by eminent Medical Men.

Physicians are invited to send for Clinical Reports.

For Sale by European and American Chemists and Druggists

VALENTINE'S MEAT-JUICE COMPANY
RICHMOND, VIRGINIA, U.S.A.

1B 92



"For a Tired Stomach"

NATURAL KARLSBAD SPRUDEL-SALT



Prepared only by the Municipality of Karlsbad from
the World-famous Sprudel "Spring" at Karlsbad
(IN CRYSTALS OR POWDER)

Is the Only Genuine KARLSBAD SALT.

Largely prescribed in cases of Chronic Gastric
Catarrh, Hyperaemia of the Liver, Gall-stones,
Chronic Constipation, Diabetes, Renal Calculi,
Gout, and Diseases of the Spleen, arising from
residence in the Tropics or Malarious Districts.

Medical Practitioners should kindly note, when prescribing,
to specify "Karlsbad SPRUDEL-Salt."

The wrapper round each bottle of genuine Salt bears the Signature of the Sole Agents:

INGRAM & ROYLE, LTD.,
BANGOR WHARF, 45, BELVEDERE ROAD, LONDON, S.E.1
And at LIVERPOOL and BRISTOL.

Samples and Descriptive Pamphlet forwarded on application.



NOVASORB

(Magnesium trisilicate Evans)

A SAFE ANTACID & ADSORBENT

For the treatment of hyperacid gastritis,
acid fermentation and gastric ulcer

Novasorb is produced by methods which ensure an
optimum clinical value with freedom from any un-
favourable secondary effect. Even when given in
quantity sufficient to neutralise free hydrochloric
acid entirely, it cannot cause alkalosis.

DOSAGE: Approximately one teaspoonful, modified according
to the necessities of each case. Overdosage is not
harmful.

Evans Sons Lescher & Webb Ltd.
Liverpool and London



NOVASORB is issued in bottles:
4-oz. 2/6; 8-oz. 4/9; 16-oz. 9/-
5-lbs. (Hospital size) 40/-
and in tablets: tins of 48, 2/3

A + B + C + D

NESTROVITE

contains four

essential vitamins

in definitely stated

units

Every packing of this new vitamin concentrate gives the doctor the information he has a right to expect—no vague assertions, such as “rich in vitamins,” but clear, precise statements concerning the 4 vitamins, A, B₁, C and D present in every bottle of ‘Nestrovite’ Emulsion and in every ‘Nestrovite’ Tablet. ‘Nestrovite’ in Emulsion form is ideal for the baby and young child, while ‘Nestrovite’ Tablets are more convenient for youth and adult.



DOSES

Infants 1 teaspoonful
Nestrovite
Emulsion
daily.

Toddlers Increase from
1 to 1½ or 2
teaspoonfuls
Emulsion, or
1 Tablet daily.

Children 3 teaspoonfuls
& Adults Emulsion, or 2
Tablets, daily.



STANDARDISATION OF ACTIVITY

Two ‘Nestrovite’ Tablets contain:

13,000 International Units of vitamin A.
120 International Units of vitamin B.
400 International Units of vitamin C.
1,300 International Units of vitamin D.

One teaspoonful of Emulsion contains:

5,000 International Units of vitamin A.
42.5 International Units of vitamin B.
125 International Units of vitamin C.
500 International Units of vitamin D.

NESTROVITE

TRADE MARK

VITAMIN TABLETS and EMULSION

Distributors: ROCHE PRODUCTS LIMITED, 51, BOWES ROAD, LONDON, N.13

Alphidine and Pancreatin

In the
Treatment of

Graves' Disease

Palatinoid No. 3211, O.S. & Co. with Pulverette 'Alphidine,' O.S. & Co.

Pancreatin, gr. 5.

Equals Iodine, gr. $\frac{1}{2}$.

One thrice daily, before meals.

One twice daily, between meals, on two or three days each week

For full particulars see B.M.J., Oct. 2nd, 1937, p. 660.

Oppenheimer Son & Co. Ltd.
Handforth Laboratories, Clapham Road, LONDON, S.W. 9

We Suggest that You Recommend THE ORIGINAL PINEAPPLE JUICE FROM HAWAII



Here is a typical Analysis of Dole Pineapple Juice:

Moisture	85.39%
Ash	0.4
Fat (ether extract)	0.3
Protein (N x 6.25)	0.3
Crude fibre	0.02
Titratable acidity as citric acid	0.9
Reducing sugars as invert sugar	12.4
Carbohydrates other than sugars (by difference)	0.38

THE SURF RIDER.—Surfing, the sport of Hawaiian kings in olden days, was one of the favourite pastimes. Owing to the way the surf breaks on the reef, Waikiki is the only place in the world where this sport is indulged in under ideal conditions. It is a marvellous sight to see the upright gleaming brown bodies of the native surfers come riding swiftly shoreward on a giant comb.



P.S. Just write to us on your letterhead and we will be pleased to send you free a sample tin of delicious Dole Hawaiian Pineapple Juice.

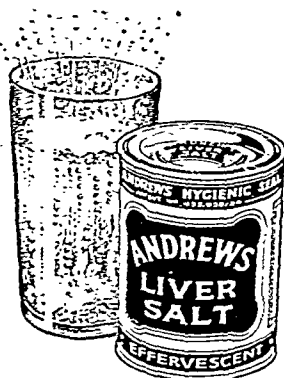
Prescribing a Laxative

When, as frequently happens, the Physician is called upon to prescribe a laxative for prolonged personal use by the patient, Andrews Liver Salt merits special consideration. The main characteristics of this tonic laxative, listed below, suggest its wide range of suitability.

- 1 Andrews is pleasant-tasting. All ages take it readily.
- 2 Andrews causes none of the griping or other discomforts which often create reluctance to continue the use of the more drastic purgatives. Its laxative action is due to the presence of magnesium sulphate and other salts, which increase the fluid content of the bowel by Osmotic action, and so lead to painless, easy evacuation.
- 3 Because of its natural and non-habit-forming action, Andrews—in suitable doses—may be taken with every confidence by the physically weak and during pregnancy. This tonic laxative does not affect adversely the secretion of milk in nursing mothers. Indeed, the quantity of water taken with Andrews Liver Salt contributes to the extra liquids a nursing mother should take.
- 4 Andrews is particularly valuable in the case of patients liable to digestive trouble. The carbon dioxide which is liberated when Andrews is dissolved in water has a soothing effect on the stomach and a physical cleansing action on the stomach walls. Additionally, Andrews corrects excess acidity, stimulates the liver and promotes the flow of bile.
- 5 Andrews creates no dependence on artificial aid, but can be discontinued when the need for it ceases.

ANDREWS

LIVER SALT



An 8-ounce Tin will be sent free, on request, to any member of the Medical Profession.

SCOTT & TURNER LTD., ANDREWS HOUSE, NEWCASTLE-ON-TYNE, 2



DIPHTHERIA PROPHYLAXIS

The Use of Alum Precipitated Toxoid

A.P.T. (Evans)

For children of 8 years and under

A.P.T. (Evans) is a powerful antigen; immunity resulting from TWO INJECTIONS approaches 100 per cent. A dosage of 0.1 cc. to 0.2 cc. followed by 0.5 cc. after two weeks is recommended.

As an alternative to this procedure, the first dose may with advantage be increased to 0.5 cc. so that in the event of a child not returning for a second injection, the degree of immunity will be higher than that resulting from the smaller initial dose.

A.P.T. (Evans) is supplied in:—

Ampoules of 0.5 cc.	.. .. .	2/6 each
Set of 2 x 0.5 cc. immunising doses	.. .. .	4/- per box
Rubber-capped bottles of 5 cc.	.. .. .	16/- each
Rubber-capped bottles of 10 cc.	.. .. .	30/- each.

Made in England at EVANS BIOLOGICAL INSTITUTE by

Evans Sons Lescher & Webb Ltd., Liverpool & London

TRADE
MARK

'LEXTRON'

BRAND

Liver-Stomach Concentrate with Iron and Vitamin B Complex

IN "SECONDARY" ANAEMIAS

In anaemias of the microcytic type, the response to 'Lextron' brand liver-stomach concentrate with iron and Vitamin B complex is rapid. When he prescribes 'Lextron' the physician is assured that his patient will receive all the materials essential to blood regeneration in anaemias of this class.

'Lextron' brand liver-stomach concentrate with iron and Vitamin B complex is supplied in bottles of 42, 84, and 500 'Pulvules' brand filled capsules.

Prompt Attention Given to Professional Inquiries

ELI LILLY AND COMPANY LIMITED

Pharmaceutical and Biological Products

2, 3 AND 4, DEAN STREET, : LONDON, W.1

Distributing Agent in Britain for

ELI LILLY AND COMPANY, INDIANAPOLIS, U.S.A.

Convalescence

In convalescence a tonic is required that will co-operate with, and augment, the natural recuperative powers of the body, rather than one which will have only an immediate stimulating effect. In the latter case there is always the danger of disappointment, due to an artificial improvement that the natural powers are unable to stabilise.

Medical evidence extending over many years has established the value of Sanatogen in promoting convalescence. In "The Elements of Pharmacy, Materia Medica and Therapeutics", Sir William Whitla writes:—

"... The interesting and valuable researches conducted by Tunncliffe and Beddoes upon metabolism, in which Sanatogen was experimented with, establish the fact that its organic phosphorus is almost entirely assimilated when the food is administered in the amount necessary for the needs of the body. When given in addition to other food, the amount of nitrogen and phosphorus retained in the organism is increased; the tissue metabolism is more complete, the constituents of the ordinary food being more thoroughly utilised; appetite is increased and the body weight augmented."

Similarly gratifying observations are constantly being notified, and, as Sanatogen is entirely free from fats, sugars and carbohydrates, it can safely be prescribed in all types of cases. It is rapidly and easily digested and assimilated, even in cases exhibiting severe gastric inflammation, and for this reason it is a valuable addition to enemata. It can be added to any non-acid beverage or food, and, consequently, monotony in its administration can always be avoided.

SANATOGEN

A CHEMICAL COMBINATION OF 95% MILK
CASEIN AND 5% SODIUM GLYCEROPHOSPHATE

Clinical samples and literature available on request to

**GENATOSAN LTD.,
LOUGHBOROUGH,
LEICESTERSHIRE.**

DOSAGE:

For children and adults two teaspoonfuls three times daily, or according to circumstances. For infants, 1 teaspoonful added to each bottle feed.



Sold by all chemists
price 2/3 to 19/9

J E C O C I N

BRAND

MEDICATED COD LIVER OIL

A new preparation consisting of Vitamin tested Cod Liver Oil, Creosote, Chloroform and Cinnamon Oil having nutritive, demulcent, expectorant and antiseptic properties. Excellent results have been obtained in the treatment of infections of the lungs and bronchi; particularly in chronic bronchitis, bronchiectasis, tuberculosis and chronic coughs of a similar nature.

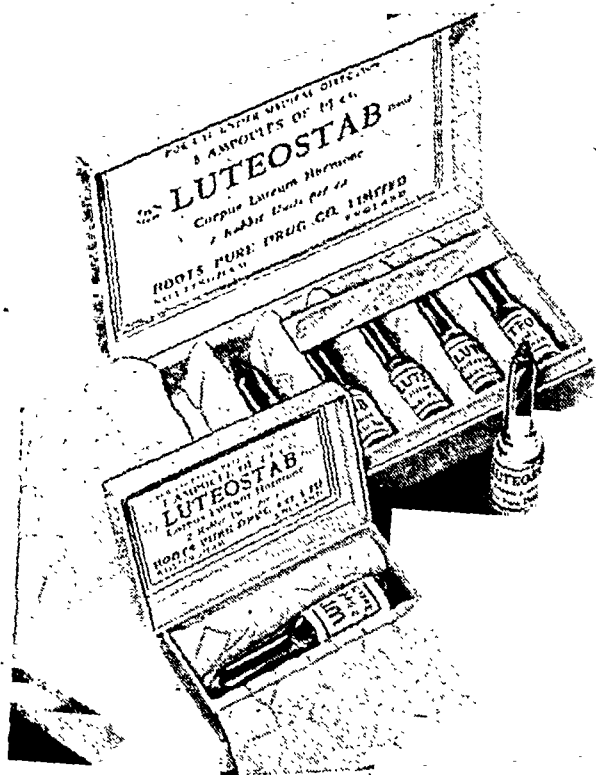
One teaspoonful to be taken three or four times daily
PER 4 oz. BOTTLE - - 2/- (Discount to the Medical Profession)
Sample sent on request.

OBTAINABLE FROM ALL
BRANCHES OF

The
Boots
Chemists

OR FROM THE
WHOLESALE AND EXPORT DEPARTMENT

BOOTS PURE DRUG CO. LTD.
NOTTINGHAM ENGLAND



For threatened and
habitual abortion

TRADE MARK

LUTEOSTAB

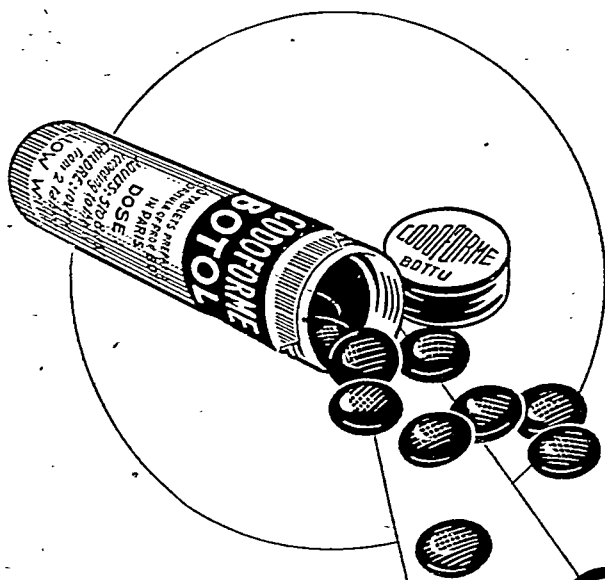
BRAND

Corpus Luteum Hormone

"The use of corpus luteum hormone (progesterone) in habitual and threatened spontaneous abortion is logical and valuable. 34 out of 41 cases were successfully treated with corpus luteum hormone." (J. Amer. Med. Assoc., 1936, 106, 271.)

Supplied in 1.1 c.c. ampoules containing
2 rabbit units per c.c.
Single ampoules and boxes of six ampoules.

BOOTS PURE DRUG CO. LTD. NOTTINGHAM . . . ENGLAND

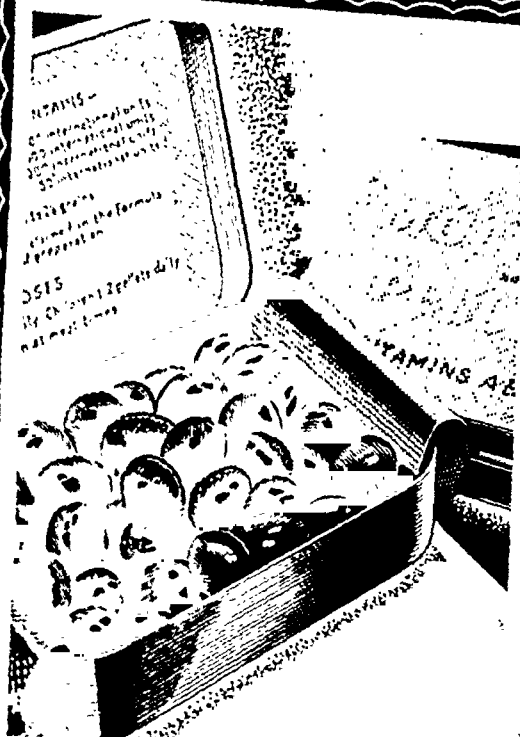


CODOFORME (BOTOL)

A SAFE AND
INSTANTANEOUS
SEDATIVE FOR
COUGH



CONTINENTAL LABORATORIES LTD
30 Marsham Street LONDON S.W.1



MULTIVITE

Multivite is the original preparation combining in high concentration standardised amounts of the fat soluble Vitamins A and D and the water soluble Vitamins B and C in the form of a palatable pellet. Each pellet contains

Vitamin A 3000 international units
Vitamin B₁ 50 international units
Vitamin C 200 international units
Vitamin D 600 international units

The generous and balanced proportions of the vitamins are such that two to four pellets daily so augment the normal dietary intake of vitamins that they constitute adequate therapy in most conditions arising from subnormal vitamin intake; indeed, it has been stated by a well-known physician that Multivite Pellets '... constitute a splendid form of administering the vitamins'.

Sample on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1

Mltv/S 339

MARMITE (YEAST EXTRACT)

IN PREVENTIVE MEDICINE

Susceptibility to infection is known to be minimised by correct nutrition.

It is particularly important to ensure that ample supplies of the vitamin B complex are taken, as deficiency of these factors is not uncommon, and may be responsible for a considerable amount of preventable illness.

Marmite contains all the vitamins of the B group and has proved of undoubted value in preventive and curative medicine.

For sample and literature apply to:-

THE MARMITE FOOD EXTRACT CO. LTD., Walsingham House, Seething Lane, London, E.C.3.

In jars: 1-oz. 6d., 2-oz. 10d., 4-oz. 1s. 6d., 8-oz. 2s. 6d., 16-oz. 4s. 6d. Special quotations for Marmite packed for use in hospitals, clinics, welfare centres, etc.

Cadbury's have perfected a
SPECIAL CHOCOLATE
which is Sugar Free and
therefore a suitable addition to
the dietary of diabetics

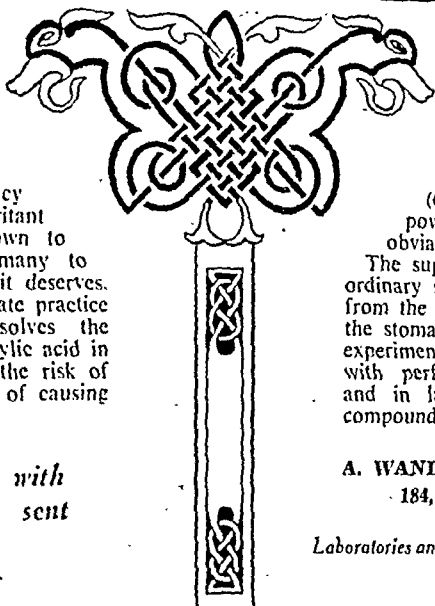
. This chocolate is extremely palatable, and because Cadburys have unlimited facilities for laboratory research and the subsequent manufacture and marketing of such a product it sells at a very low price. Further details and analysis with a sample of this Special Chocolate will be gladly forwarded to anyone interested. Please write to Cadburys Laboratories, Bournville.

CADBURY BROS. BOURNVILLE ENGLAND

FOR EFFECTIVE CONTROL OF PAIN

AMONG the many and diverse analgesics which have been evolved by modern chemical research, acetyl-salicylic acid retains its reputation as one of the safest and most effective. Its tendency to liberate salicylic acid—the irritant properties of which are well known to physicians—has, however, caused many to hesitate to employ it as widely as it deserves. Exhaustive trial in hospital and private practice proves that "Alasil" definitely solves the problem of administering acetyl-salicylic acid in an effective form, being free from the risk of irritating the stomach or bowels or of causing general reactions.

A supply for clinical trial with full descriptive literature sent free on request.



In "Alasil" the desirable therapeutic effects of acetyl-salicylic acid are well exhibited by its calcium acetyl-salicylate moiety, while the presence of "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid, obviates any tendency to gastric irritation. The superior absorbability of "Alasil" over ordinary salicylate compounds and its freedom from the risk of liberating free salicylic acid in the stomach have been well proved by careful experimentation. "Alasil" can be prescribed with perfect safety to patients of all ages and in larger doses than ordinary salicylate compounds.

A. WANDER, Ltd., Manufacturing Chemists
184, Queen's Gate, London, S.W.7.

Laboratories and Works: KING'S LANGLEY, HERTS.

ALASIL



MANDECAL

(Compound Calcium Mandelate B.D.H.)

Clinical evidence continues to confirm the value of Mandecal in the treatment of urinary infections; for example, it is reported that a case of pyelocystitis in an elderly patient responded after only four days' treatment; the urine cleared rapidly and the patient experienced a marked improvement in general health.

Mandecal, being readily miscible with water, is simple of administration; moreover, it is established that no dyspeptic discomfort follows its use.

Sample on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1

Mnd/S/5

*Serum therapy will save more than
half of those who die from*

PNEUMOCOCCUS LOBAR PNEUMONIAS

Type 1 and Type 2

THE RESULTS OBTAINED IN THE EARLY and adequate treatment of Type 1 and Type 2 Pneumonias with specific serum have been spectacular and its success can be measured by—

- a 60% reduction in the death rate of Type I cases
- a 40% reduction in the death rate of Type II cases
(if treatment is commenced within 96 hours of onset)

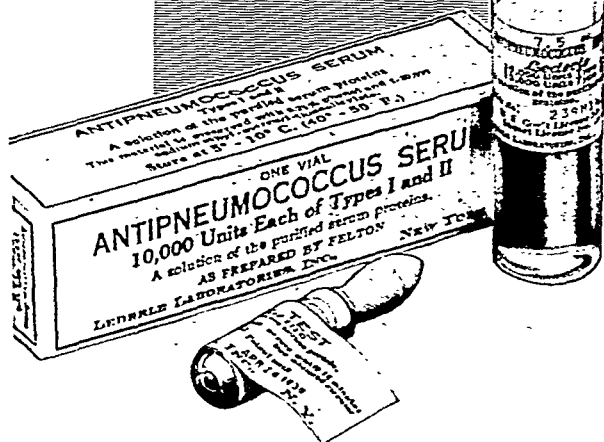
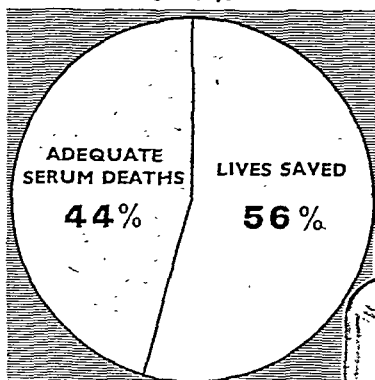
By adequate serum treatment is meant chiefly intensive dosage during the first four days of illness. An even greater number of lives may be saved if the serum is administered during the first 24 hours.

CECIL* has presented the reports of several authors which show only a 5% mortality rate for 160 Type I cases treated during the first 24 hours of the disease.

*CECIL, RUSSELL L. J.A.M.A.
Vol. 106, No. 9, February 27, 1937

NON-SERUM DEATHS

100%



Chas. F. Thackray
LTD

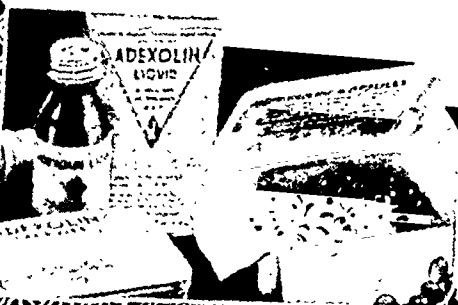
The Old Medical School LEEDS
Telegrams and Cables "Aseptic Leeds" Telephone 22085 (3 lines)

252 Regent Street LONDON W1
Telephone Telegrams and Cables "Regent 1834 London"

RELIABLE VITAMIN PROTECTION AGAINST WINTER



Flexibility
more important than
extreme concentration



★★★ To protect the susceptible at this time of year, to shorten the course of an early cold, or to check recurrent infection, the immediate administration of Adexolin vitamins A and D is urged. Four to five Adexolin capsules daily, followed by a routine dosage (one capsule daily) has proved to be a reliable measure. Adexolin serves to build up a nutritional barrier to disease and to increase the general sense of well-being.

★★★ Adexolin concentrates of A and D are of such potency that the smallest prophylactic dose or the largest dose for "massive" vitamin therapy may be given with equal convenience. Each gm. capsule contains 6,000 international units of vitamin A and 1,000 of D (the equivalent in both vitamins of three teaspoonfuls of medicinal cod-liver oil). Each cc. of tasteless Adexolin Liquid contains 12,000 international units of A and 2,000 of D.

CAPSULES: Boxes of 25, 2/6; 100, 7/6; 500, 30/6; 1,000, 56/-; **LIQUID:** 4 oz. phials, 2/6; 2 oz. bottles, 7/6; 4 oz., 12/6; 8 oz., 22/6. The above prices, which are subject to the usual professional discount, do not apply in I.F.S.).

ADEXOLIN

VITAMINS A & D

LIQUID & CAPSULES

GLAXO LABORATORIES LTD., GREENFORD, MIDD.

G.L. 278

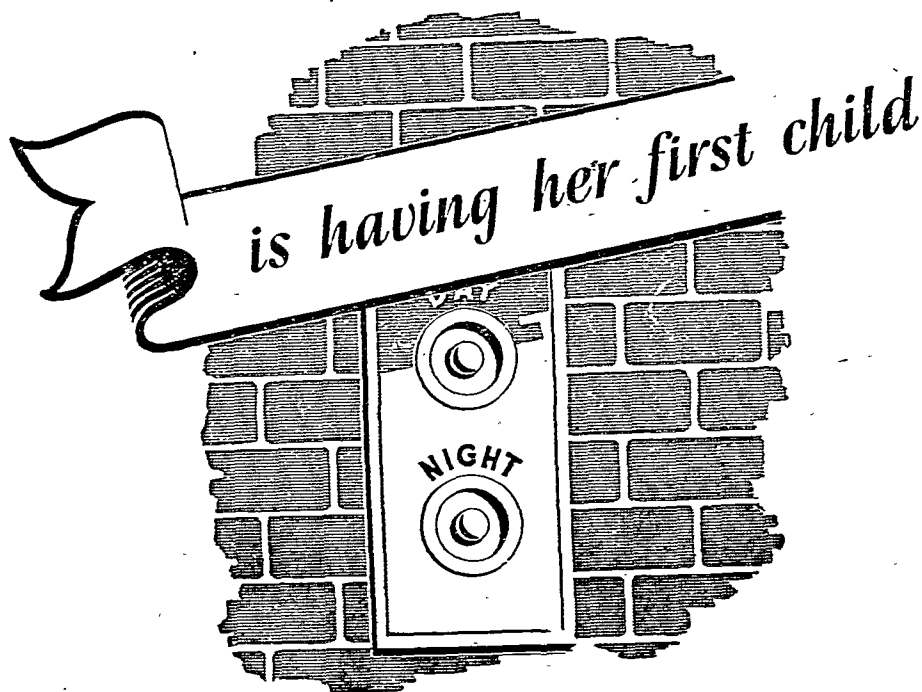
Asthma

SUCCESSFULLY TREATED
WITH **SANABRONCHIN**
INHALANT AND
RESPIROSAN
TABLETS

Samples and Lit.
FRANCIS RIDDE

HOUSE, WARWICK ST. LONDON. W.1.

Your patient . . .



LABOUR is difficult and prolonged. During the hours of strain and afterwards—you will want to do all in your power to maintain this young mother's strength.

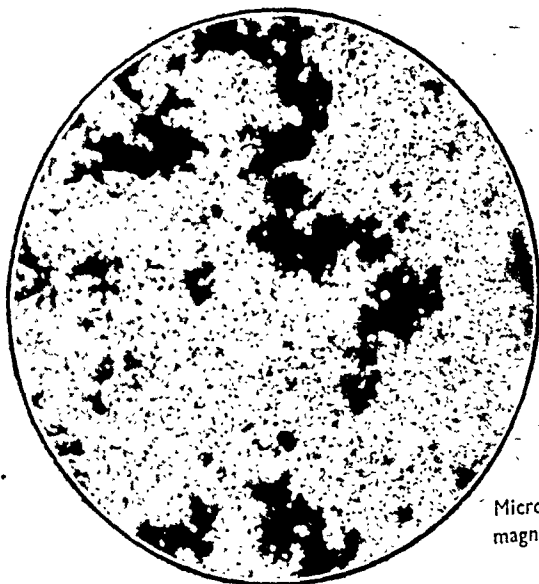
Brand's Essence is a practical and efficient stimulant at this and all times when the minimum energy can be spared for digestive effort. The ease and speed with which Brand's is assimilated are due to a complete absence of solids and irritants. Protein-sparing action takes place to a marked degree. The essence does not cause thirst and can be given at a moment's notice with a teaspoon.

BRAND'S CHICKEN OR BEEF ESSENCE

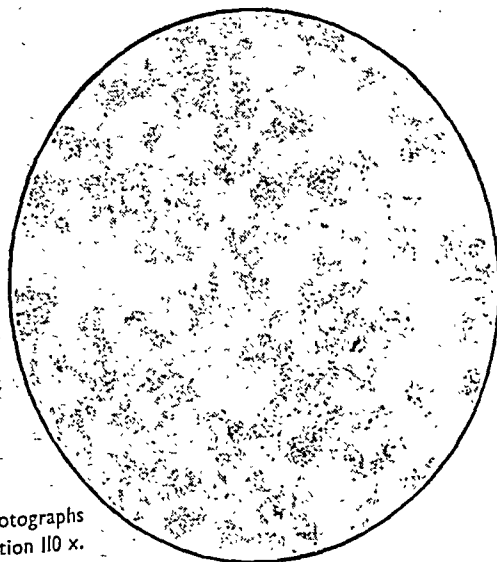
is never contra-indicated

BRAND & CO., LTD., SOUTH LAMBETH ROAD, LONDON, S.W. 8

Visual evidence of the minute sub-division of 'BiSoDoL'



An antacid powder compounded by ordinary methods.



Micro-photographs magnification 110 x.

'BiSoDoL' reduced to fine sub-division by special processes in compounding.

Modern gastro-intestinal therapy demands a powder of fine sub-division.

'BiSoDoL' presents a balanced antacid powder reduced to the finest possible state producing rapid therapeutic action.

'BiSoDoL' is indicated in all conditions involving hyperacidity.

Samples for clinical trial will gladly be sent on request.

BiSoDoL

REGD.

BISODOL LTD., 12 CHENIES STREET, LONDON, W.C.1.

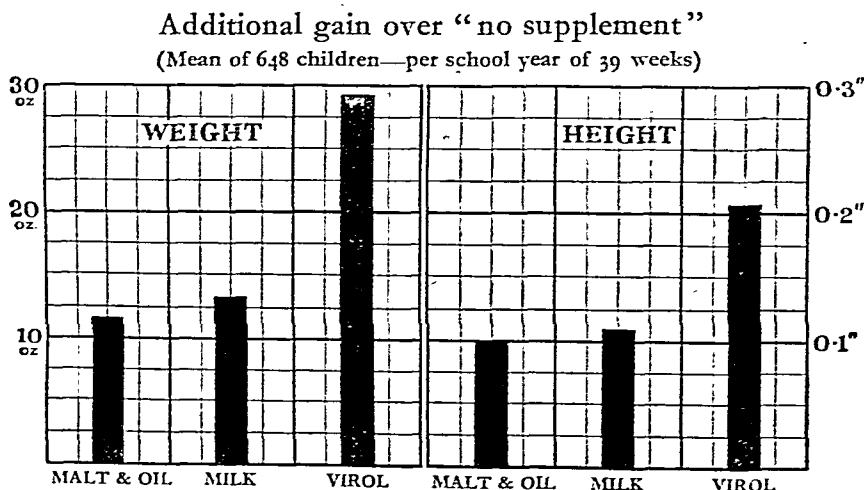
Tel.: MUSEUM 9024

DIETARY DEFICIENCIES

AND THEIR TREATMENT

It is widely recognised that the diet of children of school age is in general by no means complete; but that the deficiencies are of a multiple nature is not so fully appreciated.

An investigation recently published in the medical press* has shown the extent to which supplements designed to counteract such deficiencies assist growth. 864 children from schools in the North and South of England were given in turn, as additions to their ordinary home diet, either milk, or cod liver oil and malt extract B.P., or Virol, or else no supplement. Each supplement was given for one term to three-quarters (648) of the children. The daily quantities given were of equal calorific value, and the experiment lasted for one school year. The following diagrams show the additional gains in weight and height of the treated children over the controls—



The superiority of the results obtained with Virol is at once evident, and demonstrates how the correction of multiple dietary deficiencies can be achieved by the use of a physiologically balanced preparation. Judged by the standard of so good a food as milk, the excellence of Virol is all the more striking. In all those children whose multiple dietary deficiencies need correction, Virol will evoke a maximum response. Only by giving a *complete* supplement is it possible to ensure this result.

* The "Medical Press & Circular," 27th October, 1937. A reprint of the article will gladly be sent on application to Virol Ltd., Harger Lane, Ealing, W.5.



STATUARY © 1127

During the six years since its introduction, Nembutal has been the subject of more than two hundred reports and references in medical literature. This record is important not only as an indication of the profession's interest, but also as evidence of the extensive clinical investigation to which the drug has been subjected.

• Today, its uses and advantages as well as its limitations are well understood, and the practitioner can make use of Nembutal with full confidence in its safety when administered as recommended. • Used orally, rectally or, in emergencies, intravenously, Nembutal exerts an extremely rapid but brief hypnotic and a pronounced sedative action from a dosage only about one-half that of most other powerful barbiturates. This small dosage, by lessening the amount of the drug to be eliminated, makes Nembutal, clinically, one of the safest

of the barbiturates. • Safety, rapidity and brevity of action recommend Nembutal for use as a pre-anæsthetic sedative in both major and minor surgery, as well as for the treatment of insomnia, hysteria, sea-sickness, nausea from any cause, eclampsia, delirium tremens, convulsions from strychnine or other poisoning, as a supplement to morphine in controlling the pain of early cancer and in obstetrics. • Nembutal is available in

a wide variety of forms, the most widely employed of which are the 1/2-grain and 1 1/2-grain capsules for oral administration. Comprehensive literature, together with a free trial sample of the 1 1/2-grain Nembutal capsules, will be sent upon request.

ABBOTT LABORATORIES LTD.,
WADSWORTH RD., PERIVALE, MIDDY
Montreal Dublin Sydney Bombay Shanghai
New York Chicago Mexico City Buenos Aires
Rio de Janeiro Johannesburg Havana Manila

NEMBUTAL

MADE IN THE EMPIRE



Please send free trial sample of Nembutal 1 1/2-grain capsules and literature to

NAME _____

ADDRESS _____

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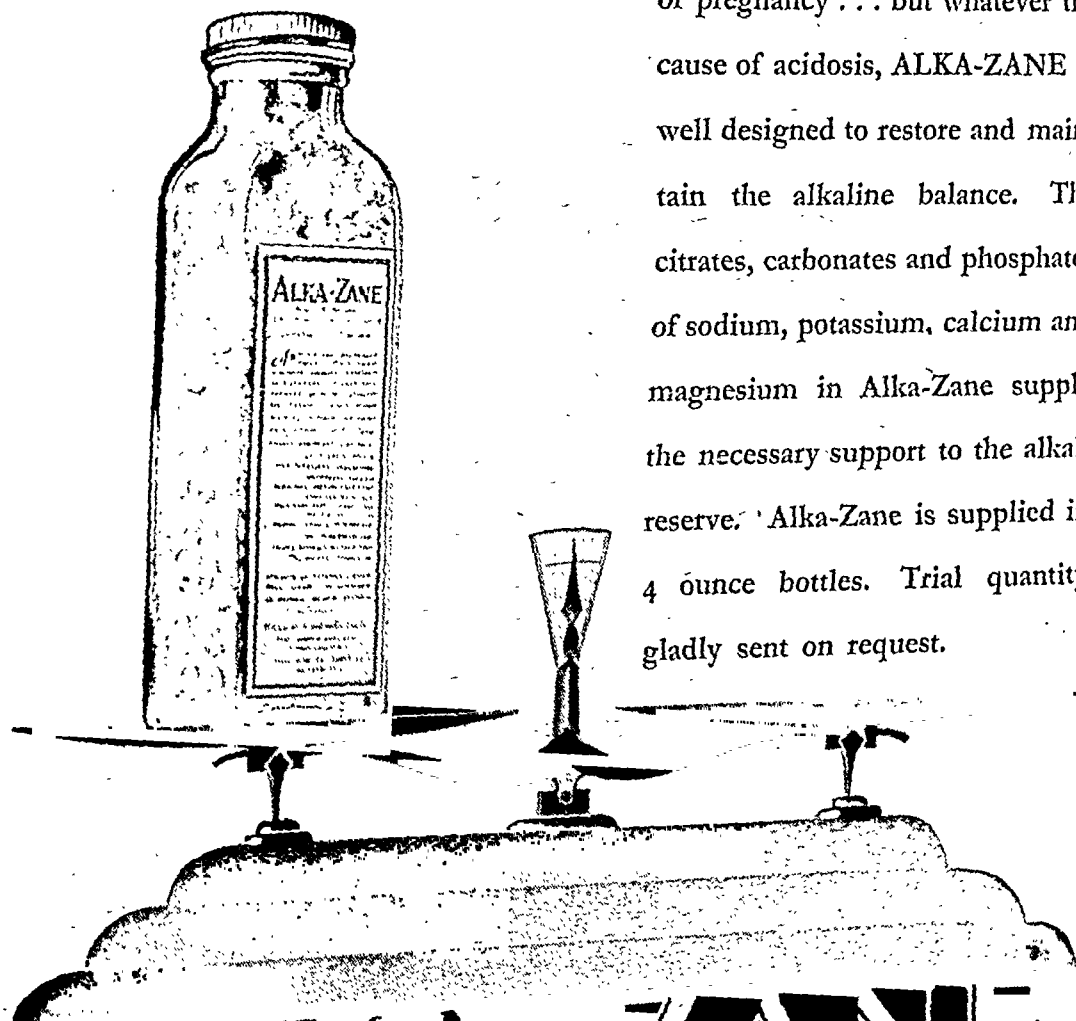
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ANGINA OF EFFORT: A CLINICAL STUDY

BY

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AND

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The clinical differences between the types of cardiac pain have been described in a previous paper (Bourne, 1935) and have also been stressed in a later one, "Angina Innocens: A Clinical Study" (Bourne, 1937). The present communication is a full analysis of a series of 112 patients suffering from the symptom of angina of effort. The method of presentation of these papers dealing with the various types of cardiac pain might suggest that an attempt was being made to describe individual diseases. This is by no means the case, but the definite clinical pictures provided by the different varieties of cardiac pain are so clear and distinct that it is believed that the mechanisms vary in each individual type of pain. Since at the moment it is quite impossible to determine minor and transitory changes in the coronary circulation by any other means, a careful scrutiny of the symptomatology is an essential method of approach to the problem. There are several possible organic causes of the symptom of angina of effort, presupposing this symptom to be the result of interference with coronary flow during exercise: coronary atheroma and syphilis of the aorta interfering with coronary flow are the commonest causes. Furthermore, cases have been described where severe anaemia was associated with angina of effort and where no evidence of cardiovascular disease was found at necropsy. (Cabot, 1926; Willis and Giffin, 1927; Elliott, 1934.)

The large majority of the patients here described were presumably suffering from coronary atheroma; seven had syphilitic aortitis, and one of these also had hypertension; one patient showed Addisonian anaemia as the only abnormality; and two had severe hypochromic anaemia; one of the last two, who in addition had aortic stenosis, lost his pain when the anaemia had responded to treatment.

Definition and Symptomatology

By angina of effort is meant a cardiac pain generally arising centrally or to the left of the sternum, sometimes radiating to one or both arms, which has an exactly quantitative relation to exertion. In a given case a given

* Since the publication of the above paper a certain amount of criticism of this label has arisen. Such criticism, as in the case of "pseudo-angina" and "secondary angina," has been entirely destructive. It is clear that the syndrome needs a definite name in order to stimulate an accurate inquiry into the signs and symptoms present in any individual patient. It is therefore in the hope that some better nomenclature may arise, and in the absence of any better term, that the name "angina innocens" is maintained.

amount of exertion will produce the pain, and cessation of that exertion will be followed immediately by a progressive diminution in and the disappearance of the pain. The pain never comes on at rest, except for the following exception. In a few cases, as in 10.7 per cent. of the present series, severe emotion may produce some pain; and since such emotion is associated physiologically with an increase in the heart rate and a raised blood pressure, it would be curious if in cases of angina of effort pain did not occasionally appear under these circumstances also. The effect of emotion in patients with angina of effort, however, is subsidiary in point of degree. The patient does not spontaneously complain that emotion produces the pain: it is only in response to a leading question that this is discovered. The outstanding symptom is pain which accompanies physical exertion, quantitatively, and which disappears with rest. The series here described is one consisting of cases of pure angina of effort; this fact is stressed because in any large consecutive series of cases of cardiac pain mixtures of the types of pain are not infrequent—for example, spasmodic angina is nearly always superimposed on an angina of effort, angina of effort is frequently complicated by coronary thrombosis, and the angina innocens type of pain has been observed to follow a coronary thrombosis. The various clinical pictures, however, are definite and distinct. *Provided a careful history is taken*, confusion between the different types of pain should not occur.

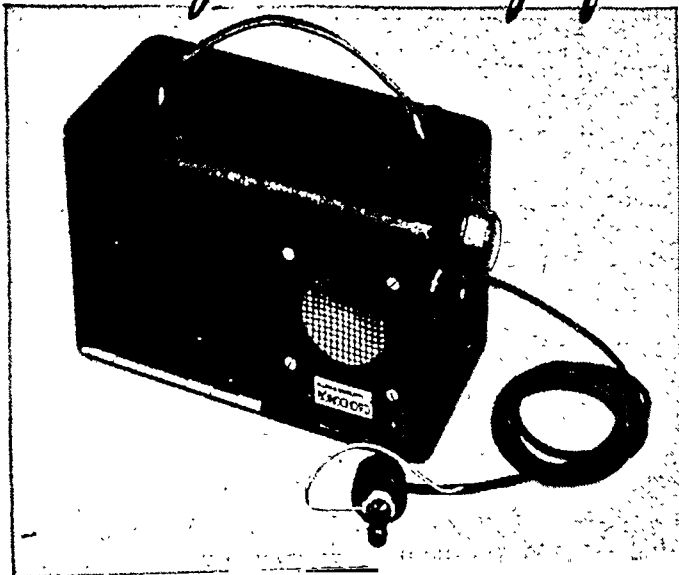
Reasons for Analysis

The chief reasons for analysing carefully a group of patients suffering purely from angina of effort are: first, that the different history from that given by patients with spasmodic angina suggests the presence of a different mechanism of pain production; secondly, that many patients are met with who have a history of pure angina of effort, and it is therefore helpful, so far as prognosis is concerned, to determine the expectation of life in a fairly large group of patients with an uncomplicated history of this definite symptom; thirdly, that with the introduction of new methods of treatment an accurate classification of clinical material is likely to be helpful in more accurately gauging the results of such treatment.

Exercise or physical effort produces different effects on the different types of cardiac pain. In the case of angina of effort this has already been described. An attack of

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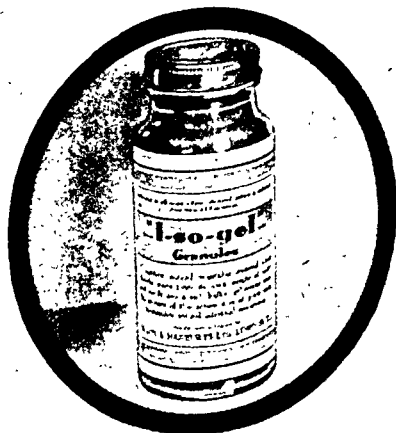
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was carefully investigated by cholecystography in all patients showing symptoms giving rise to suspicion of this condition. Cholecystitis was suspected in five patients, and was proved to be present in three cases. Among the other pathological states occurring in these patients the most striking is hemiplegia, which was found in three cases. Herpes zoster had occurred in three cases also.

An attempt was made to divide off the patients according to the physical and mental stress of their professions in order to determine the effect of this upon the presence of angina of effort. The mode of life was physically strenuous in thirty-two, or 28 per cent.; was physically and mentally strenuous in fourteen, or 12 per cent.; was mentally strenuous alone in forty-one, or 36 per cent.; or not strenuous physically or mentally in twenty, or 18 per cent. In 6 per cent. of cases there is insufficient evidence in the notes to come to an opinion on this point.

The Pain of Angina of Effort

The site of origin of the pain was worked out independently in the private group by G. B. and in the hospital group by R. B. S.; the results in each group are strikingly similar. The pain was central in 70.1 per cent. of the hospital cases and in 70 per cent. of the private cases. It arose in the left chest in 17.4 per cent. of the hospital cases and in 17.6 per cent. of the private cases. When angina of effort arises in the left chest it tends to appear in the upper rather than the lower half and does not start from the region of the heart's apex; these are minor distinctions between the left-sided pain of angina of effort and the left-sided pain of angina innocens. It started in the right chest in 4.4 per cent. of the hospital cases and in 4.7 per cent. of the private cases. The origin was epigastric in 4.4 per cent. of the hospital cases and in 2.3 per cent. of the private cases. It started in the left hypochondrium in one case, and in the left arm in two cases. Radiation was not invariable, as the pain remained localized to the site of origin in thirty-eight cases. When radiation occurred it was most frequent to the left arm; it sometimes occurred to both arms and less frequently to the right arm alone. Radiation to the abdomen and to the throat also occurred.

The association of the pain of angina of effort with other symptoms is shown in Table II. The accentuation

TABLE II.—*The Association of Angina of Effort Pain with Other Symptoms*

	Private Cases		St. Bart's		Total	%
	No.	%	No.	%		
With dyspnoea	19	44.2	54	78.3	73	65.1
On undressing	2	4.7	4	5.8	6	5.4
With constriction	23	53.5	50	72.5	73	65.1
With palpitation	0	—	11	16.0	11	9.8
With giddiness	2	4.7	3	4.4	5	4.5
With exertion after meals. (Total number)	9	21.0	26	37.7	35	31.2
With exertion after meals and without actual dyspnoea	6	14.0	11	16.0	17	14.9
Pain increased in cold wind ..	3	7.0	5	7.3	8	7.1
Patients who "walk it off" ..	5	11.7	4	5.8	9	8.0
Patients with dyspnoea. (Total number)	9	21.0	30	44.0	39	34.5
Patients with dyspnoea in whom food did not affect the anginal pain	6	14.0	14	20.3	20	17.5

of the pain if exercise is taken following a meal is clearly shown, but the effect of cold is less marked than in spasmodic angina. In some patients the severity of

the true angina of effort pain following a meal is so extreme that almost invariably in the case of the patient, and sometimes in the case of his medical attendant, it is thought to be due exclusively to some form of dyspepsia. The effect of food physiologically is to produce splanchnic congestion and systemic ischaemia, to increase the forcefulness of cardiac contraction, and to produce changes in visceral nervous tone. It is thus easy to account for the exacerbation of effort pain after food in patients suffering from angina of effort. The ability of certain patients to "walk off" the pain, or as in one case to work it off by the use of a heavy hammer, was originally noticed by Heberden, one of whose patients wrote him a letter describing accurately this peculiarity (Heberden, 1785). The fear of impending death, which is such a dramatic characteristic of the typical attack of spasmodic angina, has not been met with at all in the present series of cases of angina of effort. The explanation is probably that in this condition relief from the pain can be obtained immediately by ceasing the effort which is producing it. The patient thus does not push himself to a point where a pain is at all severe. In spasmodic angina, where the attack has to run its course, however slight the causative stimulus may have been, the patient feels helpless in the presence of the attack, which as it were gets out of hand. In these circumstances a sensation of impending death is easily understandable.

Other Cardiovascular Symptoms

Orthopnoea was present in 31 per cent. of the cases and paroxysmal dyspnoea in 4.5 per cent., but slight exhaustion was frequent, as it occurred in 52 per cent. Exhaustion of a severe type was complained of in only 5.4 per cent. Giddiness was fairly common, as would be expected in patients with vascular disease; giddiness on rising was present in 15.8 per cent., and giddiness at other times in 24 per cent. Fainting occurred in only two cases, one of these having aortic regurgitation.

Incidence of Cardiovascular Disease in Angina of Effort

Of the 112 patients, six died suddenly and unexpectedly; two died with the classical symptoms of acute left ventricular failure: twenty-eight suffered from a coronary thrombosis, proved electrocardiographically or giving a typical history; four suffered from aortic stenosis and three from aortic regurgitation; four had a proved active syphilitic aortitis; four had a systolic murmur at the aortic base, together with an enlarged heart as proved radiologically; one had a harsh systolic murmur typical of mitral regurgitation, with a systolic thrill at the apex, and with hyperpnoea; four had bundle-branch defects, shown electrocardiographically; five had inversion of the T wave in Lead I or II or both; two had PR intervals greater than 0.2 of a second; fourteen had hyperpnoea together with enlargement of the heart, as shown radiographically; seventeen had enlargement of the heart, proved by radiograph, with a normal blood pressure; and five had hyperpnoea without evidence of cardiac enlargement. This leaves a group of thirteen, or 11.6 per cent., in whom no evidence of cardiovascular disease was discovered. It is apparent that 88.4 per cent. provided unquestionable evidence of chronic cardiovascular disease.

It must, however, be remembered that a heart may appear normal clinically, electrocardiographically, and by x-ray examination, and may yet have an advanced degree of coronary disease (Bourne, 1936). A further point to be remembered is that interference with coronary

spasmodic angina is often initiated by exercise, but on the cessation of exercise a spasmodic attack continues or becomes even more severe; it "has to run its course." In the case of angina innocens (Bourne, 1937) it is often inaccurately stated by the patient that exercise brings on the pain, but further careful analysis of the symptom makes it clear that the pain is worse after rather than during exercise, and is continued for a long period while the patient is at rest. Coronary thrombosis occasionally manifests itself, if the thrombosis is a small one, by an angina of effort type of pain; but in contradistinction to the cases without thrombosis the onset is sudden, and after some days the pain generally becomes considerably less severe, and frequently disappears; the suddenness of the onset, the early severity, and the progressive improvement are characteristic of this latter clinical type.

Angina of effort, on logical grounds, would appear to be the type of pain most likely to be associated with a chronic organic lesion interfering with the coronary circulation. This probability seems to be borne out by the analysis of the present series of cases.

Historical

The relation between exercise and anginal pain has been recognized since the days of Heberden, and the probable relation between this type of pain and disease of the coronary vessels has been suspected since the observations of Jenner. There appears, however, to be no clinical study restricted to cases which show this pure exercise type of pain only. The historical steps subsequent to the writings of Heberden, Jenner, and Parry have been traced in Lewis's paper (Lewis, 1932), which also describes a series of experiments on the rhythmic and repeated muscular contractions in an arm whose blood supply was periodically occluded by a sphygmomanometer band. Lewis's main conclusions are that the pain produced in the muscle under these conditions is not due to the presence of arterial spasm and that it is not a direct result of lack of oxygen. He believes that the "pain is due to a stimulus arising directly or indirectly out of the contraction process," and that some chemical or physico-chemical agency is present as a causative factor within the muscle mass. Further, he concluded that this factor acts in tissue spaces though it is dependent on processes occurring within the muscle fibre as a result of its contraction. He believes that the pain is due to the accumulation of the factor in the tissue spaces, this accumulation being assisted if the blood flow through the spaces is lessened, and prevented if the blood flow is adequate. The condition in the heart whose circulation is impaired during exercise is probably closely analogous to that present in the muscles of the arm when these are exercised during a period of ischaemia.

Clinical Material

The clinical material of our series consists of 112 cases, forty-three seen in private practice and sixty-nine in the cardiac follow-up department of St. Bartholomew's Hospital. Of these, ninety-eight, or 88 per cent., were men, and fourteen, or 12 per cent., were women. In the private group there were three women, or 7 per cent., and in the hospital group eleven women, or 16 per cent. The age incidence is shown in the following table, the most striking fact perhaps being the earlier incidence of the syndrome in hospital cases. This may be explained by one of two factors—either that worry is more severe or that atheromatous changes are more common in the latter class.

TABLE I.—Age Incidence

Age	Private	Hospital	Total
30-39	0	4	4
40-49	4	14	18
50-59	15	22	37
60-69	17	24	41
70-79	7	5	12

Methods of Examination

In all cases a full history was taken. In the past history the following points were specifically investigated: rheumatic fever, growing pains, chorea, scarlet fever, tonsillitis, diphtheria, syphilis, and the history of the puerperium. Note was also taken of other diseases or surgical operation. A history of previous mental stress or trouble was not inquired into in every case. The following symptoms were investigated in each patient: pain, dyspnoea, sighing, orthopnoea, feeling of constriction, palpitation, exhaustion, cough, giddiness, dyspepsia, state of the bowels, catamenia, frequency of micturition. With regard to the pain the points elicited were: its character, position, radiation, duration, relation to exercise and emotion. The patients were asked whether the pain occurred during exercise, in a quantitative manner, or whether it would be worse when the exercise had been finished; also whether it was ever evident when they were resting or in bed. Inquiry was made about their present and past work, their ability to play games, to walk (with special reference to hills), to climb stairs, and to run; and also the quality of their sleep and their habits as regards smoking and alcohol.

Physical examination included special notice of the presence of dyspnoea, orthopnoea, cyanosis, pallor, pulsation, clubbing of the fingers, and tremor; the pulse rate; the state of the peripheral arteries and veins. The heart was examined by inspection, palpation of the apex beat, palpation of the praecordium for abnormal impulse or thrills; the position of the apex beat, the area of cardiac dullness, and the sounds were noted. Precordial hyperaesthesia was tested for in every case and the lungs and abdomen examined. An electrocardiogram was taken, and in some cases repeated. The Wassermann test was done. A six-foot film of the heart was taken, the contour of the heart noted, and the heart-chest ratio measured. In the private cases, however, a Wassermann reaction was only done if syphilis was definitely suspected, and an x-ray examination was not made in all cases.

Aetiology

The following were the chief points which emerged in considering the previous history of these patients. There was a history of rheumatic fever or chorea in ten, or 8.9 per cent. A history of syphilis was present in sixteen, or 14.3 per cent.; of these sixteen cases five gave a positive history of previous infection, the Wassermann reaction being negative, and seven had at the time of examination clinical evidence of a syphilitic aortitis with a positive Wassermann reaction. Syphilis and rheumatism were both somewhat commoner in the hospital group. A history of malaria was present in nine, or 8 per cent. Nine patients, or 8 per cent., had diabetes mellitus. One patient was suffering from pernicious anaemia, and two from idiopathic hypochromic anaemia; in all three cases successful treatment of the anaemia removed the cardiac pain. The state of the gall-bladder

remain up and about, later in the day. Of the twenty-five deaths four were from non-cardiac causes, in five the cause was unknown, and sixteen resulted from cardiac causes.

These conclusions would seem to indicate that "angina pectoris"—to use the inaccurate and general label—is not a dangerous symptom; for death does not occur during the attack of pain, and except in so far as it is the manifestation of a terminal coronary thrombosis the pain itself is not the fatal condition it is so commonly thought to be. This being so, it is the duty of the medical profession to discard the attitude of terror and taboo which is still so prevalent when dealing with and discussing this symptom, and to teach the general public that "angina" is in most cases not a dangerous or fatal condition; that, on the contrary, it is compatible with many years of useful life and is amenable to treatment; that danger is only to be feared from the underlying vascular disease.

Factors Influencing Prognosis

It can be said at once that the numbers in this series are too small for any accurate statistical analysis, but the following facts appear to emerge. Cardiac asthma, as would be expected, is a dangerous symptom, for all three patients died within two years. Abnormalities in the T wave of the electrocardiogram in Leads I and II seemed to be the next most serious finding. Seven out of ten patients in whom the T wave was inverted in Lead I or Lead II, or both, died, and two out of three patients died in whom the T wave was diphasic in Lead I or II. Thus nine out of thirteen patients with abnormalities of the T wave in Leads I and II died. This abnormality was not the transient electrocardiographic change of coronary thrombosis, but was persistent and permanent. Dyspnoea on exercise of a moderate degree was not more common in patients who subsequently died; not enough evidence was obtained that the presence, the absence, or the degree of dyspnoea resulting from exercise was helpful in prognosis. Coronary thrombosis is obviously likely to be a common cause of death in this group; but it is remarkable that the twelve patients in whom angina of effort started with a coronary thrombosis all remain alive. Active syphilis produced death in two cases out of eight; a third syphilitic patient died, but with coronary thrombosis in an atheromatous vessel. Diabetes appeared to make no difference to the prognosis.

It would thus seem that the cardiac prognosis ultimately depends upon whether or not a fatal coronary thrombosis is likely to develop, and upon the state of the left ventricular muscle. The only safe guide to determining this second point would be the amount of exercise that such a patient can undertake. This is of course generally restricted by the exercise pain. Some patients, however, can on some days undergo far more exertion without suffering pain than they can on others, and in these circumstances ability to climb hills or to walk reasonably well during a painless period is the most valuable prognostic point obtainable. Other complications of vascular disease, such as cerebral thrombosis, may prove fatal; this occurred in four cases in the present series.

Conclusions

1. Angina of effort is a clear-cut and definite symptom.
2. Angina of effort is associated in a very high percentage of cases with provable organic cardiovascular disease.

3. In our opinion, taking into account the impossibility in some cases of proving during life that coronary disease exists, angina of effort does not occur without coronary disease, except possibly in some cases of severe anaemia.

4. This coronary disease may be severe or slight, and probably in the majority of cases does not cause obstruction to the blood flow in the resting heart, but produces its effect by interfering with the normal stretching of the coronary arteries which occurs during exertion.

5. Angina of effort is in itself not a dangerous symptom: patients do not die in an attack. Danger is only to be apprehended from the occasional occurrence of coronary thrombosis, from the results of coronary atheroma on the ventricular muscle, or from other vascular accidents.

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THE SHORTAGE OF CALCIUM IN THE "POORER-CLASS" DIET

BY

KATHARINE H. COWARD, D.Sc.Lond.

ELSIE W. KASSNER, F.I.C.

AND

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(From the College of the Pharmaceutical Society, London)

Certain routine tests carried out in this laboratory gave results which emphasized the fact that the ordinary diet of the poorer classes, consisting largely of bread, margarine, jam, potatoes, some meat, and a little milk and fresh vegetables, might be seriously deficient in bone-forming elements. An experiment designed to test this point has amply confirmed the suspicion.

Simpson and Wood (1935) investigated the influence of supplements of (a) cod-liver oil, (b) halibut-liver oil plus dried milk, and (c) virol to the diet of children attending various infant welfare centres in a typical London area. The children were mostly from working-class homes, and their diet was not controlled by the investigators. The doses of the three supplements were adjusted so that each child received an additional 75 calories a day. The amount of vitamin D received daily as cod-liver oil by each child was 2,080 international units, contained in 8 grammes of oil, which was therefore a very rich sample. (The *British Pharmacopoeia* 1937 Addendum requires a minimum vitamin D content of 85 international units per gramme.) The dose of halibut-liver oil gave approximately three and a half times as much vitamin A (as judged by "blue units") and a quarter as much vitamin D as the dose of cod-liver oil. Since the daily dose of halibut-liver oil was only 0.2 gramme, an extra half-ounce of dried milk was given to bring the calorie value of the total supplement up to that of the cod-liver oil supplement. The daily dose of virol was 20 grammes, stated to have a

flow may only be relative. Coronary ischaemia may occur either because there is a narrowing of some part of the coronary circulation or because there may be at some point in the coronary circulation an area of slight disease which produces loss of elasticity of the vessel. Under this latter condition the coronary flow would be normal except during such a state of exercise as would require a greater flow of blood than the inelastic vessel could provide. The cardiac nutrition would not suffer under these circumstances, but pain of a typical effort character would result from the relative cardiac ischaemia produced during exertion. The presence or the degree of pain depends also on other factors, such as possibly the psychological state of the patient (Bourne, Scott, and Wittkower, 1937; Wittkower, 1937), or on the degree of sensitiveness of the nervous system.

Three negative points are worthy of notice. In the above list of cardiovascular conditions there is no case of congestive failure, no case of auricular fibrillation, and only one of mitral disease, this being a case of mitral regurgitation. Mitral stenosis is conspicuously absent.

Relation between Angina of Effort and Coronary Thrombosis

The estimation of the incidence of coronary thrombosis in a series of cases depends, first, upon the proof of the condition electrocardiographically, and, secondly, on the presence of a typical history of an attack. We did not regard the latter point as positive unless the patient had suffered from a severe attack of precordial pain, so acute as to be incapacitating and lasting continuously or intermittently over a number of days. In many cases there was a history that the pain needed relief by an injection of morphine, and in most of them there was evidence that such an attack was followed by a diminution in the patient's powers of physical activity. Wherever an attack of this nature had been sufficiently recent the correctness of the diagnosis was confirmed by the fact that changes were still occurring in the electrocardiographic tracings.

Coronary thrombosis might initiate the patient's period of ill-health, might occur as an incident during its course, or might be the terminating event of the illness. Coronary thrombosis was proved to have initiated the condition in two cases, and a typical history suggesting that it had done so was present in fifteen others; it was proved to have occurred in two cases during the course of the illness; and a typical history of coronary thrombosis was present in ten others, also, during the course of the illness. Coronary thrombosis was proved to have terminated the illness in two cases, and probably did so in one other. The total number of patients having a coronary thrombosis at some time during the illness was thirty-two, or 28.6 per cent.; the number having more than one coronary thrombosis was five, or 4.5 per cent.

The clinical history of angina of effort, in so far as this condition is related to coronary thrombosis, may be of one of three types. A coronary thrombosis may occur and may be followed directly by angina of effort, which may subside, with complete recovery from cardiac pain; alternatively, the angina of effort may be persistent. Another train of events may be as follows. A coronary thrombosis is succeeded by angina of effort which disappears, but a subsequent attack of illness of another type—for instance, influenza—may result in a recrudescence of the angina of effort symptoms. In other cases coronary thrombosis may be followed by angina of effort which, although it improves very gradually up to a point, never completely disappears.

Prognosis

The death rate of the whole group was 22 per cent.; in the private cases this was 28 per cent. and in the hospital cases 19 per cent. Table III and the chart give the

TABLE III

Years ..	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	11-12	14-15	19-20	Totals
Alive ..	24	19	14	8	6	7	2	2	1	2	1	1	1	58
Dead ..	6	10	2	2	3	0	0	1	0	0	0	0	0	24
Total ..	30	29	16	10	9	7	2	3	1	2	1	1	1	112

number of years between the first onset of the symptoms and the date on which the patient died or was last seen; the chart thus shows graphically the length of life either

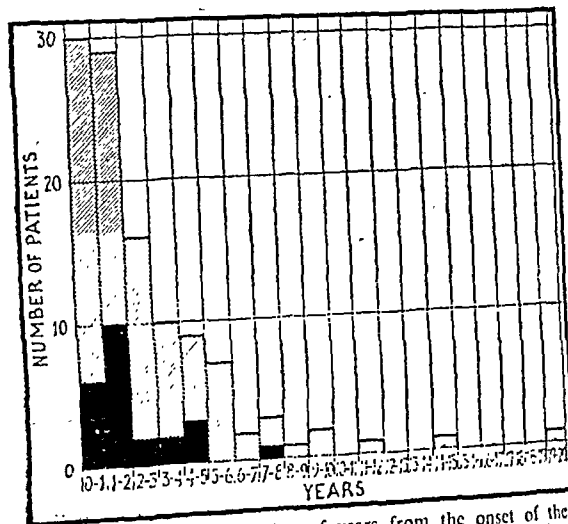


Chart showing the number of years from the onset of the symptoms to the date on which the patient died or was last seen. Shaded areas = patients alive; black areas = patients dead.

from the first onset of angina of effort or from the onset of a coronary thrombosis which was followed by a period of angina of effort; in two of the patients giving the latter history the pain cleared up completely. Since the history only extends up to a period of two years in a large number of cases it is clear that the data as regards duration of life are not complete. But it is equally evident, taking into account the age of the patients, as shown in Table I, and considering this in relation to the survival figures, that the survival rate is not far short of that which would be expected for patients of that age without angina of effort but with evidence of cardiovascular disease. The death rate is: for the first year 20 per cent., for the second 35 per cent., for the third 12 per cent., for the fourth 20 per cent., for the fifth 33 per cent., for the sixth and seventh nil, and for the eighth 33 per cent. The series is, of course, too small for any definite conclusion to be drawn, but the figures appear to indicate that the chance of death is more or less the same for a patient with angina of effort during each of the first five years. A point that needs to be stressed is that death in an attack of angina of effort is not recorded in the present series, and it would therefore seem that angina of effort is of itself not a dangerous symptom, but that it is an indication of a greater or lesser degree of coronary disease. Only one patient died in pain, and a careful history of the attack, taken from an intelligent friend who was with him throughout, leaves little doubt that this patient had been seized with a coronary thrombosis early in the morning, and that death occurred while he was endeavouring to

doses of both cod-liver and halibut-liver oils were so high that they must have contained abundance of vitamins A and D to satisfy the rats' needs.

Result of First Experiment

(a) Increase in Weight.—The effect on the weights of the rats may be seen in the accompanying chart of the

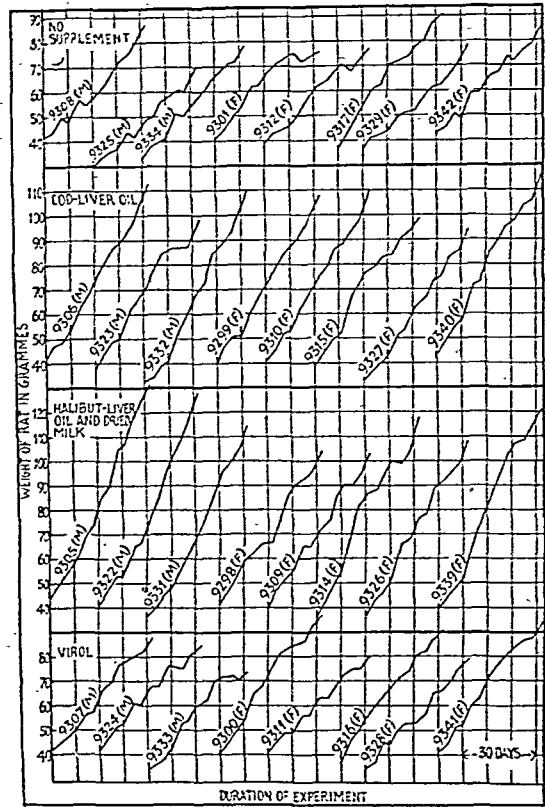


Chart showing the effect of giving (a) no supplement, (b) cod-liver oil, (c) halibut-liver oil plus dried milk, (d) virol on the increase in weight of rats fed on a diet as much as possible like that of the poorer classes. The three supplements are of equal caloric value.

growth curves. The variation between the rats of any one group is not great. The results are summarized in Table II. The average increase in weight of the control

TABLE II.—Average Increase in Weight in Six Weeks of Four Groups of Rats Given a Mixed "Poorer-class" Diet, with Supplements in Three of the Groups

	Average Increase in Weight in Six Weeks (grammes)		Average Increase in Weight of Males and Females (grammes)
	Males	Females	
Group 1 (No supplement)	43.7	42.2	42.95
" 2 (+ Cod-liver oil)	69.7	65.6	67.65
" 3 (+ Halibut-liver oil and milk)	84.3	73.6	78.95
" 4 (+ Virol)	42.7	48.8	45.75

rats given the "poorer-class" diet only was 42.95 grammes in six weeks; that of the rats receiving the cod-liver oil supplement was 67.65 grammes; and that of the rats given the halibut-liver oil plus dried milk was

78.95-grammes—clear evidence of the lack in this diet of factors (for example, vitamins A and D) which can be supplied by cod-liver oil and by halibut-liver oil plus a little dried milk. On the other hand the increase in weight of the rats given the supplement of virol was 45.75 grammes, which was only slightly, certainly not significantly, greater than that of the rats receiving no supplement. We have completely failed to reproduce in rats the effect which Simpson and Wood obtained on children and to discover what determined the effect.

(b) Further Comparison of the Supplements by a Different Criterion—"Ash Content of the Bones."—Before the termination of the experiment we decided to compare the four groups of rats by another criterion—namely, the ash content of the bones—to see whether some constituent of the virol might have had an effect on calcification which could not be brought about by vitamin therapy alone. Accordingly, the percentage of ash of the dry extracted bone (one femur and one humerus, separately, of each rat) was determined in four rats in each group. The result may be seen in Table III.

TABLE III.—The Percentage of Ash in the Dry Extracted Bone (Femur and Humerus) of Four Rats of Each of the Groups 1, 2, 3, and 4

Group	Supplement	Litter	Rat	Ash in Dry Extracted Bone	Average Ash Content
1	None	6472	9308 (M)	F 43.31 H 40.28	40.19
			9334 (M)	F 38.07 H 38.73	
			9317 (F)	F 37.34 H 39.44	
			9342 (F)	F 42.85 H 41.18	
2	Cod-liver oil	6472	9306 (M)	F 36.69 H 36.62	37.59
			9332 (M)	F 35.77 H 37.54	
			9315 (F)	F 36.12 H 40.14	
			9340 (F)	F 37.90 H 39.96	
3	Halibut-liver oil + milk	6472	9305 (M)	F 39.38 H 38.89	39.48
			9331 (M)	F 38.75 H 38.58	
			9314 (F)	F 41.05 H 39.83	
			9339 (F)	F 40.72 H 38.65	
4	Virol	6472	9307 (M)	F 36.97 H 39.22	38.70
			9333 (M)	F 35.78 H 38.09	
			9316 (F)	F 40.10 H 42.92	
			9341 (F)	F 38.28 H 38.26	

There is no significant difference between the average ash contents of the four groups, and they are all very much below the normal (which is 50 to 55 per cent.) for rats of their age and weight, although two groups at least received abundance of vitamin D. It seems highly probable, therefore, that none of the rats received enough calcium or phosphorus, or both, for normal calcification to take place. This was an alarming possibility. It has been generally recognized that the value of fresh milk as a food is partly due to its calcium and phosphorus content; but it had not seemed possible to us that the ordinary mixed poorer-class diet could be so seriously deficient in these elements as to reduce the percentage of ash in the bones of growing rats from 55 to 40 per cent. in six weeks. Another experiment was therefore carried out to determine whether it really was a shortage of calcium and phosphorus in the diet that had led to the low calcification.

calorie value of 74. Its vitamin content was said to be not so high as that of the doses of cod-liver oil or halibut-liver oil, but "sufficient to obviate the possibility of a complete lack of vitamins in the basic diet." Its special value as a supplement was thought to be due to its balance of protein, fat, and carbohydrate. The result of this investigation, stated briefly, may be said to show that the giving of cod-liver oil or of halibut-liver oil plus milk was beneficial, but that virol was more beneficial still. An elaborate statistical examination of the results showed that the observed differences might be considered significant.

The question that interested us was what might be the deficiency in the children's diet that was being made good by the addition of 20 grammes of virol a day. It seemed scarcely possible that about three-quarters of an ounce of a "well-balanced" food could seriously affect the increase in weight of a child. Moreover, when the 22.4 per cent. of volatile matter, probably mostly water, was allowed for, it left only 16.52 grammes of well-balanced food—very little more than the half-ounce (14.17 grammes) of dried milk which had not had a beneficial effect, although milk must surely be one of the best-balanced foods known. This, then, did not appear to account for the result obtained.

An examination of the published list of contents of virol—namely, marrow fat, glycerin, extract of red bone marrow, eggs, salts of calcium, iron, etc., malt extract, and the juice of fresh lemons—suggested that the vitamin B it contained might be high enough to produce beneficial effects when the basic diet was low in these factors. A biological determination of the vitamin B₁ value of a sample of virol purchased in the open market was made in this laboratory. It was found to be 0.7 international unit per gramme. Thus the daily dose of virol given to each child contained about 14 international units, and since a child of 4 years requires about 55 international units of vitamin B₁ a day, this cannot be considered a very large contribution to its needs. Moreover, the supplement of dried milk would contain 6 to 9 units of vitamin B₁, if none had been lost in the drying. It is unlikely that modern methods of drying milk would reduce the vitamin B₁ potency much, and it was concluded from these calculations that it was probably not the presence of vitamin B₁ in the virol that accounted for its beneficial effect on the children.

First General Nutrition Experiment on Rats

It was therefore decided to repeat the whole experiment on rats as it had been carried out on the children. Four groups of eight rats each were used, to correspond to the four groups of children. Litters of four or eight rats were divided among the groups so that each litter was represented equally in each group, which comprised three male and five female rats. Each rat was kept in a separate cage throughout the experiment, and the cage was provided with a grid so that the animal had no access to faeces. Fresh tap-water of the Bloomsbury district was supplied daily.

The experiment was carried on for six weeks. Throughout that time the rats were weighed twice a week. The diet given to all the rats was chosen so as to be as much like the diet of the poorer classes as possible. The scheme drawn up at the beginning and followed with almost no variation is given in Table I.

The groups of rats received supplements similar to those given to the groups of children—namely: Group 1, no supplement; Group 2, cod-liver oil; Group 3, halibut-

liver oil; Group 4, virol. The doses of cod-liver oil, halibut-liver oil, and virol respectively were determined from the following consideration. The calorie requirement of children from 2 to 3 years is 1,100 to 1,400; that of children of 3 to 6 is 1,400 to 1,700 (Ministry of Health Nutrition Report, 1934). If the average require-

TABLE I.—*Diet Sheet for the First Nutrition Test*

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
White bread, 12-15 gm.*	White bread, 12-15 gm.*	White bread, 12-15 gm.*	White bread, 12-15 gm.*	White bread, 12-15 gm.*	White bread, 12-15 gm.*	White bread, 12-15 gm.*
Margarine, 0.1 gm.	Meat, cooked, 0.5 gm.	Butter, 0.1 gm.	Meat, cooked, 0.5 gm.	Butter, 0.1 gm.	Greens, boiled, 1 gm.	Sauage, cooked, 1 gm.
Jam, 0.2 gm.	Tea with milk, 2 c.cm.	Jam, 0.2 gm.		Jam, 0.2 gm.	Milk, 2 c.cm.	
Boiled potato, 1 gm.		Boiled potato, 1 gm.		Boiled potato, 1 gm.		
Greens, boiled, 1 gm.		Greens, boiled, 1 gm.		Tea with milk, 2 c.cm.		
				Fish, cooked, 0.5 gm.		

* Never all eaten, but excess given so that the rats should not be hungry.

ment of the children in the experiment was 1,500 calories, then the 75 calories given as a supplement would be one-twentieth of their daily needs.

A rat of 40 grammes weight requires 4 to 5 grammes dry weight of fat-free food a day. The rats' supplement for this experiment should supply one-twentieth of the calorie intake—that is, 1/20 of 20 calories, which is 1 calorie. The dose of cod-liver oil given to each child of Group 2 was 8 grammes; therefore the dose for each rat of Group 2 was 1/75 of this, which was 0.11 gramme. This would yield 1 calorie.

Similarly the dose of halibut-liver oil given to each child of Group 3 was 0.2 gramme, and therefore the dose for each rat of Group 3 would be 1/75 of 0.2 gramme, which was 0.0027 gramme. This would yield 0.025 calorie. Also 1/75 of 1/2 oz. of dried milk would be 1/75 of 14.17 grammes = 0.19 gramme—yielding about 1 calorie. The dose of oil was given as one drop of a dilution of halibut-liver oil (27 in 200) in olive oil. The dose of dried milk was weighed for each rat and given on a small dish, moistened with water. It was stated that 20 grammes of virol had a calorific value of 74, therefore 0.27 gramme of virol would have a calorific value of 1. This was given on a small dish. It was always taken readily.

It is recognized that giving supplements to experimental rats was not necessarily comparable to giving supplements to children, for it is possible that the children did not receive enough food (calories) for their needs, whereas the rats were given more food than they ate. Experiments on rats are almost always carried out in this way, for a rat eats only enough each day for its needs, the amount having often been shown, from records of food given and food left, to be fairly constant from day to day.

The cod-liver oil and halibut-liver oil used for the rats were as nearly as could be judged of the same vitamin A and D content as the oils used for the children. The vitamin D content of the oils used for the children was stated in international units, but the vitamin A value was only given in "blue units," and other oils with similar "blue value" cannot be regarded as having necessarily the same vitamin A values. Oils of nearly similar vitamin D and "blue" values were used for the rats, and the

TABLE V.—*The Percentage of Ash in the Dry Extracted Bone (Femur and Humerus) of the Rats of Each of the Groups 1, 2, 3, 4, 5, and 6.*

Group	Supplement	Litter	Rat	Ash in Dry Extracted Bone %	Average Ash Content %
1	None	6951	2627 (M)	F 40.18 H 39.30	39.70
			2631 (M)	F 40.14 H 37.22	
		6958	2567 (M)	F 39.34 H 40.00	
			2675 (M)	Died	
		6978	2777 (M)	F 40.00 H 38.71	
			2703 (F)	F 37.95 H 36.19	
		6983	2813 (F)	F 38.95 H 40.35	
			2816 (F)	F 42.21 H 43.24	
		6984			
2	0.02 gm. salt mixture	6951	2626 (M)	F 42.26 H 41.15	42.83
			2636 (F)	F 43.25 H 41.93	
		6958	2658 (M)	F 41.94 H 41.84	
			2676 (M)	F 40.52 H 40.73	
		6978	2776 (M)	F 43.37 H 45.24	
			2704 (M)	F 42.12 H 44.56	
		6983	2812 (F)	F 43.10 H 43.41	
			2817 (F)	F 45.94 H 43.97	
		6984			
3	0.06 gm. salt mixture	6951	2625 (M)	F 48.74 H 50.09	48.33
			2632 (M)	F 48.22 H 49.00	
		6958	2659 (M)	F 45.49 H 47.53	
			2677 (M)	F 45.84 H 46.28	
		6978	2775 (M)	F 46.71 H 49.86	
			2705 (F)	F 49.21 H 47.10	
		6983	2811 (F)	F 48.09 H 47.80	
			2818 (F)	F 50.71 H 52.62	
		6984			
4	0.18 gm. salt mixture	6951	2624 (M)	F 50.30 H 52.79	52.12
			2635 (F)	F 54.49 H 54.11	
		6958	2660 (M)	F 50.23 H 47.98	
			2678 (M)	F 52.35 H 50.73	
		6978	2780 (F)	Died	
			2706 (M)	F 52.66 H 54.11	
		6983	2810 (F)	F 52.73 H 51.30	
			2815 (M)	F 52.50 H 53.36	
		6984			
5	15 ml. milk ..	6951	2623 (M)	F 44.78 H 47.46	45.74
			2634 (F)	F 45.47 H 46.60	
		6958	2661 (M)	F 44.04 H 42.63	
			2679 (M)	F 43.89 H 42.82	
		6978	2778 (F)	F 47.77 H 47.81	
			2707 (M)	F 43.73 H 44.28	
		6983	2803 (M)	F 44.38 H 45.61	
			2819 (F)	F 49.21 H 51.23	
		6984			
6	Milk ad lib ..	6951	2622 (M)	F 49.72 H 50.09	52.03
			2633 (M)	F 47.82 H 48.06	
		6958	2662 (M)	F 53.54 H 55.85	
			2680 (M)	F 52.07 H 51.33	
		6978	2779 (F)	F 56.39 H 58.40	
			2705 (F)	F 52.53 H 55.83	
		6983	2809 (M)	F 45.09 H 47.15	
			2820 (F)	F 52.22 H 53.40	
		6984			

would have produced the effect obtained. But it is very unlikely that our milk contained much less than 0.76 gramme of calcium per litre, since the average value is 1.12 grammes. Therefore it seems highly probable from this experiment that the calcium of milk is no more easily available to the rat than is the calcium of inorganic salts. This point will be investigated by direct experiment later.

Each day during the first and fifth weeks a typical ration for a rat was dried at 100° C. The seven weekly rations were bulked separately. The dry weight of the first week's ration was 100 grammes and of the fifth week's ration 85 grammes. As an excess of bread was given each day these amounts exceeded the quantity of food eaten by each rat daily. The first week's ration contained 40.5 mg. calcium and 157 mg. phosphorus. The fifth week's ration contained 26.2 mg. calcium and 165 mg. phosphorus. The averages of these—33.3 mg. Ca and 161 mg. P—may be taken as an approximation of the average weekly supply of calcium and phosphorus to each rat, and 4.8 mg. Ca and 23 mg. P as the average daily supply. The amounts eaten would be somewhat less than these, as a little white bread was always left. The London tap-water was found to contain 6.38 mg. calcium per 100 ml. Thus a rat drinking 15 c.cm. of water daily would obtain about 1 mg. Ca per day or 7 mg. per week from this source. The amounts of calcium received by the rats of the first four groups would then be:

Group	Mg. Calcium Received per Rat per Day from			
	(a) The Diet	(b) Tap-water	(c) Supplement	Total
1	4.8	1	0	5.8
2	4.8	1	1.95	7.75
3	4.8	1	5.85	11.65
4	4.8	1	17.55	23.35

Since the medium dose of calcium salts was not sufficient to bring about perfect calcification and the highest did so, the amount of calcium needed for perfect calcification must lie somewhere between the two. A curve relating the average ash content of the groups and the quantities of calcium received indicates that the amount of calcium required by the rat for perfect calcification is about 15 mg. a day, which is some two and a half times the amount that the rats received from their diet without any supplement.

Leitch (1937) in a long review on the determination of the calcium requirements of man has concluded that a child of 2 to 9 years needs 0.9 gramme of calcium per day. The amount obtained by a child from the diet described here may be estimated from the following consideration. Assuming the ratio of the calorie intake of the child to that of the young rat (as in this experiment) to be 75:1, as calculated in the early part of this paper, the child would receive 360 mg. of calcium per day from the diet, and, assuming he drank two pints of water a day, he would receive about 70 mg. of calcium from the water. This makes a total of 430 mg. of calcium actually received, and he needs 900 mg.

Summary

A comparison of (a) cod-liver oil, (b) halibut-liver oil plus dried milk, and (c) virol, given as supplements to different groups of young rats fed liberally with a mixed diet of white bread, potatoes, cabbage, margarine, jam, tea, a little butter, milk, brown bread, sausage, etc.,

Second General Nutrition Experiment on Rats

Six groups of eight rats (five males and three females), weighing about 40 grammes each, were fed for five weeks on the same diet as the rats in the first experiment, each rat being housed in a separate cage with a grid raised one inch above the floor. The same Bloomsbury tap-water was supplied daily. Each rat in every group was given six drops (approximately 0.12 gramme) of a good sample of cod-liver oil daily directly into its mouth. One group received no other supplement, three groups were given graded amounts of a mixture of salts containing calcium and phosphorus, and two groups had different amounts of milk.

The salt mixture was made up of the salts which contained calcium and phosphorus in Steenbock's salt mixture No. 40, in the proportion in which they occur there. It therefore consisted of:

	grammes
Dipotassium hydrogen phosphate, $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$	35.8
Dipotassium hydrogen phosphate, K_2HPO_4	69.6
Calcium phosphate, $\text{Ca H}_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$	68.8
Calcium lactate, $\text{C}_3\text{H}_5\text{O}_2\text{Ca} \cdot 5\text{H}_2\text{O}$	15.4
	189.6

These salts constitute about 75 per cent. of Steenbock's salt mixture No. 40, and as this mixture furnishes abundance of calcium and phosphorus when supplied as 4 per cent. of the diet for vitamin A or B₁ tests, 3 per cent. of the new salt mixture should provide plenty of calcium and phosphorus when given to rats receiving a mixed diet. Assuming a young rat eats 5 to 6 grammes dry weight of food per day, he should be given 0.15 to 0.18 gramme of salt mixture to supply the necessary calcium and phosphorus. The salt mixture contains 9.5 per cent. calcium and 14.8 per cent. phosphorus; therefore 0.18 gramme of mixture would furnish 0.017 gramme calcium and 0.027 gramme phosphorus daily. The supplements given to the different groups of rats were thus:

- Group 1: No supplement.
- Group 2: 0.02 gramme salt mixture daily.
- Group 3: 0.06 gramme salt mixture daily.
- Group 4: 0.18 gramme salt mixture daily.
- Group 5: 5 ml. pasteurized milk daily.
- Group 6: Pasteurized milk *ad lib.* (average 13.6 ml. daily at the beginning of the experiment, up to 20 ml. later).

The doses of salt mixture were given in separate dishes, mixed with a little dextrin and moistened with water to prevent scattering. The rats took their portions readily. Group 1 received a similar amount of dextrin.

Result of Second Experiment

(a) *Increase in Weight.*—The effect of the supplements on the increase in weight of the groups of rats may be seen in Table IV. The groups were very small, consisting of five males and three females each, therefore slight differences in averages cannot be considered seriously. Thus the supplements of the salt mixture cannot be regarded as having had any influence on the increase in weight of the rats, but the milk supplements certainly had a beneficial effect. It is, of course, impossible to say which constituent of the milk it was that made good a deficiency in the mixed diet. It may have been the proteins of high biological value or some part of the vitamin B complex. It would not be the vitamin A or D content, as the rats were receiving so much of both of these factors in their doses of cod-liver oil that a little more could not have any effect. The mineral content of the milk will be considered in the next section of the results.

TABLE IV.—Average Increases in Weight of Groups of Rats (five male and three female) given a "Poorer-class" Diet plus a Liberal Dose of Cod-liver Oil Daily, and, in addition, Graded Doses of a Calcium-Phosphorus Salt Mixture or Graded Doses of Pasteurized Milk Respectively.

Group	Supplement	Average Increase in Weight in Five Weeks (grammes)		Average Increase in Weight of Males and Females (grammes)	
		Males (5)	Females (3)	Weighted Means	Means as if from Equal Number of Males and Females
1	None	52.0 (4 only)	47.3	50.0	49.65
2	0.02 gm. salt mixture	53.2	55.7	54.1	54.45
3	0.06 gm. " "	55.8	51.7	54.3	51.75
4	0.18 gm. " "	54.7	63.5 (2 only)	57.2	59.10
5	5.0 ml. milk	76.6	80.3	78.0	78.45
6	Milk <i>ad lib.</i> , average 13.6 ml. during the first three days; unmeasured later, but less than 20 ml.	120.0	80.3	105.1	100.05

(b) *Calcification of Bones.*—The percentage of ash in a dry fat-extracted femur and humerus of each rat was determined in the usual way. The results are shown in Table V.

It is quite evident that the mixed diet similar to that of the poorer classes is seriously deficient in calcium and phosphorus. The bones of the rats receiving the mixed diet plus liberal amounts of cod-liver oil contained only 39.70 per cent. of ash, which is similar to the results found in the first experiment. The addition of graded quantities of a mixture of salts containing calcium and phosphorus brought about increased calcification, the greater the dose of salt mixture given the greater being the calcification of the bones. The highest dose of salt mixture produced 52.12 per cent. of ash, which may be considered a normal amount for rats of their age.

The small dose of milk, 5 ml. daily, produced an ash content of 45.74 per cent., slightly less than that obtained from the addition of 0.06 gramme of the salt mixture. The high dose (20 ml. daily, of which 2 or 3 ml. was generally left) produced an ash content, 52.03, equal to that yielded by the highest dose, 0.18 gramme, of salt mixture. Unfortunately no determination of the calcium and phosphorus content of the milk given to the rats was made, but the following calculation leads to an instructive conclusion.

Apparently 5 ml. of the milk contained less calcium than 0.06 gramme of the salt mixture given. We may suppose that 5 ml. of the milk had as much calcium as 0.04 gramme of the salt mixture—that is, 0.0038 gramme. Therefore the milk apparently contained 0.76 gramme of calcium per litre. This result seems to have some bearing on the question of the availability of the calcium in milk. It is generally stated that milk owes a great part of its value as an antirachitic agent not merely to its high calcium content but to the fact that the calcium is present in a specially available form. Now the average calcium content of milk is 1.12 grammes per litre. The milk used in this experiment apparently contained 0.76 gramme per litre, judging from the effects produced on different groups of rats given 5 ml. of milk and known graded amounts of calcium respectively. Now, if the calcium of the milk were more easily available than the calcium of the salt mixture a smaller amount of calcium than 0.0038 gramme in 5 ml. of milk

on the morbid anatomy of the disease. Doubtless there is an inflammatory congestion of the mucosa of the colon, and the character of the symptoms suggests that this may be at its most severe in the lowest part of the intestine. The conspicuous presence of blood in the motions must indicate some degree of superficial ulceration of the mucosa, but the rapid recovery which ensues makes it clear that there can be no gross ulcerative changes.

Clinical Features

Describing first a typical case, the disease develops with great rapidity, with the onset of fever up to 102-3°, abdominal pain with colic and perhaps tenesmus, and purging. The stools are loose and contain obvious quantities of blood and mucus. Pus is also present on microscopical examination. The passage of blood and mucus without faecal material is exceptional, but may occur in between the typical actions. The bowels during the first twelve hours are moved perhaps every hour, or even more frequently. Abdominal pain may be severe, but is not excruciating as in intussusception. Vomiting may be absent throughout; but it is common at the early stage of the disease for some vomiting to occur with each action of the bowels, clearly due to the general intestinal turmoil going on. In exceptional cases (*vide infra*) vomiting is a prominent symptom. By the second day the more violent symptoms are subsiding, and by the end of the third day the temperature is falling rapidly, the blood is disappearing from the stools, pain is lessening and the number of stools is diminishing. The patient is left feeling considerably weakened by the attack. The constitutional disturbance seems to arise not so much from toxæmia as from dehydration, loss of sleep, and starvation. For the next few days some mild diarrhoea remains, the motions being unformed and showing the presence of some mucus; blood, however, is only now to be found by microscopical examination, and even this soon disappears. From this time onwards there is usually rapid recovery, so that by the end of about ten days from the onset the child is as well as before the attack.

In mild cases the symptoms are less severe and the motions, although containing mucus, may show no obvious blood; but on microscopical examination blood and pus cells are constantly to be seen. A similar condition of the stools may be found in cases convalescent from a typical attack, and in both these conditions there is considerable danger that the true nature of the disease may pass unrecognized.

In exceptional cases vomiting may apparently be troublesome, and R. E. Smith (1931) has raised the question whether there may not be a gastric type of Sonne infection. Further observations are required to settle this point, but it might well be kept in mind in connexion with epidemics of unexplained vomiting, especially in institutions.

Course and Prognosis

The usual short course of the disease has been described. Relapses within a week of recovery are occasionally seen. Complications and sequelae seem to be practically unknown. The length of time during which the stools may remain infectious has been discussed. Danger to life may arise in the case of weakly infants who acquire the disease; otherwise the infection appears to carry no death rate.

Diagnosis

The clinical diagnosis of Sonne dysentery is not difficult in typical cases. In infants and young children intussus-

ception must be considered. This is essentially an obstructive condition, whereas Sonne dysentery is a diarrhoeic disease and pus is present in the stools. Further, the positive points in favour of intussusception are absent in dysentery—namely, the characteristic temporary collapse with the crises of abdominal pain, the presence of a tumour felt through the abdominal wall or per rectum, and the diagnostic radiographic picture with an opaque enema. In older children and adults Sonne dysentery has to be distinguished from other forms of infective diarrhoea and food poisoning, and this rests upon the bacteriological examination of the stools. The danger of overlooking mild, convalescent, and atypical cases has been emphasized.

The bacteriological diagnosis of the disease is of the utmost importance, and a reliable report can be obtained in eighteen hours. A swab may be taken of the rectal mucosa, in which case the specimen must reach the bacteriologist with practically no delay; but usually a specimen of the faeces is submitted to examination. Here again it is important that the specimen should be as fresh as possible, and although it is difficult to lay down a precise rule I should not myself rely upon a negative report if the stool were twenty-four hours old before being planted out. In order to obtain as satisfactory and pure a growth of the bacillus as possible a piece of mucus is picked out of the stool, gently washed free of faecal material in normal saline, and spread by means of a swab over a small area of a warm dry plate of lactose-lime-bile-salt-agar or similar medium. Any surplus material is removed from the surface, and from this area, by means of a spreader, the rest of the plate is planted out by quartering. Eighteen hours later a suspicious colony is removed and emulsified in water on a slide. A loopful of Oxford specific agglutinating serum for the Sonne bacillus is added, and if the test is positive macroscopic clumping is seen within a minute. Confirmatory sugar reactions will take an additional twenty-four hours, but in expert hands the results of the Oxford serum tests seem entirely reliable. A similar technique with other types of Oxford sera leads to the recognition, if needed, of Flexner-group and Shiga dysentery, the typhoid and paratyphoid, Gaertner and *aertrycke* infections. Sero-diagnosis from the patient is not helpful, at all events in early stages of the disease.

Treatment

Sonne dysentery is a notifiable disease. Preventive measures to check its spread can hardly be relied upon to be completely successful. In the early and most contagious phase of the infection the patient may require attention every half-hour, and in practice it seems impossible to institute measures which will with certainty prevent the infection of other children in a ward. Where practicable, therefore, the patient should be isolated. When this cannot be done those in attendance on the patient must not handle other children, and in particular must have nothing to do with the preparation of their meals. To protect herself the nurse should wear surgical gloves. In houses the lavatory should not be used by infected people. It is customary to obtain three negative tests of the stools before regarding the case as free of infection.

Remedial treatment should be undertaken in the expectation that the worst of the disease will be over in three days. Thus the indications are to relieve pain and prevent dehydration. The customary anti-dysenteric treatment by repeated doses of sodium and magnesium sulphates does

failed to confirm the results obtained by Simpson and Wood (1935) in a similar experiment on children. As judged by the increase in weight of the rats, the cod-liver oil had a decidedly beneficial effect, the halibut-liver oil plus dried milk had a slightly better effect, whilst the wrol was almost without influence as compared with the control rats receiving no supplement. As judged by the percentage of the ash content of the bones of the rats, all three supplements were equally without effect. This suggested that the mixed diet was deficient in the elements required for calcification.

A second experiment was carried out on six groups of rats, all of which were fed liberally with the same mixed diet and given six drops each of a good sample of cod-liver oil daily—a very large dose for a rat. One group received no other supplement, three were given graded doses of a mixture of salts of calcium and phosphorus, and two had graded doses of milk.

The salt mixture had no significant influence on the increase in weight of the rats, but the doses of milk had a distinctly beneficial effect.

The graded doses of salt mixture produced graded results in the percentage of ash in the bones, ranging from 42.83 per cent. for the lowest dose (0.02 gramme) to 52.12 per cent. for the highest dose (0.18 gramme), which is about the normal percentage for rats such as these. The bones of the rats given no supplement contained 39.7 per cent. ash. This proves quite clearly that the ordinary mixed diet of the poorer classes is seriously deficient in the elements required for the calcification of bone.

The lower dose of milk, 5 ml., produced 45.74 per cent. of ash in the rats' bones; the higher dose, about 15 to 16 ml., produced 52.03 per cent. of ash. A comparison of the submaximal effects from the lower dose of milk and the lower doses of salt mixture showed that the milk apparently contained 0.76 gramme of calcium per litre. As this is less than the average calcium content (1.12 grammes per litre) of cows' milk it is concluded that the calcium of cows' milk is no more easily available for the rat than the calcium of inorganic salts.

The serious shortage of calcium in the mixed "poorer-class" diet was confirmed by analysis of typical bulked days' rations as given to the rat.

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The Ministry of Labour has published new editions of pamphlets dealing with the Local Government Services and Social Work for Women, which are Nos. 21 and 22 in the Choice of Career Series. This series is compiled by arrangement between the Incorporated Associations of Headmasters and Headmistresses and the Ministry of Labour. The Local Government Service includes opportunities for those who qualify as accountant, architect, barrister, doctor, engineer, solicitor, surveyor, and teacher. The branches of social work include: hospital almoner, labour management, factory inspector, club leadership, occupational therapy, church work, policewoman, and probation officer. Full information is given of the nature of each type of work, the qualifications and training required, the cost of training, and the prospects of advancement. The pamphlets are on sale at H.M. Stationery Office and through any bookseller at the price of 4d. each (5d. post free).

SONNE DYSENTERY

BY

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Although for some years Sonne dysentery has been known in paediatric circles as one of the bugbears of children's hospitals, there are many busy practitioners who have seen nothing of the disease and remain unfamiliar with its characteristics. In view of the present epidemic in London and the home counties a brief account of the disease may perhaps be considered opportune.

Bacillary dysentery may be described with sufficient accuracy as consisting of three types, due respectively to (a) the Shiga bacillus, (b) the Flexner group of bacilli, and (c) the Sonne bacillus. The differentiation of these three types is ultimately a bacteriological matter, but clinically there are important general differences between them. Shiga dysentery, the most serious and fatal type, is practically non-existent among the ordinary population of London, and probably of the country: in seventeen years no example of this infection has occurred at the Paddington Green Children's Hospital. Flexner-group dysentery, as compared with Sonne dysentery, is less common but more severe, prolonged, and dangerous. Sonne dysentery, with which we are here concerned, is therefore the commonest of the three types but runs the mildest and shortest course.

Epidemiological Features

Sonne dysentery, although probably commonest in the summer months, may occur at any time of the year. No age is exempt from it, and while it is most frequently seen in young subjects, infants do not seem to be preponderantly affected. In these two particulars it differs from the so-called epidemic gastro-enteritis, which is essentially a summer disease and strictly confined to infants.

The disease spreads with such ease and rapidity that it is tempting to think that transmission may be by airborne infection. There is, however, as yet no clear proof that transmission can occur by any means other than the ingestion of the specific bacillus, the ultimate source of which is the infectious faeces of the patient. Thus, as in typhoid fever, patients and those in attendance on them must be regarded as the source of contamination of food, drink, feeding utensils, etc. Transmission, in the same way by flies is a possibility.

Outbreaks of Sonne dysentery usually arise in a children's ward from the admission of a case in which the stools are not typical of the disease on inspection. Thus very mild cases and convalescent cases constitute the chief danger. D. Nabarro and A. G. Signy (1932) report that children who have recovered from an attack may continue to pass Sonne bacilli in the faeces "for months." This must, I think, be very rare, and it does not seem that the chronic carrier constitutes a problem of importance among children. The bacilli may disappear from the stools within as short a time as ten days from the onset of symptoms, and in my experience, in the absence of any relapse, tests have always proved negative by the end of three or four weeks. The incubation period is from one to eight days, usually two or three days.

Morbid Anatomy

Necropsies on cases of Sonne dysentery are so rare that I have not been able to obtain any first-hand information

Results

Serum of Patients Injected with Human Urine of Pregnancy Extracts.—The results of these assays (Table II) show that no appreciable amount of anti-gonadotropic substance is formed in response to the prolonged administration of either pregnyl or antuitrin S. The serum of Case II, which was tested most frequently, showed after nineteen weeks of injections a slight anti-gonadotropic activity, in that it inhibited, in an amount of 1.5 c.cm., the activity contained in about 0.5 mg. of the extract UP10. No further production was found in samples taken at a later date, in spite of the continued injections. This amount of anti-gonadotropic substance is very slight in comparison with that formed in other species receiving continued injection of this material (Rowlands and Parkes, 1937). Direct comparison is difficult, on account of the difference in the amounts given and the method of administration. The development of this small amount of anti-gonadotropic activity might be explained on the assumption that the pregnyl had been denatured to such an extent in its preparation as to become slightly antigenic to man.

These results confirm the work of Twombly (1936) and are in keeping with those of Thompson (1937) and Rowlands (1937a), who failed to produce "anti-hormone" activity in the blood of sheep that had been injected for prolonged periods with sheep pituitary extracts: they uphold the view of the true antibody nature of "anti-hormones."

Serum of Patients Treated with Pig Pituitary Extracts.—The serum of the patient (Case 3) treated with aminbin for sixteen weeks appeared to augment the gonadotropic activity of a saline extract of pig pituitary. When the test was repeated after twenty-one weeks of treatment the serum again appeared to enhance the activity of an extract made from acetone-desiccated pig pituitary (AP43D). A final sample of serum taken five weeks later failed either to augment or to inhibit the action of aminbin (AP44). The injection together with aminbin (AP51) of serum obtained before treatment (Cases 9 and 10) did not increase the effect of the extract on the rat ovary. Very doubtful augmentary effects were given by the serum of the patient (Case 4) treated with antuitrin gonadotropic.

The significance of an augmentary action, such as seems to be shown by these sera, is discussed elsewhere (Rowlands, 1937a).

Summary

No serious amount of anti-gonadotropic activity was demonstrable in the serum of patients receiving gonadotropic extracts of either human urine of pregnancy or pig pituitary for varying periods up to seven months. From this we conclude that in the treatment of undescended testes and other disabilities the administration of gonadotropic hormones may be continued for a considerable period without fear of inducing a phase of insensitivity and damage to the gonads by anti-gonadotropic substances.

We wish to thank Dr. J. Stanley White, of Messrs. Parke, Davis and Co. Ltd., for supplies of antuitrin S and antuitrin gonadotropic, and Dr. A. N. Macbeth, of Organon Laboratories, for supplies of pregnyl and aminbin.

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THE WATER REQUIREMENTS OF
SURGICAL PATIENTS*

BY

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This paper is a preliminary survey of the metabolism of the surgical patient during the immediate post-operative period, and is based upon results obtained while investigating the water balance of such subjects. It became evident very early in the investigation that water metabolism is only one of the many metabolic processes occurring in the surgical patient of which knowledge is far from complete. In this paper only water metabolism will be discussed; other aspects of metabolism will merely be noticed as each becomes relevant.

Water is essential for all the physiological processes of the animal organism, and the regulation of its intake and output is finely adjusted. This delicate regulation of intake and output is called water balance. In spite of its importance, only in the last ten years have accurate investigations been made into this subject, and although much is already known the water exchanges of the ill patient abound in unsolved problems. The researches of Maddock and Collier; Newburgh, Wiley, and Johnstone; and Laviets, Harrison, and Peters are all of the first importance, and should be consulted by students of the subject.

It is estimated that water forms from 65 per cent. to 70 per cent. of the body weight. This water is distributed in approximately the following proportions:

				Per cent. body weight
Extracellular fluids:	(1) Blood stream	..	..	9
	(2) Interstitial tissues	..	..	16
Intracellular fluid	..	..	..	45
Total	..	..	..	70

The functions of the extracellular fluids are threefold: to carry foodstuffs to the cells; to carry waste products away from the cells; and to regulate the stability of certain physico-chemical conditions in the body—pH, osmotic pressure, temperature, etc. For the perfect performance of these functions there is an optimum volume of the extracellular fluids, and departures from this optimum in either direction prejudice and may even threaten the actual life of the body cells. Alterations in the body fluids are largely made up of changes in the extracellular fluids, the intracellular fluids remaining comparatively constant until the approach of death.

The Study of Water Metabolism

Water metabolism may be studied by direct or by indirect methods. The direct method requires a knowledge of the following:

1. Water content of the fluids drunk.
2. Water content of ingested foods which may vary from 5 per cent. to 95 per cent.
3. Water formed by oxidation of this food.
4. Calorie output from its oxidation. (In this investigation it has been assumed that all the food ingested has been completely absorbed and metabolized.)
5. The approximate calorific requirements of the subject. (In the investigation the Douglas bag method was adopted, with due regard to its serious potential error when applying

* Report of work done while in receipt of a British Medical Association research scholarship.

neither of these things and is best avoided, nor should any other form of aperient be prescribed. Opium is the most useful drug in cases of this disease, and it may be taken with bismuth or a reliable brand of kaolin. Fluids should be given so far as the vomiting permits, and as soon as there is a desire for food a bland diet may be ordered. In debilitated patients special measures to combat the dehydration may be required. The use of anti-dysenteric serum is neither necessary nor of value in cases of Sonne dysentery.

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THE ABSENCE OF ANTI-GONADOTROPIC SUBSTANCES IN THE BLOOD SERUM OF MAN INJECTED WITH GONADOTROPIC EXTRACTS

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Recent work has demonstrated that the prolonged administration of gonadotropic hormones to animals produces a state of insensitivity, so that the initial hypertrophy of the gonads disappears and may even be followed by atrophy (Collip, 1934). Moreover, the serum of an animal injected for about three months with a gonadotropic extract acquires the property of inhibiting the action of the gonadotropic extract when both are separately injected into a test animal, such as the immature rat; when the serum alone is injected into a normal adult animal it may cause atrophy of the reproductive organs (Rowlands, 1937). These phenomena are due to the production of anti-gonadotropic substances in the blood as a result of the continued administration of the gonadotropic extract.

These facts might be of clinical importance in the treatment of patients for a prolonged period with gonadotropic hormones. Should such anti-gonadotropic substances be formed in the human it would appear advisable to intersperse rest periods of several months, during which the patient receives no treatment, to enable him to re-acquire sensitivity and to prevent any possible damage to the gonads. On the other hand, should there be no indication of the production of such substances as a result of prolonged treatment these rest periods would be unnecessary. In the elucidation of this problem samples of blood from nine patients with undescended testes who were receiving treatment with gonadotropic hormones were tested for anti-gonadotropic activity.

Methods

The patients were injected intramuscularly twice a week with extracts of human urine of pregnancy (pregnyl or antuitrin S) or with extracts of pig anterior pituitary (ambinon or antuitrin gonadotropic). Details of their treatment are given in Table I.

TABLE I.—The Treatment of the Patients with Gonadotropic Preparations

Case No.	Age (Years)	Preparation	Dose (Rat Units, R.U.) twice weekly
1	19	Pregnyl	1,000
2	12	Pregnyl	500 for first 9 weeks, then 1,000
7	14	Pregnyl	1,000
8	20	Pregnyl	1,000
9	12	Pregnyl	500
10	14	Pregnyl	500
5	13	Antuitrin S	200
3	14	Ambinon	50
4	10	Antuitrin gonadotropic	30 for first 14 weeks, then 50 for 9 weeks

Where possible a sample of blood was obtained before treatment and thereafter at intervals of one to two months for as long as was practicable in each case (Table II). About 20 c.cm. of blood was obtained from the basilic vein, and kept in a sterile flask at 0° C. until the following morning, when the serum was separated. The activity of the serum was measured by its capacity to neutralize, in the immature rat, the power of a gonadotropic extract similar to that injected into the patient. Each sample of serum and gonadotropic extract was injected into a group of five immature female rats (40–50 grammes) once daily for five days; the two injections were given on opposite sides of each animal. The rats were killed twenty-four hours after the last injection, and the ovaries dissected, fixed in Bouin's fluid, and weighed the following day from 70 per cent. alcohol.

A gonadotropic extract from human urine of pregnancy (UP10) was used in testing, of which a total dose of 1 mg., divided over five days, produces ovaries weighing 35 mg. in the immature rat. The weight of the normal ovaries of rats of this body weight is 10–12 mg. The activity of the other extracts used is given in Table II.

TABLE II.—The Effect of Serum from Patients Treated with Gonadotropic Extracts on the Action of Similar Extracts on the Immature Rat Ovary

Case No.	Date of Sample after First Injection (Weeks)	Assay			
		Substance	Amount (mg.)	Amount of Serum (c.cm.)	Weight of Rat Ovaries (mg.)
1	0	UP10	1	1.25	34
1a	5	"	1	1.25	44
1b	11	"	1	1.00	27
2	11	UP10	1	1.25	40
2a	15	"	1	2.00	31
2b	19	"	1	1.50	22
2c	25	"	1	1.50	26
2d	29	"	1	1.50	30
7	7	UP10	1	1.50	29
8	13	UP10	1	1.00	39
8a	20	"	1	0.80	47
8b	28	"	1	0.75	32
9a	6	UP10	1	1.00	34
9b	13	"	1	1.00	34
5	0	UP10	1	1.50	12
5a	4	"	1	0.75	32
5b	10	"	1	1.00	39
—	—	Saline extract of pig Ant. pit. AP43D	1 gm.	—	43
—	—	"	1 gm.	1.25	63
—	—	"	25	1.50	27
3	16	AP44	25	1.50	44
3a	21	"	25	1.50	32
3b	26	"	25	1.50	35
4a	13	AP43D	25	0.75	32
4b	19	AP44	25	1.50	31
—	—	AP51	25	2.50	21
9 & 10	0	"	25	—	27

		Case 1, aged 65. Carcinoma of Stomach. Lapar- otomy ; Inoperable.	Case 2, aged 70. Appendi- ectomy.	Case 3, aged 48. Carcinoma of Stomach. Lapar- otomy ; Inoperable.	Case 4, aged 43. Carcinoma of Head of Pancreas. Cholecyst- gastrostomy	Case 5, aged 27. Carcinoma of Pelvic Colon. Colostomy	Case 6, aged 41. Chronic Cholecys- tectomy.	Case 7, aged 47. Right Inguinal Hernia.	Case 8, aged 57. Gastric Ulcer. Partial Gastrec- tomy.	Case 9, aged 61. Appendi- ectomy.	Case 10, aged 10. Osteo- myelitis Right Femur.
From 9 a.m. of day before operation to 9 a.m. of day of operation	State of tongue	Moist	Furred	Dry	Moist	Moist	Moist	Moist	Moist	Moist	Dry
	Thirst	Nil	Slight	Slight	Nil	Nil	Nil	Nil	Nil	Nil	Slight
	Blood chemistry { Urea N ₂	22	17	13	16	12	13	17	14	10	13
	CO ₂ combining power	60	58	60	61	60	56	59	58	60	54
	Calorie needs and R.Q.	2,219 0.89	909? 0.95	1,500? —	1,346 0.67	1,416 0.86	1,518 0.79	1,678 0.82	1,465 0.78	1,851 0.75	962 0.74
	Water intake { By mouth	1,516	540	429	600	911	745	1,317	1,016	965	1,336
	From metabolic mixture	289	129	162	20?	170	222	216	203	212	119
	By rectum	—	600	1,200	—	1,500	600	600	600	600	—
	Intravenous	—	—	—	—	—	—	—	—	—	—
	Total available water	1,805	1,269	1,782	620	2,581	1,593	2,133	1,819	1,777	1,480
First day	Water loss { Urine	1,500	740	455	320	1,490	527	970	680	970	165
	Faeces	954	579	1,133	—	747	554	856	749	383	510
	Vomitus, etc.	—	—	—	208	173	—	—	—	—	—
	Insensible loss	1,383	491?	272?	?	231?	322?	422?	647?	37?	756
	Water Balance	-2,032	-541	-78	?	-60	362?	-115	-326	-421	+59
	State of tongue	Dry	Dry	V. dry	Dry	Dry	Dry	Dry	Dry	Dry	V. dry
	Thirst	Marked	Parched	Parched	Great	Moderate	Great	Slight	Great	Great	Great
	Blood chemistry { Urea N ₂	24	21	21	20	19	21	17	17	19	17
	CO ₂ combining power	53	56	47	56	4?	42	54	53	47	36
	Calorie needs and R.Q.	2,148 0.69	1,102 0.65	1,500? —	1,500? —	1,239 0.70	1,931 0.73	1,865 0.73	1,930 0.76	1,593 0.67	1,277 0.86
Second day	Water intake { By mouth	712	501	621	368	923	775	1,766	874	390	1,028
	From metabolic mixture	224	134	163	171	130	220	239	234	184	155
	By rectum	—	180	—	720	—	180	—	—	—	180
	Intravenous	—	—	—	—	—	—	—	—	—	—
	Total available water	936	715	784	1,259	1,053	1,175	2,005	1,108	574	1,363
	Water loss { Urine	660	—	330	500	—	—	820	250	60	170
	Faeces	—	—	156	—	21	—	—	—	—	—
	Vomitus, etc.	—	74	—	106	177	66	—	367	—	10
	Insensible loss	822	2,019	2,377	1,785	1,379	1,768	1,591	953	972	1,911
	Water Balance	-546 -2,578	-1,378 -1,919	-1,979 -1,901	-524 -1,132	-584	-656	-406 -521	-452 —	-452 —	-658 -559
Third day	State of tongue	V. v. dry	V. dry	V. dry	V. dry	V. dry	Dry	Clean	V. v. dry	V. dry	Dry
	Thirst	Parched	Parched	Parched	Parched	Great	Great	Nil	Parched	Parched	Great
	Blood chemistry { Urea N ₂	26	25	20	26	25	25	14	24	16	14
	CO ₂ combining power	49	54	52	51	45	39	57	50	51	48
	Calorie needs and R.Q.	2,100 0.72	1,194 0.56	1,500? —	1,500? —	1,316 0.74	1,525 0.71	1,710 0.77	2,060 0.66	1,414 0.74	974 0.82
	Water intake { By mouth	1,043	961	789	866	960	661	1,565	1,416	1,345	1,321
	From metabolic mixture	237	143	168	154	144	173	237	242	165	133
	By rectum	300	—	480	360	—	—	—	180	180	—
	Intravenous	—	—	—	—	—	—	—	—	—	—
	Total available water	1,583	1,104	1,437	1,380	1,104	834	1,802	1,836	1,690	1,454
Fourth day	Water loss { Urine	770	104	580	1,000	130	170	1,360	590	410	320
	Faeces	202	—	433	232	232	—	—	337	400	—
	Vomitus, etc.	—	—	—	—	211	—	—	329	—	—
	Insensible loss	1,362	1,784	408	750	1,017	1,170	600	532	1,199	1,571
	Water Balance	-751 -3,329	-784 -2,703	+16 -1,885	-602 -1,734	-254 -838	-506 -1,162	-158 -679	-48 -500	-319 -777	-437 -1,036
	State of tongue	V. dry	Dry	V. dry	V. dry	—	Less dry	—	V. v. dry	Dry	Dry
	Thirst	Less	Great	Great	Great	—	Slight	—	Parched	Great	Slight
	Blood chemistry { Urea N ₂	27	29	14	27	—	17	—	24	19	11
	CO ₂ combining power	48	56	56	50	—	48	—	47	54	55
	Calorie needs and R.Q.	2,100 0.72	1,201 0.65	1,500? —	1,500? —	—	1,503 0.75	—	1,734 0.68	1,500 0.75	953 0.84
Fifth day	Water intake { By mouth	1,877	1,007	624	1,804	—	1,436	—	1,280	1,276	1,691
	From metabolic mixture	216	141	195	156	—	168	—	185	180	124
	By rectum	—	—	180	480	—	720	—	600	180	—
	Intravenous	—	—	—	—	—	—	—	1,600	—	—
	Total available water	2,138	1,148	999	2,440	—	2,324	—	2,910	1,636	1,815
	Water loss { Urine	210	300	440	790	—	560	—	490	450	1,350
	Faeces	359	—	124	537	—	540	—	554	290	405
	Vomitus, etc.	—	514	—	—	—	—	—	240	7	—
	Insensible loss	1,333	576	488	1,671	—	972	—	2,179	873	712
	Water Balance	+236 -3,565	-242 -2,945	-53 -1,938	-553 -2,292	—	+252 -910	—	-553 -1,053	-23 -800	-277 -1,313

five-minute readings to the whole twenty-four-hour period. Also it was sometimes impossible to obtain results because the patients would not tolerate the procedure.)

6. If, as is the rule in the ill patient, the calorie requirements are not met by the food intake, then the water formed from the oxidation of body tissues must be estimated. This requires a knowledge as to which of the body constituents are providing the necessary energy, in itself a laborious investigation.

7. The solid intake.

8. The solid output in the urine, faeces, sputum, vomitus, and other discharges. (The solids lost in the sweat have been ignored.)

9. The fluid output in the urine, faeces, and insensible perspiration from the skin and lungs. (Insensible perspiration and insensible loss of weight are not the same. Insensible perspiration implies lost water only. Insensible loss of weight is equal to lost water plus carbon dioxide minus gained oxygen, and varies with the respiratory quotient. In this paper insensible perspiration has been taken to be equal to insensible loss of weight.)

10. The body weight under standard conditions of nudity, after emptying the bladder, and at fixed times during the day.

The direct method of estimating water balance may be expressed in the following two equations:

$$1. \text{ Change in weight} = \left\{ \begin{array}{l} \text{solids in} \\ \text{fluids in} \end{array} \right\} - \left\{ \begin{array}{l} \text{solids lost (urine, faeces, vomitus, etc.;} \\ \text{body solids metabolized)} \\ \text{fluids lost (urine, faeces, vomitus, etc.,} \\ \text{insensible perspiration)} \end{array} \right\}$$

For insensible perspiration this equation may be expressed:

$$\text{Insensible loss} = \left\{ \begin{array}{l} \text{solids in} \\ \text{fluids in} \end{array} \right\} - \left\{ \begin{array}{l} \text{solids lost} \\ \text{visible fluid lost (urine,} \\ \text{faeces, vomitus)} \end{array} \right\} - \text{change in weight}$$

$$2. \text{ Water balance} = \text{fluids available} = \left\{ \begin{array}{l} (1) \text{ in fluid drunk} \\ (2) \text{ in food} \\ (3) \text{ formed by meta-} \\ \text{bolism of either} \\ \text{food or body tissues} \end{array} \right\} - \left\{ \begin{array}{l} \text{visible fluid lost} \\ \text{insensible fluid} \\ \text{lost} \end{array} \right\}$$

Indirect methods are perhaps more complex; they require that a number of no doubt allowable assumptions be made, and are essentially a study of the metabolism of certain electrolytes from which the water exchanges may be calculated (Laviates, 1935, 1935a). In this investigation the first direct method has been followed.

At this stage it is necessary to study more closely the water gained and lost through the various channels.

WATER GAINED

(a) The volume of the fluids drunk varies considerably with the individual. In health from 800 to 2,000 c.cm. may be taken daily. After operations the patient may be able to tolerate only 200 c.cm. or less during the first twenty-four to forty-eight hours without nausea.

(b) The metabolic mixture provides in water content and from water of oxidation 1,000 c.cm. to 2,000 c.cm. daily.

During starvation about 500 c.cm. of water becomes available from the tissue katabolism made necessary by the energy requirements.

WATER LOSS

1. *In the Urine.*—The water lost in the urine is the amount which remains after insensible perspiration has withdrawn its quota from the body water available for excretory purposes. It follows, therefore, that if the body is seriously dehydrated the patient is often anuric, and the dehydration should be overcome before other measures are taken to promote the secretion of urine. It is here pertinent to point out that the kidneys are required to excrete daily in health about 35 grammes of waste materials. Unless sufficient water is available for this

purpose retention of these waste products occurs. Where renal damage exists more water is required to excrete the same quantity of waste material. The following table is interesting in this connexion:

	Maximum Concentrating Ability	Minimum Water Required to Excrete 35 grammes of Waste Products
Normal kidneys	c.cm. 1,032—1,029	c.cm. 473
Diseased kidney .. .	1,028—1,025	595
	1,024—1,020	605
	1,019—1,015	850
	1,014—1,010	1,439

It follows from these observations that, knowing the degree of renal damage in any given patient, we must never allow the urinary volume to fall below the minimal water volume which is necessary to excrete the patient's urinary waste products. Indeed, as the waste products to be excreted in the post-operative period may greatly exceed 35 grammes, the surgeon's aim must be to ensure that the patient has at least double the above minimal volume of water available for urinary excretion.

2. *In the Faeces.*—On an average 150 c.cm. of water are lost daily in the faeces.

3. *From the Skin and the Breath.*—Normally the volume of water vaporized from the skin and in the breath varies from 800 to 1,500 c.cm. daily; but in abnormal conditions of high external temperature or humidity, or in diseased states such as thyrotoxicosis, fever, etc., these figures may be greatly exceeded. Indeed, as much as 3,500 to 4,000 c.cm. may be lost daily in the breath and from the skin. This water of vaporization is responsible for the thermal control of the body, and dissipates about 24 per cent. of the body heat. Each c.cm. of water requires 0.58 large calorie for its vaporization; therefore, if the insensible water loss be 100 c.cm. it will require 58 calories to effect its vaporization. Owing to its all-important function of temperature regulation the insensible perspiration exercises preferential rights over all water available for excretion. It is not until over 6 per cent. of the body weight has been lost in fluids that any decrease in water vaporized occurs. At this stage the patient is grossly dehydrated, is fevered, is anuric, has sunken eyes, a dry skin, and a dirty dry-leather-like tongue. If water be now given it is retained by the body until the deficit is made good before any becomes available for the restoration of the other excretory processes, such as renal excretion, the faeces, etc.

4. *Loss by Other Channels.*—The loss of water by other channels such as by vomiting and from fistulae, etc., may be great. It is said that severe and rapid dehydration does not occur except by these methods, especially by vomiting. Where there is excessive vomiting, etc., the volume lost must be estimated and added to the fluid intake if water balance is to be maintained.

Results of the Investigation

In the present investigation ten unselected cases were taken, all of which were treated by the usual routine methods of the surgical wards of the Royal Infirmary, Edinburgh. The accompanying table abstracts the pertinent results.

From an inspection of the table it will be seen that:

(a) Following operation each patient became increasingly dehydrated during the period of study, the smallest

grey slough, which was apparently typical. Her doctor told me that these areas took about eight to twelve weeks to heal with the paraffin and flavine dressings which had been advised. I asked her when she expected them to have healed, and the patient replied, "By about Christmas. Not much before, I suppose." Insulin dressings, double strength, were started, and as the patient lived in the country these could be applied only once a day. In this case I sprayed the insulin on with a hypodermic syringe, then covered the wound with gauze and again sprayed with insulin. The whole was then covered with mackintosh, wool, and a bandage. One week later, on September 24, the area had healed over.

The effect in every case treated has been so remarkable—a complete cure being the end-result in all except Case 3, and this has been relieved—that the treatment seems at least worthy of further investigation. In only one case, No. 1, was the patient in hospital, where adequately supervised dressings could be applied. No. 2 attended for twenty-four-hourly dressings each morning. The remainder were seen and treated at home, with only medically supervised dressing once a day.

The cost of this treatment is obviously a factor, since a considerable amount of insulin is used in the dressings. Up to date only the ordinary single- and double-strength insulin, as put up for diabetics, has been employed; but I am approaching a firm of manufacturing chemists with a view to obtaining it in ointment form.*

The reasons underlying the effect of insulin on such conditions seem a little obscure. The only explanation I can offer which seems reasonable is that by stimulating the local metabolism of sugar the cell proliferation and local health are increased. It is certain that excess of sugar is inimical to healthy cellular metabolism, as is seen by the lowered resistance to infections in persons suffering from diabetes mellitus. There was no reducing substance in the urine of the patients treated by local applications.

My thanks are due to Mr. E. P. Brockman, F.R.C.S., for permission to publish the first case detailed and Dr. W. Dalgliesh for Nos. 3 and 4.

London, W.1.

NEVIL LEYTON, M.R.C.S.

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Treatment of Mooren's Ulcer with Liver Extract

I had the opportunity of observing and treating the following two cases at the Bristol Eye Hospital while house-surgeon there in 1935.

CASE I

A woman aged 60 first attended on March 21, 1934, with Mooren's ulcer of the right cornea, which steadily developed in spite of treatment until the whole cornea was involved. Median canthoplasty was performed on October 24, 1934. At about this time a similar ulcer made its appearance in the left eye. This also developed slowly until by May, 1935, it was half-way across the pupil. I obtained permission to try the patient on injections of liver extract in the belief that the liver would improve the nutrition of the cornea and thus help the ulcer to heal. I prescribed one ampoule of "campolon" (Bayer) once daily for a week, and then one ampoule every other day for three weeks. The Metri cautery (80°–85° F.) was applied to the margins of the ulcer for one minute every second day. A saline wash twice daily was the only other treatment. One month later the patient was discharged, the ulcer being quite healed. She attended every fortnight for an injection of one ampoule of "campolon." The adhesions

between the right eyelids were divided two months after her discharge. The cornea was very thin and scarred, but did not stain in any part of it. The ulcers have remained healed ever since, and both eyes were reported "quiet" on June 26, 1937.

CASE II

This patient, a man aged 57, was first seen on January 2, 1935, for Mooren's ulcer of the right eye. This steadily extended until he was put on similar liver treatment on June 6. He was discharged five weeks later with the ulcer healed. He was instructed to get fortnightly injections of one ampoule of "campolon" from his own doctor, but neglected to do so. The ulcer broke down again, and he was readmitted on August 30. After a week's treatment on liver injections the ulcer had healed and the patient was discharged. He was last seen on May 20, 1936, and up to that time the eye had remained quiet.

I am much indebted to Mr. A. E. Iles, senior honorary surgeon to the Bristol Eye Hospital, for letting me have a copy of the notes on these cases and for his permission to submit them for publication.

Cork.

CHARLES J. CANTILLON, D.O.M.S.,
D.O.(Oxon).

A Method of Treating Fractures of the Lower Leg

It may be worth while to give a short account of this method of dealing with fractures of the lower leg because of its great simplicity and because of certain advantages it has over methods at present in use. The technique can be employed for almost any fracture of the lower leg which requires reduction and application of plaster. The only apparatus needed is a ring fixed on the theatre floor; a heavy weight with a ring attached serves the same purpose.

TECHNIQUE

The patient is anaesthetized and a Kirschner wire is put through the calcaneus two fingerbreadths below and one behind the lateral malleolus. He is then arranged on the operating table with both knees flexed over the end so that the ring on the floor is in line with the injured limb, but six inches in front of the vertical. The Kirschner horseshoe is fixed with extension cord to the ring, a traction indicator intervening. The surgeon now sits opposite the fractured leg and directs an assistant, who pumps up the table slowly. In this way strong traction can be produced which will bring the fragments of the most difficult fracture into alignment. The surgeon, by palpation and comparison with the other leg, which is hanging over the end of the table in the same position, finds that very little manipulation is required to obtain an almost perfect reduction. The leg is in the optimum position for the easy application of a well-fitting plaster. Slight pressure on the inner side of the setting plaster allows for the normal bowing of the tibia.

If the fracture is in the upper third of the tibia the plaster may be extended to the groin when the lower part has set, or a second Kirschner wire may be put through the tubercle of the tibia and incorporated in the plaster, thus leaving a freely movable knee and fixing the upper fragment.

The advantages put forward for this method of treating fractures are: (1) that it requires no elaborate apparatus and is therefore particularly useful in smaller hospitals which do not possess such equipment; (2) that an almost perfect reduction can be obtained, since there is no difficulty caused by the fractured leg sagging in the middle, as is always the case when traction is applied in the horizontal position, this being especially troublesome if the fracture is comminuted; (3) that the leg is in the ideal position for easy and efficient plastering, so that this part of the operation and the reduction can be performed in a relatively short time.

A large number of fractures of the lower leg have been treated this way with very satisfactory immediate and end results.

DOUGLAS LANG STEVENSON, F.R.C.S.Ed.

* This has since been done, and Messrs. Allen and Hanbury prepare such an ointment. Cases treated with this have been equally successful.

negative water balance at the end of the second day after operation being 679 c.cm. and the largest 3,565 c.cm. at the end of the third day. No patient maintained normal water balance. Each case varied considerably, but even with an uneventful convalescence it was not usually until the fifth day that normal water balance was re-established.

(b) The insensible water loss was very considerable, especially in the first twenty-four hours, possibly from the effects of the anaesthetic. This insensible water loss was always very great when the patient perspired profusely, and varied from 1,000 to 2,400 c.cm. (1.65 to 4 pints).

(c) Coincidentally with dehydration there was a noticeable decrease in urinary secretion (even to its abolition); a rise in blood urea nitrogen, indicating waste-product retention; and a decrease in the CO_2 combining power of the blood.

(d) Not shown on this table, but coincidentally with dehydration and the limitation of the patient's caloric intake, there was very marked katabolism of body protein, to facilitate the katabolism of body fat for energy requirements, as the carbohydrate reserves are rapidly exhausted. Amounts up to 250 grammes of body protein burnt per day were observed in the first twenty-four to forty-eight hours after operation. With the restoration of water balance it was remarkable that this excessive destruction of body protein ceased.

(e) Clinically the state of the tongue and oliguria and the subjective sensation of thirst indicate dehydration.

Conclusions

1. Under the existing post-operative regime dehydration occurs, and may be severe.

2. Although each case must be separately considered the minimal fluid intake in the days following operation should be from 3,000 to 4,000 c.cm. a day (approximately 5 to 7 pints), if necessary by the intravenous route. (In a further communication the most suitable fluid will be discussed.)

3. If excessive loss from vomiting, etc., occurs the extra volume of fluids so lost must be added to the amount which the patient in any case requires.

4. Oliguria, thirst, and a filthy dry tongue are a real reproach to the surgeon.

A most pleasant duty is the acknowledgment of my debt to others. To Sir John Fraser for the privilege of working in his wards, and to his staff for their patient help; to the technical staff of the Biochemical Laboratories; and to Professor Melville Dunlop for his unfailing encouragement, my grateful thanks are due.

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Clinical Memoranda

Insulin in the Local Treatment of Persistent Septic Cutaneous Conditions

The use of insulin for the treatment of diabetes mellitus is now world-wide, but the extraordinary effect of this substance in securing the cure of persistent cutaneous septic conditions seems up to the present time not to have been realized.

The work of da Costa and others in connexion with the insulin treatment of epitheliomatous ulcers first drew attention to the possibility of using it in cases of chronic cutaneous sepsis that had proved resistant to all other remedies. The following four cases are typical and represent the varying types of septic conditions treated, the clinical features and treatment being given in detail.

ILLUSTRATIVE CASES

Case 1.—A boy aged 14 was involved in a motor accident in October, 1936, and on November 11 following underwent an exploratory operation in the region of the left elbow. Subsequently the wound broke down. Ultra-violet rays and sunlight treatment as well as the usual dressings were tried, with no success. The patient was admitted to the Westminster Hospital for excision of the skin in the region of the unhealed area. This was done and the wound again sutured, but it broke down immediately. The patient was subsequently readmitted for twice-daily dressings. First cod-liver oil was tried and then antipeol, with no success at all. Insulin dressings were started on March 20, 1937, and applied twice daily by the nursing staff. Rapid healing took place, and the patient was discharged on April 8, with the wound closed for the first time since November, 1936. He has been seen since, and has had no further recurrence of the breaking down of the wound.

Case 2.—This patient was seen in the casualty department, which she had been attending for over a month with a septic finger. In spite of all forms of treatment it was getting worse, to the despair of the casualty officers and the sister in charge. I saw it, and suggested that daily insulin dressings should be tried. These were started at once, and within ten days the finger was quite well and the patient had returned to work.

Case 3.—A man aged 57 was first seen by me in March, 1936, with an amputation of the right leg following arteriosclerosis. He had an infected bunion on the left leg opposite the head of the first metatarsal which had ulcerated and was giving him considerable pain. Ordinary dressings were continued until August, 1937—that is, for sixteen months. The patient was in some pain all this time, particularly when he attempted to walk. He came into my hands again on August 27, 1937, when I suggested insulin treatment locally. This was started on August 29, the man dressing the foot himself three times daily with single-strength insulin on gauze. When seen five days later the patient said he was much more comfortable, and one week after this the pain had gone. The ulcer was shallower, and the area of inflammation surrounding it had entirely disappeared for the first time. It is scarcely to be expected that the ulcer will heal, owing to the continual movement and lack of any pulsation in the peroneal and tibial arteries.

Case 4.—A married woman aged 27 was first seen by me on September 14, 1937. Her history was a peculiar one. After working for some time in a blanket factory she found that whenever she knocked herself the bruised place became septic. This condition was a surface inflammation which took a long time to heal, and when it did it left a white scar. Her right arm was covered with these scars. When examined at the Radcliffe Infirmary a diagnosis of low-grade streptococcal infection was made. At the time I saw her she had one of these septic areas on her left arm, irregular in outline and about two inches by one inch in extent, raw, with a yellow

and well illustrated. Passages here and there both instruct and amuse, particularly when reference is made to individual obstetricians. On page 587 we read: "When an obstetrician informs me that he never employs vaginal hysterotomy I turn away in sadness. To discuss a subject with one so prejudiced is only a waste of time." By undertaking the labour of a fourth edition of his work Munro Kerr has rendered a service to the science and art of obstetrics.

POST-MORTEM TECHNIQUE

The Postmortem Examination. By Sidney Farber, M.D. (Pp. 201; frontispiece and 32 figures. 16s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1937.

This book, devoted entirely to post-mortem technique, may be recommended to all embryo pathologists as an excellent guide to the subject. It will also be of use to the general practitioner who may suddenly be called upon to perform a necropsy. The opening chapter is devoted to a short historical survey, and this is followed by chapters on general considerations and on the equipment of the post-mortem room. The rest of the book consists of a detailed description of the methods to be employed in the examination of each system of the body, and each chapter ends with a short list of selected references. An appendix contains tables giving the average weights of organs, and also an interesting translation of one of Virchow's original elaborate post-mortem reports.

Some of the techniques described, such as the method for the removal of the thoracic viscera, differ from those usually employed in this country. They may, however, be used with safety, as they are, for the most part, similar to the methods originally recommended by Virchow, which it would be found hard to better.

NEUROLOGICAL STUDIES

Etudes Neurologiques: Les Myoclonies Vêlo-Pharyngo-Laryngo-Oculo-Diaphragmatiques, La Maladie de Friedreich, Pathologie du Névrose. By Georges Guillain and Pierre Mollaret. Septième série. (Pp. 302; 78 figures. 60 fr.) Paris: Masson et Cie. 1936.

In the seventh series of his neurological studies Professor Guillain, with the assistance of Dr. Mollaret, concentrates especially on two subjects—the syndrome of rhythmic myoclonus of the palate, larynx, and ocular and diaphragmatic muscles, and the bulbar symptoms of Friedreich's ataxia. In regard to the former, several new clinical and pathological observations are recorded, and from these and the earlier papers of the French school we can form a fairly complete conception of the syndrome.

While our present knowledge of anatomy and physiology does not afford an adequate explanation for any of the phenomena of involuntary movement, whether rhythmic or choreiform, any new material bearing on this subject is of importance. The fact that each syndrome of this character is most often produced by a lesion in one situation is discounted by observations of similar symptoms appearing when the lesion is in some other centre which at first sight seems to have no close connexion with the tract or nucleus most commonly involved. In the earlier papers on the syndrome under discussion the lesions were almost always found to involve the central tegmental tract in the pons. But in later cases in which the syndrome was present in its most complete form lesions of this tract were absent, and either the inferior olive, the dentate nucleus, or the superior cerebellar peduncle was involved. It thus appears that the

syndrome of rhythmic myoclonus may be seen after any lesion of the system represented by the red nucleus, the inferior olive, the dentate nucleus, and their connexions with each other. More than this is not known, nor is it clear why all lesions of this system are not followed by the syndrome.

The studies on Friedreich's ataxia pay special attention to the lesions in the medulla oblongata and to the symptoms resulting from these. In spite of many references to cardiac symptoms, such as tachycardia, in the literature from the time of Friedreich onwards, the dependence of these symptoms on medullary lesions has not been previously emphasized. Guillain and Mollaret point out the frequency of abnormalities in the electrocardiogram in Friedreich's ataxia, and demonstrate lesions in the nuclei of the vagus which may cause them. These observations may explain the paradox that while victims of Friedreich's ataxia do not die of their disease, most of them die young.

Several minor papers on diseases of the brain and spinal cord are also included in this series.

POISONOUS ORGANIC SOLVENTS

Medical Research Council Industrial Health Research Board. Report No. 80. *Toxicity of Industrial Organic Solvents.* Summaries of published work compiled by Ethel Browning under the direction of the Committee on the Toxicity of Industrial Solvents. (Pp. 396. 7s. 6d. net, postage extra.) London: H.M. Stationery Office. 1937.

This is a compilation of existing information prepared by Dr. Ethel Browning. The report deals with no fewer than 100 different compounds, all of which are at present in use in industry. A striking feature of the book is the wide variety of literature from which the information has been collected. A large proportion of the references is to journals devoted to public health and hygiene, but in addition there are numerous references to chemical, biochemical, pharmacological, pathological, and clinical journals. There also are references to specialist medical journals in such subjects as dermatology, haematology, and psychology, and to agricultural and trade journals. The author is to be congratulated on the industry she has shown in collecting information from such a wide variety of sources. The volume therefore represents a useful advance in knowledge, since the mere dispersal of the data collected has rendered them hitherto inaccessible to the ordinary reader.

The committee in an introduction points out that the information available is on the whole very incomplete. It remarks: "For example, the effect of the subcutaneous injection of a large dose of substance may be entirely different from, and have little bearing upon, the effects which may be produced by prolonged inhalation of small quantities." Moreover, "owing to expense and the difficulties of housing large animals, preliminary investigations are nearly always made on small animals. Unfortunately no general rules can be laid down which relate the sensitivity to poisons of small rodents and of man." It is to be hoped that the imperfect nature of the evidence revealed by this survey will stimulate research in this important field of industrial hygiene, which is developing so rapidly.

The character of the volume, which is that of a condensed summary of a very large literature, renders it unsuitable for detailed review. The importance of the subject is obvious, and the value of the report can most easily be realized by calculating in the case of any one of the lists of references how long it would take a research

Reviews

RADIOTHERAPY FOR CANCER

Sechzehn Jahre Strahlentherapie der Krebse. Zürcher Erfahrungen 1919-1935. By Hans R. Schinz and Adolf Zuppinger. (Pp. 340; 95 figures, 215 tables. Rm. 32; G.R.M. 14.) Leipzig: Georg Thieme, 1937.

In this very interesting work on sixteen years' experience of radiotherapy in cancer Drs. Schinz and Zuppinger give an account of their work at Zürich from 1919 to 1935, during which period Dr. Schinz has been director of the Roentgen Institute. The canton of Zürich is the main industrial and manufacturing centre of Switzerland, and its capital town of the same name is the most populous in the country. It is therefore of interest to learn that the mortality from cancer in this industrial centre is very similar to that in the rest of the Swiss Confederation, where conditions of occupation are generally very different. Approximately one-seventh of the total deaths recorded in the canton and town of Zürich are caused by cancer, and the figures have increased in recent years. The authors do not regard this increase as being due to multiplication of carcinogenic factors, but merely as a consequence of the increased longevity of the general population, so that more individuals reach the age of maximum liability to cancer. This is, of course, a view which is held by many other eminent authorities both in Europe and America. Although the general cancer mortality has increased, there has for some unexplained reason been a notable decline in the proportion of deaths from cancer of the stomach and uterus. The site incidence of the disease is different in the two sexes. In men, the regions most affected are the stomach, oesophagus, rectum, intestine, pharynx, and lungs; in women, the stomach, breast, uterus, and ovary, which are closely followed by the colon and gall-bladder region. The histological types of growth also show differences in the two sexes. In men, squamous-cell carcinoma is by far the preponderant type; while in women it is much less common, except in cancer of the cervix uteri.

By far the largest part of the book deals with the results obtained in the treatment of cancer in different sites, and a simple and useful formula for indicating briefly the extent both of primary and metastatic growths is proposed. This should be of considerable service in record-keeping, for it shows at a glance the degree both of local extension and of dissemination reached in each particular case when recorded. The subject-matter generally is clearly set out and in many cases conveniently epitomized in tabular form.

There are some points in the history of the Zürich Roentgen Institute which are of interest. It began as a small diagnostic unit under the control of the surgical clinic, and before 1918 it was enlarged by the addition of a radiotherapeutic department, since when its work has been greatly developed and extended, but Dr. Schinz and his colleague observe that this has been terribly uphill work. In spite of the fact that in 1926 the director received the title of professor of medical radiology, his department still remains under the control of the department of surgery. A similar condition of affairs unfortunately still exists in some places in this country, in which a radiotherapeutic department has been developed from small beginnings in a general hospital. If we are to secure and retain the services of the best men and women as radiotherapists they must be accorded the

position and security due to their professional attainments and experience. The authors of this book have done a real public service in stating so clearly the conditions under which they have been compelled to work, and we hope that the Zürich Institute of Radiotherapy will soon obtain the independent position to which its excellent work and the high scientific attainments of the director and staff give an unquestionable title.

OPERATIVE OBSTETRICS

Operative Obstetrics: A Guide to the Difficulties and Complications of Obstetric Practice. By J. M. Munro Kerr, LL.D., M.D., F.C.O.G., with the assistance of Donald McIntyre, M.D., F.C.O.G., etc., and D. Fyle Anderson, M.D. Fourth edition. (Pp. 848; 338 illustrations. 45s.) London: Baillière, Tindall and Cox, 1937.

After an interval of twenty-one years Professor Munro Kerr has brought out the fourth edition of his well-known book, with the assistance of two other members of the Glasgow school—namely, Drs. McIntyre and Fyle Anderson. In spite of the change of title from "Operative Midwifery" to "Operative Obstetrics" it retains the distinctive individuality that made its predecessors so acceptable. The work rests on a sure foundation—the extensive experience of the author both as teacher and as clinician—and his personality pervades the whole 800 pages.

So much time has elapsed that it is not surprising to find a great deal of the book rewritten; and while Munro Kerr states clearly his own views regarding treatment and results, he enhances the value and interest of each chapter by references to recent publications by authorities in both Europe and America. After introductory pages on the management of labour and the prevention of infection, dystocia due to the various causes is taken up chapter by chapter. Malpresentations, tumours, inertia, contracted pelvis, the haemorrhages, abdominal and vaginal operations—all these are discussed clearly in an attractive manner. As will be expected from the frequency of its incidence, the occipito-posterior case is early considered and fully described, and the original point of view is maintained that such cases may be primary or secondary. In discussing the engagement of the head in vertex cases the author emphasizes the frequency with which the head engages in the transverse diameter of the brim in normal cases. The emphasis on this point is a source of satisfaction to the reviewer, who has for some years held the same view. Contracted pelvis is dealt with in the light of recent research, reference being made to the work of Caldwell, Moloy, and others. The methods employed for induction of labour are fully described and the risks of various methods assessed; and while the author appreciates the value of rupturing the membranes when indications are present he issues a timely warning to his readers against the present tendency in some centres to adopt such intervention almost as a routine procedure.

It is impossible to refer to each chapter separately, but mention should be made of that on Caesarean section—one of the best in the book. As one of the earliest and strongest advocates of the lower segment operation Munro Kerr stresses its advantages over the classical procedure in the hands of the experienced operator. The frequency with which the placenta is found on the anterior wall of the uterus at Caesarean operations; the difficulty of obtaining a sound scar in such cases; the likelihood of subsequent rupture if the placenta develops on this scar—these points are all brought out in the argument against the classical incision as a routine.

In covering the range of difficult midwifery the author has produced a book worthy of study, eminently readable

seventeen different headings. Turning to a group showing a salient feature of the case in hand the reader finds a subclassification and may at once find the solution; or he may be referred to another group, finding again a subclassification in which his case lies. The reviewer can only say he has put it to the test and found it to work perfectly. The possible and obvious limitation is that some disease has been omitted—but he cannot point to it. The author mentions many points of clinical interest—for example, high calcification of the teeth in children in hyperparathyroidism, the existence of germs in apical granulomata (Figs. 21 and 22), contraction of the maxillae due to adenoids, and hypoplasia of the roots of the teeth in osteogenesis imperfecta. The book is a valuable contribution to dental literature.

Japanische Literatur zur Tuberkuloseforschung, No. 5 (1936), published by the Society for Tuberculosis Research of the Anatomical Institute of the University of Kyoto, contains abstracts, numbered 484 to 620, mostly in German and the remainder in English, of published Japanese papers on research work in tuberculosis, received as reprints in the library of the Society since 1930. The publishers of this pamphlet are prepared to send to anyone specially interested in any particular article a detailed report of it, free of cost, or to refer a request for the actual paper to the appropriate author.

In his work on *Early Medieval Medicine* (Baltimore: Johns Hopkins Press, 1937, 12s. 6d.), which forms the Hideyo Noguchi Lectures for 1936, Professor LOREN C. MACKINNEY, who holds the chair of mediaeval history in the University of North Carolina but is not a medical man, has given an interesting description of medicine in that portion of the Middle Ages extending from the sixth to the eleventh century. "Two distinct types of medicine were then prevalent—namely, the supernatural, which included reliance on Christian saints and their relics and Christian-pagan charms and magical incantations; and human medicine, which is considered under the headings of pharmacy, diet, and surgery in the form of blood-letting and cauterization. In the first lecture Professor MacKinnery discusses the changing modern conception of the Middle Ages, and surveys certain general aspects of the medical practice prevalent in Western Europe during this era. In the second chapter, which is devoted to medicine in Merovingian and Carolingian France, the author shows that there was a steady advance in medical practice, while in the third lecture medical progress at Chartres in the tenth and eleventh centuries is discussed. Nearly eighty pages of instructive notes, followed by copies of mediaeval manuscripts, are appended.

Quelques Vérités Premières (Ou Soi-disant Telles) en Chirurgie Abdominale (Paris: Masson et Cie, 24 fr.) is a series of aphorisms relating to the practice of abdominal surgery, written by Dr. H. MONDOR, professor of surgical pathology in the Paris Faculty of Medicine and surgeon to the Bichat Hospital. It may be read with profit by students and general practitioners as well as surgeons. This volume forms one of a series of "first truths" relating to the different branches of medicine, some of which have already appeared, while others are still in the course of preparation. Following an introduction by MM. Ombredanne and Fiessinger the collection is divided into three chapters, the first dealing with the abdominal wall, stomach, duodenum, and pancreas, the second the intestines and peritoneum, and the third with gynaecology. As an example of the pithy nature of many of the sayings we may quote from this last section (p. 87): "Les hémorragies du fibrome sont des ménorrhagies. Les saignements du cancer sont des métrorrhagies." These aphorisms are well set out in large clear type on dull-surfaced paper, and make easy and stimulating reading. The idea appeals to us, and if the other volumes are as sound and attractive as this one on abdominal surgery the series should meet with well-deserved success.

Preparations and Appliances

INSTRUMENT FOR DETECTION OF OEDEMA

Professor W. C. W. NIXON, M.D., F.R.C.S., writes from the Obstetric and Gynaecological Unit of the University of Hong Kong:

For the detection of oedema pitting by means of finger pressure is a somewhat inaccurate method. I have noticed that by pressing with the bell of a stethoscope a well-marked "ring" impression is made upon an oedematous region, especially if it is one where there is no underlying bone—for instance, the abdominal wall. This instrument which has been devised incorporates not only the stethoscope bell but also a spring by which a known pressure for a known length of time can be exerted. The minimum pressure and the length of time found most suitable has been 2 lb. and five seconds respectively. The "ring" impression so made and the time it takes to disappear decide one as to whether the oedema can be classified as mild, moderate, or pronounced.

This method of testing for oedema has the advantage that it enables one to detect mild grades of oedema, particularly of the abdominal wall, which otherwise would pass unnoticed.

The makers of the instrument are Down Bros. Ltd., 21 and 23, St. Thomas's Street, London, S.E.1.



PREPARATIONS OF CALCIUM SALTS

"Calcipot" is a name for preparations of calcium salts made in Germany by Tropenwerke Dinklage and Co. and marketed by Harker, Stagg and Morgan Ltd. (Emmott Street, London, E.1). Tablets of calcipot D (1 gramme) contain 0.28 gramme of calcium citrate and 0.02 gramme of calcium glycerophosphate, together with vitamin B₁ (5 international units), vitamin B₂ (1.5 biological units), and vitamin D (0.9 clinical unit). It is recommended for calcium deficiency, particularly when this is associated with vitamin deficiency. Ampoules of calcipot (5 c.c.m.) contain 10 per cent. of calcium gluconate solution, and are supplied for intramuscular or intravenous injection. Injections of calcium gluconate have proved a valuable method for relieving such conditions as tetany when these are due to a sudden fall in blood calcium.

"FERRIPAN"

"Ferripan" (prepared by Tropenwerke Dinklage and Co. and marketed by Harker, Stagg and Morgan Ltd.) is a powder which contains fat-free purified liver, iron albumin, and copper albumin. It is recommended for treatment of deficiency or nutritional anaemias. The manufacturers publish clinical charts which show the superiority of ferripan over saccharated iron oxide in the treatment of nutritional anaemias of children.

EPHETONIN COMPOUND

Ephetonin compositum liquidum (E. Merck, Darmstadt) is a solution which contains 2 per cent. each of ephetonin and pyrazinecarboxylic acid-isopropylidene hydrazide. Ephetonin is phenylmethylaminopropanol, and may be described as synthetic ephedrine. It is stated to augment the force of cardiac contraction and to dilate the coronary vessels. The other constituent is stated to have a similar sympatho-mimetic action on the heart, and also to act as a central nervous system stimulant. The combination is recommended for the treatment of cardiovascular insufficiency. It is put up in drop bottles of 10 c.c.m. and 20 c.c.m. The distributors for this country are Savory and Moore Ltd., 61, Welbeck Street, W.1.

worker to find these references without the help of this volume. Although the evidence brought together is admittedly incomplete, yet this is obviously a case where any information is better than none, and the volume should prove of great value to all who are interested in industrial hygiene.

THE NATURE OF CRIME

The Criminals We Deserve. A Survey of Some Aspects of Crime in the Modern World. By Henry T. F. Rhodes. (Pp. 257; illustrated. 7s. 6d. net.) London: Methuen. 1937.

Crime is, broadly speaking, an act which breaks the rules of society, but emphasis is usually laid by criminologists on the crime or the criminal, and not on the social code which he infringes. Mr. Rhodes's theme is that society may be wrong too. To say that the responsibility for crime should rest equally on the criminal and on society is not a popular attitude, but more and more thinkers are becoming convinced that it is the only starting-point for a really effective attempt to abolish crime. Mr. Rhodes has an international training, another unpopular thing in this country but one which is likely to teach him more about crime in general than a purely domestic outlook. The commission of a crime, he says, is a blind and unconscious protest against the social conditions which help to determine it. Eventually, he prophesies, we shall become convinced that the only effective way to punish crime is to prevent it. Decent housing conditions would immensely reduce sexual and violent crimes; abundance of remunerative work for those who wanted it would reduce crimes of need. He doubts, however, whether any of these things can be done within a social system which produces for profit and not for use. He has no illusions about the possibility of eliminating crime by a change in the social system, but he thinks that the first step might be taken by constructing a system in which crime could be properly defined. He is much impressed by the Soviet prison system, which places the prisoner in a workshop where he can earn wages and have reasonable recreation and the utmost practicable freedom. In a place of this kind, where the contribution of society is reduced to a minimum, the criminologist will, says Mr. Rhodes, have some opportunity of discovering something about the anti-social man. He is extremely interesting; he writes well and fills his book with practical illustrations and facts. He deals with crime of all kinds, and tells many stories of single crimes to illustrate his opinion that crime, by peaceful penetration, is making itself an organic part of a system which is in decay.

Notes on Books

The ninetieth issue of *Who's Who*, for the year 1938, was published before Christmas, and maintains the standard of workmanship to which the public has long been accustomed. It provides brief biographies of some 40,000 living men and women, arranged alphabetically in 3,746 double-column pages. About a thousand entries have been deleted from last year's edition and replaced by the same number of new biographies, while many thousands of alterations and additions to existing entries have been made. *Who's Who* is an essential reference book in professional and business life, and the staffs of newspaper offices consult it every hour of the day. The publishers are A. and C. Black, Ltd., 4, Soho Square, London, W.1. The price remains at 60s. in buckram or 63s. in strong library binding with leather back; postage of a copy is 9d. inland, 1s. Irish Free State, abroad 1s. 10d.

Volume I of *Charterhouse Rheumatism Clinic Original Papers* was published last year by the Oxford University Press (price 15s.). It contains papers on pathogen selective culture and its bearings on the classification and aetiology of chronic rheumatic disease, by Dr. H. Warren Crowe; on the differential sedimentation test by Dr. Harry Coke; and on spondylitis adolescents with associated pathological changes in the sacro-iliac joints, by Dr. S. Gilbert Scott. Dr. Crowe explains in the preface that contributions here published are printed in the fullest possible detail, "so that there is no excuse for a failure by the technically capable worker to repeat the technique." Assuming sufficient support for this first volume, further research work (both now in being and planned) will be published in due course. The authors will be restricted to members of the staff of the Charterhouse Rheumatism Clinic in Weymouth Street, London, W.1.

Dr. R. M. B. MACKENNA has recently brought out a fourth edition of *Diseases of the Skin*, which was originally written by his father, and has taken the opportunity of bringing it thoroughly up to date. Like most textbooks it has increased considerably in size since its first appearance. It worthily maintains its place as one of the best textbooks of the subject in the English language. The illustrations, always an important feature in works on dermatology, are extremely good, and a special word of praise must be given to the coloured plates; there are no fewer than 46 of these, and most of them reach a high level of excellence. The numerous photographs in monochrome are also quite good. We can thoroughly recommend this book. It is published by Baillière, Tindall and Cox at 20s.

In *A History of Pharmacy* Mr. JAMES GRIER has produced within a small compass a thorough survey of his subject. He traces the evolution of pharmacy and the rise of the pharmacist from the earliest times of magical medicine through the period of the herbals to the scientific developments of the present day. A chapter is devoted to historical sketches of selected drugs, and the book provides all that is necessary for those who must satisfy the examiners in pharmaceutical history, which for examination purposes only begins in 1600. The general reader, however, will find much enjoyment in the earlier pages. It is interesting to read that in ancient Rome the universal remedies were garlic and cabbage (probably sea-kale), and that Virgil speaks of garlic and thyme refreshing the reapers. Also that the elder was one of the sacred trees of our earlier ancestors, and in folk-lore was the especial care of the queen of the elves or fairies. This book is admirably concise, and Mr. Grier is to be congratulated on compressing such a large quantity of information into so small a volume. It is published at 6s. by the Pharmaceutical Press.

Oral Diagnosis and Treatment Planning (W. B. Saunders, 25s.) has been written as a textbook for the dentist and as a work of reference for the medical practitioner. In his preface the author, Mr. KURT H. THOMAS, describes it as a master-key to diagnosis for the busy dentist, a reference-book for the physician, and a textbook on the technique of examination, diagnosis, and treatment planning. A complete diagnosis, he says, is frequently talked about but seldom taught in a systematic manner. The philosophy of treatment planning is discussed, but details of technique are left to the various clinical departments, lest, the author says, the work should become too encyclopaedic. The first few chapters deal with treatment planning, which means a review of the patient's general condition in relation to his dental condition; with oral and dental examination, x-ray examination, laboratory tests, biopsy, and the ethics of consultation. The larger part is devoted to diagnosis, and here the author proceeds somewhat on the plan of a well-known botanical handbook, *Name This Plant*. Diseases are grouped, according to their salient features, under

much of our pneumonia is amenable to serum treatment, and that we certainly cannot say; nor shall we be able to do so until typing is done far more frequently and extended to the individual types in Group IV. It must also be extended to cases of bronchopneumonia, since one fact which emerges quite clearly from American studies is that virulent pneumococcal infections amenable to serum treatment occur also in this variety of the disease. Such a study, if undertaken finally on such a scale as to apprise us fully of the pneumonia position in this country, could not be undertaken by any individual or in any single institution, or even by any self-constituted group of investigators; it demands the support and control of a public authority. What is involved if a serious effort is made to render serum treatment for pneumonia generally available may be gathered from a report by Cecil *et al.*,¹⁰ which reviews progress in this direction in the United States and makes recommendations for its extension. Such facilities exist at present only in the States of New York, Massachusetts, Connecticut, and Michigan, and they have been financed both by the State Government and by insurance companies and large charitable endowments. This service includes not only the provision of serum free of charge from numerous distributing stations but facilities for typing and an educational campaign directed to ensuring early diagnosis and immediate treatment.

It is emphatically stated at the conclusion of this report that the results already obtained justify the appropriation of State funds for this purpose. We have a long way to go in this country before such a position could be reached, since none of our serum, with the exception of that used by the London County Council, is yet produced by a public authority, though serum is distributed free to practitioners. Such an assumption of responsibility by public health authorities may or may not be desirable or necessary, but it is evident that, if anything needs to be done about pneumonia in this country, the problems both of investigation and of effective provision for treatment are quite beyond the capacity of individual effort.

EVALUATION OF DISABILITY

The growth of industry and of social insurance has given great importance to the question of the proper compensation of those who, by reason of accident or illness, are unable to earn a living, and whose diminished earning capacity needs to be supplemented by payments out of the various funds provided for this purpose. The International Labour Office has received many requests for advice on

how such disability ought to be assessed for the purpose of granting workmen's compensation, sickness benefit, and invalidity pensions. In November, 1936, the Office convened a meeting of experts in these matters, and commissioned them to prepare a report, in which the existing methods of assessment of disability should be reviewed and recommendations made as to how these methods might be improved. The committee entrusted with this work included representatives of Governments, insurance organizations, employers, and workmen, and its report has now been published under the title of "The Evaluation of Permanent Incapacity for Work in Social Insurance."¹¹ This provides an admirable survey of the practice of all the principal countries of the world in dealing with disabled persons.

Incapacity is considered in three aspects: loss of anatomical or physiological integrity; loss of ability to continue at work in the individual's own trade or in allied occupations; and general incapacity, including a consideration of such factors as the age, experience, and opportunities of the worker to obtain suitable employment. In many countries there is a schedule of injuries and other disabilities, to each of which is assigned a figure. This figure may be a percentage of average earning capacity, or a period of time estimated as representing the probable duration of incapacity for work resulting from such conditions, and it is used to fix the amount of money payable to the disabled worker. Such schedules are binding in some countries, while in others they are used only as a guide to the competent authority; it is suggested that the latter arrangement is preferable, and that when a schedule is used it should be reasonably comprehensive, should take account of the age and occupation of the worker, as well as of the nature of his handicap, and should be subject to revision from time to time, so as to conform to advances in knowledge and experience. In discussing the question of commutation of periodical payments by way of "lump sums," it is pointed out how this may prove unfair to the injured person if his condition should turn out to be disabling for a longer period than was expected at the time of settlement. It is not enough to rely on average periods of disability, for "there does not seem any justification for depriving an injured person whose incapacity proves to be lasting of all right to compensation on the grounds that other injured persons who have suffered a similar injury have been able to recover their earning capacity."

The problems involved in assessment of disability are exceedingly complicated, and include a con-

¹¹ International Labour Office. Studies and Reports Series M (Social Insurance), No. 14. London: P. S. King and Son Ltd. (1936, 6d.)

¹⁰ J. Amer. med. Ass., 1937, 109, 1323.

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SERUM TREATMENT OF PNEUMONIA

The study of pneumonia has almost become the prerogative of workers in the United States, their efforts being followed and their results generally confirmed in this country on a much smaller scale and usually after a considerable lapse of time. This time-lag between the positions on opposite sides of the Atlantic now amounts to some five years, because much has happened in the United States since 1932 which has no counterpart here. It will be well to ask ourselves whether emulation of this work in this country would repay the necessary effort.

Recent developments in America may be summarized as follows. In the first place, the efficacy of serum treatment in infections due to pneumococci of Types I and II is established beyond doubt, and in certain States an elaborate organization exists to ensure that serum shall be available, free of charge, for every case of pneumonia requiring it. The results obtainable when the present-day concentrated serum is given really early in the disease are exemplified in a series of 160 Type I cases quoted by Cecil,¹ among which the mortality was only 5 per cent., while Cole² refers to a recent series of forty-seven similar cases in which there were no deaths. In this there is nothing radically new except the measures which have made the treatment available. The breaking of actually new ground began with Cooper's identification of new serological types among pneumococci previously described as of Group IV. That there were no fewer than twenty-nine of these newly defined types made it appear at first sight that their identification would be so complex as to be impracticable, but in some American centres it is now a matter of daily routine. Not only has the incidence of these numerous types in pneumonia been fully studied but the characteristic features of the disease produced by some of them have been defined, and in all of the nine new types so far studied from the therapeutic standpoint serum treatment has been found effective. Finland,³ for example, ascertained the type in 3,682 cases of pneumococcal infections, of which the

great majority were cases of pneumonia, and found examples of all the known types, although among those newly defined only V, VII, VIII, X, XIV, and XX occurred in substantial numbers (varying from ninety-three to 279 cases of each type); elsewhere⁴ he describes no fewer than 160 cases of pneumonia due to Type VII. Other extensive studies of pneumonia due to these types are those of Finland and Sutliff,⁵ who report 125 cases due to Type VIII, and of Rosenblüth and Block,⁶ who studied sixty-eight cases due to Type V: this type is said to cause a severe and prolonged attack, quite inconsistent with the common belief that "Group IV" pneumonia is a mild disease. Another recent and comprehensive study is that of Benjamin *et al.*,⁷ among whose 485 fully typed cases were considerable numbers of Types V, VII, and VIII; this paper is among those recording the results of serum treatment in some of the new types. A further innovation is the substitution of rabbits for horses as a source of serum. A useful account of this development is given by Horsfall *et al.*,⁸ who themselves prepared serum from rabbits and used it in twenty-two cases with only one death. Rabbits form antibodies to the pneumococcus more rapidly than horses and in greater amount, but the alleged superiority of rabbit serum may be due rather to the fact that the globulin molecule in the rabbit is only one-quarter the size of that in the horse (this fact has been proved both by ultra-centrifugation and by ultra-filtration); it may consequently be supposed to pass more readily through vascular endothelium, and has in fact been demonstrated in empyema fluids, whither it is said that horse protein cannot penetrate. Another advantage of serum production in rabbits is that the cost is only one-fifth of that involved in using horses. Whether this method will be generally adopted, as it certainly should if there is nothing to set against these remarkable advantages, it is still too early to say.

These are the facts from America. How do they affect us? The answer must largely depend on whether our pneumonia problem is similar to theirs. According to Horsfall⁹ there are 100,000 deaths annually from pneumonia in the U.S.A., of which it may be calculated from the known results of serum treatment that 35,500 are preventable. Pneumonia certainly has a lower mortality in this country than in the U.S.A.; whether it is also much less frequent—another belief which would furnish some excuse for our comparative inactivity—is doubtful. What really matters is how

¹ *J. Amer. med. Ass.*, 1937, 108, 689.
² *Milit. Surg.*, 1937, 81, 241.
³ *Ann. intern. Med.*, 1937, 10, 1531.

⁴ *Amer. J. med. Sci.*, 1937, 193, 59.
⁵ *Arch. intern. Med.*, 1934, 53, 481.
⁶ *Ibid.*, 1937, 60, 567.
⁷ *Ann. intern. Med.*, 1937, 11, 437.
⁸ *J. Amer. med. Ass.*, 1937, 108, 1423.
⁹ *Canad. publ. Hlth. J.*, 1937, 28, 476.

Dr. F. A. Knott has conducted routine tests to determine the relative importance of hypersensitivity and bronchiolar infection in each case; and observations on rising sedimentation rate as an index of relapse, and on the effect of vaccines. At St. Mary's Hospital attendances are limited by providing the patient's general practitioner with material for treatment at home. The staff try to afford as much relief as possible to every patient who comes for treatment, holding that this method is not only philanthropic but also scientific, as it is the best means of obtaining the clinical material necessary for intensive investigation. Most of the research work has been done on hay fever, as it is convenient and deductions can be applied to other diseases of the asthma-urticaria group as well. All asthma patients tend to adopt a wrong way of breathing and benefit from remedial exercises. These are taught and their results investigated at King's College Hospital. In 70 per cent. of cases there is cure or considerable improvement, and only about 15 per cent. of those who acquire perfect breathing technique do not benefit at all. At St. Bartholomew's Hospital Dr. D'Silva has been working for a number of years on the mobilization of potassium in the blood after the injection of adrenaline. Blood sedimentation has been studied at the General Hospital, Birmingham. It would be a great pity if all this useful work were allowed to collapse for lack of funds.

WORLD REQUIREMENTS OF NARCOTIC DRUGS

The League of Nations has recently issued the estimates of world requirements of narcotic drugs for 1938 as formulated by the Supervisory Body under the Limitation Convention of 1931. These estimates have been furnished by 63 countries and 104 colonies or oversea territories. Where such information has not been vouchsafed in the case of some ten countries and as many colonies the Supervisory Body has itself framed the estimates. There is thus provided a conspectus for the whole world of the amounts of the several scheduled narcotics required for legitimate use. For morphine the total figure is 45,658 kilos, but of this only 10,126 kilos are for consumption of the alkaloid as such, the remainder being employed for conversion—for example, into codeine, heroin, or dionin. Of codeine the total is 29,921 kilos, of heroin 1,133 kilos, and of cocaine 5,032 kilos. In the case of morphine the requirement is rather more, and in the case of codeine considerably more, than it was in 1934, whereas the amount of cocaine required for legitimate consumption is less than for that year. Turning to the tables indicating the estimates furnished by the several Governments it is interesting to note that while the morphine requirement (including that for conversion) for Great Britain is 2,114 kilos, that for France is 4,650, for Germany 5,850, for Soviet Russia 8,000, for the United States 8,653, and for Japan 4,593. The requirements for heroin in kilogrammes are: Great Britain 56, Germany 3, Soviet Russia 350, United States 0, and Japan 180. The highest estimates for heroin for use as such were received from Soviet Russia, Italy,

and Japan. The consumption of cocaine appears to be greatest in Japan, the United States, and Soviet Russia. The countries which failed to furnish the required estimates and for which the Supervisory Body itself had to frame them were Mexico, Cuba, Panama, Ecuador, Paraguay, Peru, Bolivia, Ethiopia, Liberia, and the Union of South Africa.

A NEW FOOD AND DRUGS BILL

Publication of the third interim report of the Local Government and Public Health Consolidation Committee marks a further step in the consolidation of the public health law. The report (Cmd. 5628, price 1s.) is accompanied by a draft Bill (Cmd. 5629, 1s. 6d.), and deals with the law relating to food and drugs. It also extends to markets and slaughterhouses. The committee was set up in 1930 by Mr. Arthur Greenwood, then Minister of Health, under the chairmanship of the late Viscount Chelmsford, who was succeeded by Lord Addington, the present chairman. Its original terms of reference were:

With a view to the consolidation of the enactments applying to England and Wales (exclusive of London) and dealing with (a) local authorities and local government and (b) matters relating to the public health, to consider under what heads these enactments should be grouped in consolidating legislation and what amendments of the existing law are desirable for facilitating consolidation and securing simplicity, uniformity, and conciseness.

The existing law relating to food is directed towards two distinct objects—the safeguarding of public health and the protection of purchasers from fraud and deception—and, while in the main the public health code deals with the first of these objects and the sale of food and drugs code with the second, the legislature has not been entirely consistent and there are many provisions of a public health character in the latter code. The committee felt that, as a matter of practical convenience, the two codes should be combined in a single measure; and for this purpose its terms of reference were enlarged. For reasons indicated in the report the draft Bill, unlike the two earlier local government and public health Bills prepared by the committee, extends to London. For this purpose also the committee's terms of reference were enlarged and its membership increased so as to secure representation of the London authorities. The draft Bill, in addition to securing this unification of the two existing codes, represents a great simplification of the existing law. Its 102 clauses take the place of some 240 sections of existing Acts, some of which, dealing with the adulteration of tea and coffee and with knackers' yards, date from the eighteenth century, and others, such as the Bread Acts, from the early nineteenth. Of the more modern Acts reproduced in the draft Bill mention may be made of the Milk and Dairies (Consolidation) Act, 1915, the Milk and Dairies (Amendment) Act, 1922, the Artificial Cream Act, 1929, the Public Health (Cleansing of Shell-fish) Act, 1932, and the Milk Act, 1934. The changes which the Bill would effect are dealt with in detail in the report and an appendix. Among the more important may be

sideration of medical, industrial, economic, and legal factors. Such problems cannot properly be dealt with except by an authority which is so constituted as to be able to give due weight to all these factors. In practice the authorities may be classified under three heads: (1) civil courts, (2) accident or invalidity insurance institutions, (3) special courts or boards set up for the purpose. There is much to recommend the last-named of these, provided that the tribunal is representative of all the interests which should be concerned. Experts may be attached to such an authority, either in an advisory or a judicial capacity. The report discusses the safeguards which should be provided to ensure that the assessment shall be made with proper impartiality, full knowledge of the facts, and reasonable dispatch and economy, and the point is made that there should be arrangements for appeals and for a review of the case if necessary. This report is a well documented and most helpful contribution to a subject which is likely to be of increasing importance with the expansion of industrial medicine.

INDUSTRIAL POISONING

The steadily increasing importance of organic chemistry is one of the outstanding features of modern industrial development, and new compounds are continuously being introduced for use both in factories and in our homes. The extent of this development is revealed by the report issued by the Medical Research Council on *Toxicity of Industrial Organic Solvents*,¹ which describes no fewer than one hundred of such compounds. This figure is a tribute to the enterprise of industrial chemistry, but at the same time is somewhat alarming from the point of view of industrial hygiene. The great majority of these compounds are volatile, and hence those using them are likely to be exposed to their fumes, even though this risk is greatly reduced in modern plants. On the other hand, our knowledge of the toxic actions of drugs on man is very limited; indeed few would care to prophesy whether a new compound is harmless even as regards the production of acute poisoning, and this lack of knowledge is even more pronounced as regards the risk of chronic forms of intoxication, because the estimation of minor toxic disturbances due to prolonged exposure to low concentrations of vapour is such tedious and difficult work that it is unlikely to be undertaken except in institutes specially equipped for the purpose. For such reasons knowledge of the pharmacological actions of new chemicals has been apt to lag far behind their industrial application. There is a tendency, therefore, for the toxicity of new solvents to be determined by the simple method of large-scale trial upon human populations. The dangers of such a situation are obvious, and we must consider it a fortunate chance that hitherto we

have had relatively few unpleasant surprises regarding the toxic potentialities of new compounds. The report of the Medical Research Council represents a step forward, since it collects in one volume such knowledge as is at present available. Study of the volume brings to light the remarkable variety of substances used as industrial solvents, and it shows too that the information concerning their actions on animals and man is scattered throughout an extremely wide range of literature. The mere collection of this widely dispersed material is an important first step in the advance of knowledge of the properties of these important compounds, whose use is now extending so rapidly. Examination of the evidence collected shows, however, that in most cases it is very incomplete, a fact emphasized in the introduction to the report. There is thus an urgent need for the organization of systematic research on this subject, so that pharmacological knowledge may be kept more nearly abreast of the advances made by organic chemists; otherwise it seems inevitable that sooner or later some really dangerous substance will find its way into industry and do much harm before its potentialities for evil are recognized.

PROGRESS IN ASTHMA RESEARCH

The Asthma Research Council makes grants to qualified investigators who work in asthma clinics and in laboratories attached to hospitals. The money is derived almost entirely from donations, but a small part of the revenue comes from the sale at 1s. a copy of the useful booklet *Physical Exercises for Asthma*. Last year the Council published a second and revised edition of this pamphlet, which, with the annual report for 1937, may be obtained from the Secretary, c/o King's College, Strand, London, W.C.2. The report, which is sent to inquirers free of charge, gives ample evidence of valuable work, but also stresses the need for a constant supply of money. Owing to lack of funds the Council could not give further grants to the clinic at Leeds General Infirmary or to the St. John Clinic, Pimlico, or continue to pay for research in "wide-field" x-ray therapy. It will have to reduce its expenditure still further in the new year unless the work receives the support it deserves. Interesting results have been obtained at the Guy's Hospital clinic and will be published shortly. Of thirty-five cases treated by protein inhalation for rhinorrhoea fourteen showed either cure or considerable improvement, five some improvement, and sixteen none. Considering how intractable these cases are the figures are encouraging. Attention is being turned from groups to individual cases; patients are admitted for biochemical investigation, and an allergen-free room has just been made available. Dr. Gerson has been treating some particularly obstinate cases by diet, and Dr. Strauss has investigated the psychogenic factor.¹ Dr. Bruce Pearson has completed a paper on his investigations into skin sensitivity, which showed that a surprising number of apparently normal people give positive skin reactions to common inhalants.

¹ See page 73 of this week's issue.

¹ See *British Medical Journal*, December 25, 1937, p. 1284.

the bacteriology of water supplies, milk, and food infections; on Dr. Charles McMoran Wilson, a London physician whose fine work as Dean of St. Mary's Hospital Medical School must be known to all readers of this *Journal*; and on Dr. Charles Norman Paul, dermatologist to the Sydney Hospital. Lord Nuffield's princely benefactions to medicine and other good causes are rewarded by a viscountcy, and Mr. E. W. Meyerstein's large gifts to hospitals and medical schools by a knighthood.

EVERYDAY PROBLEMS OF INCOME TAX

The statutes concerning income tax have become notorious for their complexity, as indeed the report of the recent Codification Committee frankly admits, and the authors of a recent handbook¹ set themselves no mean task when they proposed "to deal with everyday problems in ordinary everyday language." They have succeeded to a very commendable degree, and in so doing have supplied a want which is often felt, and which has sometimes been expressed in letters to the editor of this *Journal*. The binding, print, and general arrangement are particularly good for a book published at a low price, and the contents can fairly be claimed to cover the "everyday problems," and a good many more that are less frequent but nevertheless common enough to justify inclusion in a general statement of the law and practice of income tax. The professional man will find such questions as beginning and ceasing practices, and successions clearly dealt with; and there is a chapter on the allowances for depreciation, renewal, and obsolescence of machinery, which is very well written. A pleasing feature of the book is the frequent use of clear and simple examples, without which, indeed, verbal explanation of such matters is always difficult to follow. There are one or two points which the authors might usefully reconsider for a second edition. Thus their remark that allowable advertising expenditure includes "the reasonable entertainment of customers" is perhaps literally true, but would be incorrect if "customers" were read as including professional clients. The chapter on salaried employments, etc., would have been improved by the addition of a note on the concessional practice of including the emoluments of a medical office as part of general practice receipts. As the chapter stands it implies that all such salaries must be separately assessed under Schedule E, whereas the reverse is not only the common but also the much more convenient course. The "Notes on Accounts" in Appendix A include an example of the account of a medical partnership which should be helpful, and there is a useful note on the cash basis account, or, as the authors call it, an account "on a receipts and payments basis," in which they express the opinion that "there is a growing reluctance on the part of the Revenue authorities to agree to accounts drawn up on this basis, when presented for the first time." In our experience such reluctance can usually be overcome, assuming that accounts have been

supplied for, say, the first three years on the earnings basis. We disagree definitely with the authors on one point arising out of the "cash basis." They regard with favour the practice of adding the amount of the outstanding book debts to the profit shown by a cash basis account for the final year of a practice. We regard such an addition as incorrect, and unfair to the practitioner. It should be assumed that the profits of the first three or four years of the practice have been assessed on the earnings basis, and the fact that the profits so calculated exceeded the cash profits of those years provides a sound reason for adhering to the amount of the cash basis profits when the practice is treated as having ceased. This, however, is a minor blemish on one of the most successful attempts we have yet seen to state income-tax practice simply, clearly, and in a readily accessible form.

CALCIUM DEFICIENCY

The article in our present issue (p.59) by Dr. Katharine Coward and her co-workers provides interesting information about the effect on young rats of a "normal" poorer-class diet consisting largely of bread, margarine, jam, and potatoes, with some meat and a little milk and green vegetables. One series of experiments was devised to check the conclusions of Simpson and Wood,¹ who found, with children of the poorer class, that addition of virol to the diet produced more benefit than did addition of either cod-liver oil or of halibut-liver oil plus dried milk. The experiments on rats gave the opposite result, since the liver oils produced beneficial effects, while the virol was almost without influence. These two series of conflicting results are so unlike in character that it is difficult to estimate their relative importance. It is, of course, obvious that experiments on rats provide only indirect evidence regarding the dietary requirements of children. On the other hand, it must be remembered that a standard of accuracy is possible in animal experiments that is completely unattainable in feeding experiments with children. A second series of experiments made with young rats fed on the "normal" poorer-class diet described above, with the addition of cod-liver oil, showed that the percentage of ash in their bones was slightly less than four-fifths that of the normal. The addition of cod-liver oil should have ensured the absorption of the calcium and phosphorus present in the diet; moreover, the deficiency in bone ash was prevented by the addition to the diet of either a salt mixture containing calcium and phosphorus or milk. The authors conclude: "This proves quite clearly that the ordinary mixed diet of the poorer classes is seriously deficient in the elements required for the calcification of bone." The importance of this conclusion is so obvious that it requires little comment. It is in general accordance with the findings of American authorities such as Sherman, who have contended for many years that calcium deficiency is one of the most serious dangers of improperly balanced diets.

¹ *Income Tax Explained*. By K. Adlard Coles, M.A., F.C.A., and John Macdonald, M.A. London: Jordan and Sons Ltd. 5s.

¹ Simpson, T. W., and Wood, E. C. (1935). *Med. Off.*, 53, 125, 135.

mentioned the alteration in the definition of "Food and Drugs Authorities"—that is, the authorities to be entrusted with the administration of the provisions of the Bill dealing with the adulteration of food and drugs. The course recommended by the committee and given effect to in the draft Bill is to abandon the present definition, which is based on factors some of which are plainly out of date, and to include in the definition county councils and county borough councils (as at present) and councils of non-county boroughs and urban districts having a population of not less than 40,000 with a discretionary power for the Minister of Health to confer the functions on the council of any other borough or urban district with a population of more than 20,000. The committee has not considered its task to be the framing of ideal legislation, but has attempted to reproduce the existing law with such amendment only as in its opinion would be likely to command general assent.

SUICIDE IN AMERICA

Suicide is becoming recognized in the United States and also in Canada as a serious sociological problem. One of the most recent surveys comes from Boston, where Dr. Merrill Moore has published¹ an account of the 1,147 patients who were admitted to the Boston City Hospital between the beginning of 1915 and the beginning of 1936 after attempting suicide. He finds that attempted suicide cases are coming to the hospital in greater numbers: 99 cases in the last year of the period against 24 in the first. The sex incidence was fairly equal: 616 women and 531 men. Seventy-two men and 55 women succeeded; perhaps, Dr. Moore thinks, men generally use mechanical and more physically aggressive methods, such as shooting, slashing, and leaping, whereas women usually take poison. The most popular methods in order of choice were poison by mouth, inhalation of gas, cutting throat or wrists, leaping, shooting, hanging, and drowning. The great majority were discharged "relieved." Only 67 patients were obviously ill enough in mind to be sent to a mental hospital. The age distribution definitely related suicide to the curve of sexual activity: the largest age group in women was 20-25, in men 26-30. The motives, among the 266 patients who stated them, were chiefly economic factors in the men and domestic difficulties in the women, ill-health coming third in both. About 10 per cent. drank alcohol shortly before or at the time of the attempt. No fewer than 322 patients drank iodine, but none died; the next most popular poisons were mercury compounds, barbiturates, "syphonathol," and mercurochrome. So far as could be ascertained few patients repeated the attempt. Married women made the largest status group with 260, then unmarried women 176, married men 163, and unmarried men 148. Unemployment appeared possibly to be a precipitating factor: 50 per cent. of the women were not lucratively employed. Among the employed an important predisposing factor seemed to be maladjustment to their work. Few attempts were made in the

winter; the favourite month for men was April and for women August, the favourite day for men Sunday and for women Wednesday. Most of the patients were white and came from the lower classes. Dr. Moore suggests that more individual attention should be paid to failed suicidal cases, especially from the point of view of psychology and of social medicine. He proposes the establishment of protective wards in large general hospitals where patients may be treated and studied. From Toronto Dr. Ruth Franks,² who has studied 352 consecutive cases of attempted suicide admitted to the Toronto City Psychiatric Hospital from November 1, 1928, to October 31, 1935, suggests that suicide may be prevented by raising the standard of education and the mental and physical health of the populace, by teaching certain lay and professional groups to recognize the danger signals of probable suicide; by abolishing the stigma, minimising publicity, fencing off heights, and paying greater attention to suicide in medical, social, and legal instruction. She also considers that improvement may result from training young persons to take responsibility and from encouraging the cohesion of social groups. She lays stress on the value of a fixed regular routine day in bringing satisfaction and contentment to unsettled persons, and also advocates clinics to which those who are distressed may come for help. She finds a higher incidence in foreign-born than in native persons, and considers that this difference should be investigated. Rather surprisingly, she does not suggest any means for improving the economic position of would-be suicides, perhaps because the problems which this cause involves are too large and difficult for the scope of her thesis.

THE HONOURS LIST

A classified record of the medical New Year's Honours, taken from the *Supplement* to the *London Gazette* of December 31, will be found at page 88. The outstanding item in the eyes of members of the British Medical Association is the knighthood conferred upon our President, Professor Robert James Johnstone. The success of the Annual Meeting at Belfast last year was largely due to his genial personality and the commanding position he holds in the medical profession and the public life of Northern Ireland. The Right Hon. Earle Page, Minister of Commerce and Deputy Prime Minister of Australia, whom we welcomed in this country not many months ago, receives the high honour of G.C.M.G., and Lord Horder that of G.C.V.O. Major-General Ernest A. Walker, I.M.S., lately Director of Medical Services in India, Army Headquarters, becomes K.C.I.E.; and Miss Florence Barrie Lambert, well known for her work on the London County Council, is created D.B.E. The honour of knighthood is conferred also on Dr. Joseph William Leech, M.P. for the Newcastle-on-Tyne West Division and a former Lord Mayor of Newcastle; on Dr. William George Savage, who has now retired from the post of county medical officer of health for Somerset after twenty-eight years' service, during which he published valuable reports on

¹ *Canad. med. Ass. J.*, 1937, 37, 139.

² *New Engl. J. Med.*, 1937, 217, 291.

be applied if the upper limb is involved, and in the case of the trunk or lower limbs confinement to bed for a few days is desirable, except in the mildest cases. A detailed description of the treatment of cellulitis is beyond the scope of this article, but the frequent application of hot hypertonic saline solution (1/2 oz. of salt to 1 pint of water) by means of either immersion or hot compresses is an excellent method of treatment. Abrasion of the knees in children ("gravel rash") is not uncommonly followed by some degree of cellulitis, which is apt to result in a sympathetic effusion into the knee-joint. Doubt may exist as to whether the effusion is serous or purulent, but in the former case a few degrees of painless movement is possible, whereas suppurative arthritis causes intense spasm, and severe pain is experienced at any attempt to move the joint. If a diagnosis cannot be made in any other way a needle should be inserted through healthy skin and a small quantity of fluid withdrawn for examination. In the case of inflammation following an abrasion giving rise to adenitis of the regional lymphatic glands the timely application of antiphlogistine or kaolin tends to avert suppuration. The general health must also receive consideration, sedatives, aperients, stimulants, or tonics being ordered as necessary. If the infection is streptococcal in nature, then sulphanilamide should be prescribed.

Abrasions of Special Organs

Abrasions of the alimentary canal are worthy of mention; scratches or abrasions due to a fish-bone or other sharp object are common events in general practice. The patient usually insists that the sharp object is still *in situ*. If he locates the site of injury to the mouth or pharynx a careful inspection must be made, in order to confirm its presence or else to disprove his statement and reassure him. Special attention is paid to the tonsillar fossae, as a small fish-bone embedded in the tonsil is readily overlooked. If the patient says that a small foreign body is "sticking in the gullet" he should be reassured and directed to feed on pulqueous food, and it may be justifiable to prescribe some harmless medicine or a mild bromide mixture as a placebo for a nervous patient. If the symptoms persist for more than twenty-four hours an oesophagoscopy should be performed, as the patient may be correct! I have seen death result from ulceration of a fish-bone through the wall of the oesophagus into the arch of the aorta, and cases of mediastinitis are occasionally reported. The old-fashioned probang should not be used unless it is impossible to obtain the services of a surgeon familiar with oesophagoscopy. A cotton-wool sandwich may be of assistance occasionally. A thin layer of cotton-wool is sandwiched between two pieces of well-buttered bread, and the patient is asked to eat this. Some of the cotton-wool does tend to collect round the fish-bone or other foreign body, and may diminish the possibility of its injuring or penetrating the gut. Occasionally abrasions of the other end of the alimentary canal are also fraught with danger. An enema syringe with a rigid nozzle should never be used unless a rubber catheter is attached, otherwise it may abrade or even perforate the wall of the anal canal or rectum. Such abrasions have been followed by cellulitis of the wall of the bowel, which in some cases has spread to the pelvic cellular tissue with fatal results.

Abrasions of the cornea always require careful attention so as to avoid the development of a scar, which, if situated centrally, will impair vision, and in any case will persist as an ugly reminder. Two or three drops of castor oil and a pad and bandage for twenty-four hours is usually

adequate treatment. Lead lotion should never be applied to skin abrasions in the region of the orbit unless it is quite certain that no corneal abrasion exists, otherwise lead albuminate forms over the abraded area and remains as a permanent corneal opacity.

Contusions

The term "contusion" implies laceration of and haemorrhage into subcutaneous tissues or deeper structures, following an external injury but unassociated with any wound of the skin. The clinical features of a subcutaneous contusion are pain, which occurs immediately, ecchymosis, which follows shortly, and swelling, the extent of which depends upon the severity of the injury and the laxness of the damaged tissues. Pain varies with the extent and site of the injury. Contusion of tissues which can accommodate a considerable extravasation of blood, such as the scrotum, is comparatively painless, whereas a contusion of the auricle is usually somewhat painful. Ecchymosis, or bruising, is due to infiltration of the tissues with blood, and if extensive the overlying skin may be almost black in colour. This is especially noticeable when the injury affects lax tissues in which oozing readily occurs, as, for example, when injury to the circumorbital region results in a "black eye." In some cases the blood extravasates along the fascial planes and appears at a distance from the site of injury; thus, a blow on the skull is apt to damage subaponeurotic vessels, and bruising may appear some days later in the eyelids or in the region of the mastoid process.

In the case of severe contusions a haematoma may form and present itself as a fluctuant or boggy swelling. As a rule serum collects in the centre while fibrin is deposited in the periphery, and eventually the haematoma is absorbed. At this stage a subpericranial haematoma closely simulates a simple depressed fracture of the vault, as on palpation the edge of the clot resembles the rim of bone surrounding a depressed area of the skull. However, the clot can sometimes be indented by the finger-nail, and in the absence of intracranial complications delay of a few hours is of little moment, so a radiograph can be taken in order to distinguish the two conditions. Occasionally a haematoma persists as a permanent swelling, which consists of a sac containing serous fluid and surrounded by laminated fibrin, which later is organized into fibrous tissue. Haematoidin crystals, derived from blood pigment, are commonly found in the wall of this so-called "blood cyst." If the history of injury is forgotten by the patient a blood cyst is a fruitful source of errors in diagnosis.

A common complication of contusions, associated with either extravasation of blood or a haematoma, is infection. The organisms gain entry either through a coexisting abrasion, or are blood-borne from some focus of infection such as the tonsils or teeth, or from distant cutaneous lesions. The advent of suppuration is indicated by increased swelling, heat, and constitutional disturbances. The swelling associated with a contusion is due primarily to oozing from small blood vessels. The blood which escapes subsequently clots and excites an aseptic inflammatory reaction. If the nutrition of the underlying skin is impaired thereby blebs or blisters are apt to develop, a condition which not infrequently complicates the treatment of fractures of the tibia.

Treatment of Contusions

The treatment of a contusion is directed first of all towards limiting the amount of oozing from ruptured

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

ABRASIONS AND CONTUSIONS

by

R. J. McNEILL LOVE, M.S., F.R.C.S.

An abrasion as such is of little moment, but it may be of supreme importance in that solution of continuity of skin or mucous membrane is apt to allow the entry of organisms into the tissues. Theoretically even the smallest abrasion should be treated with promptitude, and treatment maintained until the wound is soundly healed. In practice, however, small abrasions are often considered to be such trivial injuries that they are apt to be neglected, or at the most receive a "dab of iodine." Members of the medical profession who are exposed to the risk of virulent infections, especially pathologists and surgeons, are sometimes sufficiently careful to protect an abrasion from infection, but even among our own profession tragedies occur from time to time. The organisms which may gain entry through an abrasion fall into two groups—namely, non-specific, or pyogenic, and specific.

Non-specific Infections

Various strains of staphylococci and streptococci commonly affect the tissues in the region of a neglected abrasion. Staphylococcal infections are usually localized, and if suppuration occurs the pus is thick and creamy. Streptococci, on the other hand, are apt to cause a rapidly spreading inflammation, and any pus which may form is scanty in quantity and seropurulent in nature. It is of importance, especially in connexion with treatment, to remember that organisms which have gained entry through an abrasion may spread by any of the following routes: (1) by continuity, which mode of spread is most in evidence when virulent organisms, especially streptococci, infect loose connective tissue, such as the subaponeurotic space under the scalp, or subcutaneous tissues; (2) by lymphatic channels, when red streaks may be seen denoting acute lymphangitis, going on to enlargement and tenderness of the regional lymphatic glands, which may subsequently suppurate; (3) by the blood stream, some degree of toxæmia being expected if the infection is of moderate severity, while if the invading organisms are virulent or the resistance of the patient is low, septicaemia may follow, or even pyæmia with associated metastatic abscesses.

Specific Infections

Probably the specific organism most to be dreaded is the *B. tetani*. Abrasions contaminated by cultivated soil are particularly dangerous, but those associated with street accidents are less prone to be infected with tetanus than formerly, owing to the diminishing numbers of horses now employed. Nevertheless, any patient who has sustained an abrasion of sufficient depth or so contaminated as to be potentially infected must be given an intramuscular injection of 1,000 international units of anti-tetanus serum. Some calcium preparation should be given orally for a few days, so as to prevent or minimize serum reaction—this applies to the administration of any serum. Among the other specific organisms which may gain entry through an abrasion is the *Spirochaeta pallida*. Prophylactic treatment, such as washing with potassium

permanganate solution, 1 in 1,000, and the subsequent application of 30 per cent. calome! ointment, practically guarantees freedom from infection.

Hydrophobia is due to infection of an abrasion, usually at the time of infliction, but occasionally inoculation follows the licking of an abraded area by an infected animal. If infection is suspected the wound should be treated immediately by the actual cautery, or by a strong caustic such as pure carbolic acid, which is less painful owing to its local anaesthetic properties. If reasonable grounds exist for presuming that the offending animal was suffering from rabies, then the patient is sent without delay to an institute where he can receive Pasteur treatment. As the incubation period in man is rarely less than two months, ample time is available for the journey to a recognized centre.

The anatomical tubercle (verruca necrogenica) is a further example of the danger of inoculation of an abrasion. This condition occasionally occurs in butchers and others who are exposed to inoculation by tubercle bacilli. A warty excrescence presents itself, usually on the back of the hand. The most expeditious treatment is by excision.

Treatment of Abrasions

An abrasion should be treated by suitable dressings until it has completely healed and all risk of infection has disappeared. This applies particularly to patients who are exposed to irritants, such as chemical workers, and to medical practitioners, nurses, or undertakers, whose occupation subjects them to the risk of inoculation by organisms. During the first few hours, when the abrasion is still clinically uninfected, the application of a mild antiseptic is all that is required locally. Tincture of iodine (B.P., 2½ per cent.) is commonly applied as a first-aid expedient, but such a strong antiseptic is liable to do more harm than good, as it devitalizes the tissues and renders them less resistant to infection. This is especially so in those cases in which a few hours' delay has allowed organisms to enter the wound. Therefore, except possibly as an immediate application to a small abrasion, tincture of iodine is not to be recommended. More suitable applications are surgical spirit, aqueous solution of flavine (1 in 1,000), or eusol, which must be fresh and applied cold. The antiseptic property of eusol depends mainly upon the presence of chlorine, which is readily driven off if the solution is heated. Other suitable antiseptics are lysol, and its allied preparations, in 1/2 per cent. solution, or dettol. Friar's balsam (tinct. benzoini col.) is a popular and efficient application. Any of these antiseptics, except eusol, is applied once or twice daily. A eusol dressing should be changed three times daily, as its antiseptic properties rapidly deteriorate. If the abrasion is contaminated with soil, gravel, or dirt an anaesthetic is sometimes desirable, so that the wound can be thoroughly cleansed and ragged skin removed, or the edges excised. A general anaesthetic is usually required for children, and in the case of adults evipan or an allied preparation is very satisfactory.

If infection develops treatment is directed to localizing the inflammation, as a spreading cellulitis may cause a long and anxious illness and even terminate fatally. The first essential is rest to the affected part. A sling should

Nova et Vetera

EDINBURGH ROYAL INFIRMARY

DR. LOGAN TURNER'S HISTORY

Few persons are better qualified to write the history of the Edinburgh Royal Infirmary¹ than Dr. Logan Turner. He was educated there, was house-surgeon to Mr. Annandale, served his term of office as surgeon to the ear, throat, and nose department, and is widely read in the history of medicine. He has had access to the minute-books of the Infirmary, and the volume may be looked upon as both accurate and readable. The first few chapters are devoted to the foundation of the medical school at Edinburgh. Dr. Logan Turner traces the persistence of the Hippocratic tradition, showing how it was kept alive in Europe and how in due course it came to Edinburgh. Clinical teaching was always one of its features. Boerhaave made it fundamental at Leyden, and from Leyden it was brought to Edinburgh in the middle of the eighteenth century. Teaching in the presence of the patient was a novelty. It quickly attracted students from England, Ireland, the American colonies, and the dependencies, and the Edinburgh school of medicine thus became famous throughout the English-speaking world.

"The Little House"

From the foundation of the medical faculty in Edinburgh University Dr. Logan Turner passes to the history of the Royal Infirmary. It began humbly in 1729 as a voluntary effort to relieve the sick poor coming from any part of Scotland—"The Little House," with only six to eight beds, under a mistress at a salary of £4 sterling and one servant. Thirty-five patients were admitted the first year, with nineteen cured and one death, at a cost of £97 19s. 7½d. The money was obtained in part by an "Infirmary Sunday," when the General Assembly of the Church earnestly recommended that all the parish churches throughout Scotland should set aside a Lord's Day on which a collection should be taken up. "The Little House" was to be staffed only by Fellows of the Royal College of Physicians of Edinburgh on a fortnightly rota of service, a system which was soon proved to be unworkable. Within a short time it was found necessary to have surgeons; two were chosen, each to act for a month at a time, operate, and supply medicines gratis. Students availed themselves of the teaching at the hospital, and arrived in such numbers as to be embarrassing both to the staff and to the patients. The remedy was to enforce a payment of two guineas for the privilege of "walking the hospital," the money being allocated to the general funds of the Infirmary.

The advantages of a hospital were recognized, a Charter was granted, and arrangements were made for a building to accommodate 228 patients. This was found to be on too grand a scale, and when it was opened in 1741 the "family" to be transferred from the old quarters consisted only of thirty-four patients. During "the '45" until after the battle of Culloden the Infirmary was practically a military hospital, and the sum of 4½d. to 7½d. a day was paid for each soldier. In 1918 the cost per soldier had risen to 4s. 9d. a head, with an allowance of sixpence a day for each unoccupied bed placed at the disposal of the military authorities.

¹ *Story of a Great Hospital. The Royal Infirmary of Edinburgh, 1729-1929.* By A. Logan Turner, M.D., LL.D., Hon. F.R.C.P. Ed. (Pp. 406; 34 illustrations, 4 plans. 10s. net.) Edinburgh: Oliver and Boyd, Tweeddale Court. London: 33, Paternoster Row, 1937.

Teaching and Staffing

The history explains how there arose the system of teaching partly by a professorial staff and partly by the ordinary staff of the hospital, which *longo intervallo* has now been adopted by the "units" in many of the English voluntary hospitals. It tells, too, of the rise and growth of the nursing staff, and gives a very excellent portrait of Nurse Janet Porter, of whom W. E. Henley wrote:

"The doctors love her, tease her, use her skill;
They say 'The Chief' himself is half afraid of her."

She was perhaps the last of the system which placed a staff of nine women in charge of seventy-two patients, distributed in six wards and six little rooms, whose wages in 1792 were raised from £3 10s. to £5 per annum. They worked magnificently, but in later days shared, quite undeservedly, the opprobrium which was justly due to the "watchers." Women who were not resident in the Infirmary came in at night and were paid from fourpence to sixpence for each attendance. The battle of women to secure medical teaching is described at length, due credit being given to Miss Jex-Blake and Mrs. Garrett Anderson. They were helped amongst others by Patrick Heron Watson, who taught them surgery from eleven to midday every Sunday until complaint was made, when he moved the time of his class forward to nine o'clock so as not to interfere with the hour of Divine service.

The history is continued until the present time, and shows how the different special departments have developed, adding greatly to the usefulness and advancement of medical science. Finally there are appendices recording various data which it would be difficult to obtain otherwise. There is a good index, and the illustrations are remarkably well reproduced. On the whole this is a most useful and very cheap book, for it only costs ten shillings.

D'A. P.

ANNALS OF MEDICAL HISTORY

The frontispiece of the September number of the *Annals of Medical History*¹ reproduces the comfortable result of laughter and what often precedes it as shown by the figure of Sir Theodore Turquet de Mayerne, the first Fellow of the Royal College of Physicians of London to be chemically minded. Dr. P. Gibson of Kingston, Ontario, sketches the life of this fine clinician and court physician of the seventeenth century, and publishes some of his letters. Dr. J. T. Howard of Baltimore writes on the Doctors Gustavus Brown and, by his reference to the three traditional explanations of Gustavus as a family name, supplements Dr. Eugene Cordell's account in 1902 of "The Doctors Gustavus Brown of Lower Maryland." Vesalius's description of the vermiform appendix under the name of the "blind intestine" is reproduced by Dr. Samuel W. Lambert of New York, and thus explains the authoritative statement that Vesalius did not mention the vermiform appendix, though it appears in Calcar's illustrations in the *De Fabrica*. In his article on Nathan Smith and early American medical education Dr. L. D. van Antwerp quotes the pleasant simile of W. H. Welch: "Nathan Smith's essay on typhus fever is like a fresh breeze from the sea amid the dreary and stifling writings of most of his contemporaries." The life of Jean Dominique, Baron Larrey, Napoleon's fearless surgeon, is sketched by Dr. P. E. Bechet, who provides illustrations of his "flying" ambulance and his handwriting. Two articles continued from previous instalments—"The Doctor on the Stage" and the "Medical History of Vienna"—are concluded in this number.

¹ *Annals of Medical History.* New Series, Vol. 9, No. 5, September, 1937. Edited by Francis R. Packard, M.D. (Pp. 401-516; illustrated. £2 10s. for volume of six numbers. New York: Paul B. Hoeber, Inc., Medical Book Department, Harper and Brothers. London: Baillière, Tindall and Cox.

capillaries and small vessels, and so controlling the extravasation of blood and preventing the formation of haematomata. The first essential is again rest to the affected part, either by the limitation of activities, splinting, or confinement to bed. The application of cold in the form of an ice-bag or suitable lotions, such as lead lotions or surgical spirit, is valuable. The traditional raw beef-steak for contusions of the orbit is an example of a cold application. In some cases pressure by means of a bandage, perhaps soaked in cold water, will limit extravasation, but care must be taken not to interfere with the circulation of the affected part.

The majority of haematomata require no surgical intervention, but a timely incision is occasionally needed to relieve tension and evacuate blood clot when a contusion results in the extravasation of the blood or the formation of a haematoma in a confined space. A classical instance is contusion of the muscles of the forearm, which are enclosed in an inelastic fascial compartment. Extravasated blood causes an abnormal tension in this confined space and consequent impairment of venous circulation. Neglect or delay in incising the deep fascia of the arm may cause lifelong disability in the form of Volkmann's ischaemic contracture. In some situations an ugly mass of organized blood clot is apt to persist if the haematoma is treated conservatively—the "cauliflower ear" which follows an untreated contusion of the auricle is a good example. This can be prevented by a small incision, evacuation of the serum and recent clot, and the application of a firm elastoplast dressing.

Contusions of deeper structures, such as the brain or lung, are beyond the scope of this article, but a few words may be added in connexion with the abdominal organs. A contusion of the liver is suspected rather than actually diagnosed. The site of injury, possible association with a fracture of the lower ribs on the right side, a moderate degree of shock, and local tenderness all suggest the nature of the injury. A constant pulse reading indicates that progressive haemorrhage is not occurring, and two or three days later suspicions of a contused liver are sometimes confirmed by the appearance in the urine of bile, which has escaped from ruptured biliary capillaries and which is subsequently absorbed by the blood stream. Very occasionally a circum-umbilical patch of jaundice appears, due to the extravasation of bile into the cellular tissue overlying the bare area, and absorption of bile pigment by the lymphatics which accompany the ligamentum teres. The treatment of a suspected contusion of the liver is expectant; omnopon is given (morphine is unnecessary in the absence of severe pain, and is apt to cause vomiting and alimentary derangement) and an ice-bag applied over the site of injury. A careful watch is kept on the pulse, so that continued haemorrhage may be readily recognized, and more energetic treatment instituted if necessary.

Contusion of the kidney is diagnosed by haematuria following trauma in the kidney region, and occasionally an indefinite swelling is palpable in the loin, due to extravasation of blood and urine. Every specimen of urine should be saved and compared with previous ones, so that some idea can be gained as to whether the bleeding is subsiding or persisting. Omnopon is given and an ice-bag or cold pack applied to the renal region. Urinary antiseptics are said to prevent the development of a perinephric abscess, which is a common complication of a contused kidney. If haematuria is persistent, or if the pulse rate rises, operative intervention should be considered, in order either to repair or remove the kidney.

CONGRESSES ON RHEUMATISM AND HYDROLOGY

The Oxford Meeting

The International Congress on Rheumatism and Hydrology, which is to be held in Oxford, with preliminary entertainment in London, from March 25 to 31, is being convened jointly by the International Society of Medical Hydrology and the International League against Rheumatism.

The president-elect is Sir Farquhar Buzzard, Regius Professor of Medicine at Oxford; the chairman of the British Organizing Committee is Sir Humphry Rolleston, and the office of the congress is c/o the International Society of Medical Hydrology, 109, Kingsway, W.C.2.

There will be two main subjects for discussion. "Wet and Dry Climates and Weather in the Causation of Disease" will be introduced by Professor G. Danischewsky (U.S.S.R.), Dr. G. Edström (Sweden), Professor de Rudder (Germany), and Dr. E. P. Poulton (Great Britain). The second subject, "Juvenile Rheumatism," will be considered under four aspects, the principal speakers being: *Pathological aspect*: Professor F. Klinge (Germany) and Dr. A. G. Gibson (Great Britain). *Clinical aspect*: Professor L. Findlay (Great Britain) and Dr. H. Grenet (France). *Therapeutic aspect*: Dr. Wilfrid Sheldon (Great Britain) and another opener. *Social aspect*: Dr. F. J. Poynton (Great Britain) and Professor G. Danischewsky (U.S.S.R.). There will be numerous supplementary papers to the discussion on juvenile rheumatism, and it is hoped that supplementary papers will also be received for the first subject.

Visits are to be paid to hospitals in London on March 26, and there will be receptions on the evenings of the 25th and 26th. Arrangements are being completed for the accommodation of congress members in colleges at Oxford; a concert, banquet, and reception have been arranged there; visits will be made to Leamington Spa during the meeting and to Droitwich at the end.

The congress is open to medical men and scientists who are not members of either body on payment of a congress fee. All inquiries should be addressed to the General Secretary, International Congress on Rheumatism and Hydrology, 109, Kingsway, London, W.C.2.

The Bath Meeting

The Bath Congress on Chronic Rheumatism is to be held to commemorate the bicentenary of the Bath Royal National Hospital for Rheumatic Diseases on March 31, April 1, 2, and 3. It will follow directly after the International Congress at Oxford. The meeting will be opened by Lord Horder on the evening of Thursday, March 31, and his address will be followed by a mayoral reception and dance. The next day will be devoted to a discussion on "Gout and Rheumatism of Metabolic Origin," and papers will be read by Sir Walter Langdon-Brown, Professor Weil, and Drs. Hill, Gibson and Kersley, Weissenbach, and Francon, the discussion being resumed by Drs. Geronne, van Breeman, Kahlmeter, and Freund. There will be a banquet in the evening. On Saturday, April 2, papers will be read by Professor Pemberton, Professor Hench, and Professor Davidson. The following morning a demonstration of cases will be given at the hospital.

The meeting will be open to all practitioners, and further particulars may be obtained from the honorary secretary, c/o the Bath Royal National Hospital for Rheumatic Diseases.

The Middlesex County Council on December 21 adopted proposals for a large increase of hospital accommodation in the county, and for the provision of seaside convalescent homes near Southampton and at Mundesley, Norfolk. The sum of £658,000 will be spent on extending the West Middlesex County Hospital, Isleworth, and £650,000 on extending the Hillingdon County Hospital, Uxbridge.

healthy and diseased, but he was not aware that *B. typhosus* had ever been found in swine. His understanding was that for practical purposes man was the only animal which could carry typhoid bacilli for any period.

The Question of Carriers

Sir Walter Monckton next took the witness to the question of carriers.

If a carrier had been working in the well, what would you say to that as the cause of the outbreak?—In my opinion that is the most probable cause of this outbreak, but I cannot consider it at all as conclusive. It is a question of probabilities, as is usually the case in typhoid outbreaks. In my opinion the most probable cause in this case is the existence of a carrier.

Are carriers usually regarded as of two kinds, those in whom the infection is conveyed by the faeces and those in whom it is conveyed by the urine?—Yes.

Is a person necessarily a carrier continuously?—He may be intermittently a carrier.

By Sir Humphry Rolleston:

Is there any way from a bacteriological point of view of distinguishing between the faecal and the urinary carrier? Does the one more constantly than the other give a positive result?—Generally speaking, the faecal type are less intermittent than the urinary.

When you mentioned two types of carriers, I suppose you regarded a third form—namely, a person with a suppurating abscess in connexion with bone disease—as too rare to merit attention?—That is a possibility, I appreciate that.

When would you think that an established carrier can be acquitted of having an evil result—after three or a larger number of negative examinations for the bacillus?—I should say a larger number than three, but I should hesitate to give a number.

What would you say as to the time interval between examinations—consecutive days or consecutive weeks?—I would suggest that if five or six examinations were carried out at intervals of five or six days and were uniformly negative, that is about as much as one should reasonably be expected to do, though I should not regard the result as conclusive in view of the medical history. In the case of a urinary carrier I should want more tests and over a longer period.

In further reply to Sir Walter Monckton, the witness said that the Addington well could undoubtedly be made a safe source of supply. Chlorination was one of the most important processes from the point of view of bacteriological purification. By adding coagulant a much wider purification was obtained. Sir Humphry Rolleston asked whether there was evidence that the coagulant had any specific action on typhoid organisms. The witness replied that there was no such evidence, but that he imagined that the accumulation of saprophytes on a filter would tend to shorten the life of typhoid bacilli.

Potential Causes of Pollution

Mr. Sylvester Gates, appearing for the South Croydon Typhoid Committee, said that it had been established that the workman who was a carrier was not a urinary case, and he asked Dr. Suckling how he would consider that the infection of the well could be attributed to this man. Dr. Suckling replied that he did not accept the conclusion that because a certain number of examinations had been made and had proved negative, this carrier might not have excreted typhoid bacilli in the urine. There was evidence in literature that certainly more than half of the carriers of the faecal type intermittently excreted typhoid bacilli in that way.

Mr. Gates said that the presence of *B. coli* in large numbers in the well could not be due to a carrier, and suggested massive pollution of some kind, probably from sewage. Dr. Suckling replied that the use of the word "massive" was hardly correct. The *B. coli* test was an extremely delicate one, and if the organisms were found in 1 to 10 c.cm. of water it might indicate that the amount of sewage pollution in that water was of the order of one

part in millions. Mr. Gates further argued that inasmuch as after an attack of typhoid the victim was immunized for the rest of his life, if afterwards he took in typhoid bacilli through the mouth he might become a carrier: therefore, if the carrier in this case had previously suffered from typhoid and had drunk any of the water in this well while working there, it would account for him becoming a carrier, though he would have had nothing to do with the causation of the outbreak. Dr. Suckling replied that in his view the man was a chronic carrier, and had been so for many years, though he admitted there was no proof of this.

Dr. Suckling was also questioned as to the possible reason why only one case had occurred at the mental hospital, which was supplied directly from the source. He said that he thought this might be explained by the fact that while the water was supplied to consumers generally at night, after the men had left off working, it was supplied to the mental hospital mainly during the day, the storage tank there probably being full before the night supply was forthcoming. Further, the hospital had a softening plant, which, although it did not ordinarily effect purification, might, by reason of the fine suspended matter clogging the interstices, act to some extent as a filter.

Sampling of the Water

Asked how often samples should be taken, Dr. Suckling said that no definite statement could be made as to frequency of sampling; it depended on many factors. Regularity was not the main consideration. The sampling should be arranged so as to give analytical and bacteriological information as to the supply, and therefore it was important to take samples at certain times rather than at others. He was questioned about the general character of the analyses (which were not his own) of the Croydon water previous to the outbreak, and passages from his own textbook were quoted to him by counsel with the object of showing that in various respects—as, for example, the absence of any attempt to define the type of coliform bacillus found—they fell below standard, and it was also suggested that the samples were taken by an unskilled person and the reports were not interpreted by an experienced bacteriologist. Dr. Suckling agreed that greater attention had been paid to the chemical analysis, whereas from the health point of view the bacteriological side was the more important. He was not prepared, however, to mention the count for coli which he would allow without anxiety; one could not take one factor in isolation from others, and one never considered a sample water on one item alone.

Mr. Gates drew his attention to the last analysis made on October 29, before the outbreak, when it was reported: "Colonies per c.cm., 230; *B. coli communis* present in 10 c.cm." to which the remark was attached, "This is a good water, but I think chlorination should be used as a precaution." Could a worse water be imagined? It was this water which was at that very time poisoning the inhabitants of Croydon. Dr. Suckling replied that he could not agree with the description of it as a good water. If he had received that sample he would have reported that it was polluted water and must not be put into supply until chlorinated.

Forthcoming Witnesses

Sir Walter Monckton said that the case for Croydon Corporation would be completed after he had called the town clerk and had recalled the medical officer of health.

Mr. Montague Lyons, for the South Croydon Typhoid Committee, said that he proposed to bring forward as a witness a typhoid patient, who could not be out of hospital for ten days. It might be necessary for the cross-examination to take place in hospital in the presence of the members of the tribunal. The evidence would be an extension and confirmation of what had already been discussed.

CROYDON TYPHOID INQUIRY

MEDICAL OFFICER OF HEALTH'S FURTHER EVIDENCE

Dr. O. M. Holden, medical officer of health for Croydon, had been in the witness chair for three days when the report in the last issue (p. 30) was concluded, and his examination continued for two further days.

In answer to Mr. A. H. Forbes, appearing for the Croydon Division of the B.M.A. and the Local Medical and Panel Committee, Dr. Holden said that his Public Health Committee at an early stage decided to give no information regarding the area of the water supply affected. The policy of the committee was to refrain from such publicity as would alarm the public, though there was no specific instruction to maintain secrecy with regard to water or any other subject. There were no medical men or women on the committee. The tackling of the outbreak was his job as medical officer of health, and as soon as he saw the outbreak was not declining he appealed to the best authority he knew—namely, the Ministry of Health. He did not think it would have helped him at all to have called together the local members of the profession. In reply to a question from his own counsel (Mr. Sandilands) Dr. Holden said that not all the medical men in Croydon were members of the British Medical Association; there was in fact no organization representing all of them. Mr. Forbes said that the membership of the Croydon Division was 250, but this included members outside the borough. Dr. Holden agreed with his counsel that he would have been very unpopular if he had notified the local medical men that he was holding a kindergarten class in typhoid for members of the profession who did not feel themselves competent to deal with such cases.

Water-borne Typhoid

The chairman of the tribunal (Mr. H. L. Murphy, K.C.) asked Dr. Holden whether on an outbreak of typhoid, as distinct from isolated cases, investigation did not ultimately lead back to water. Dr. Holden replied that this was not so in every instance, though he agreed that in his own experience of outbreaks in this country since the war water had been the direct cause of most of them. In the early stage of the recent outbreak he could not consider water alone as apart from a number of factors. Mr. Murphy said that perhaps an earlier answer given by Dr. Holden had not quite done him justice; he had said that he could not suspect water until other factors had been eliminated.

At a later stage Dr. Holden mentioned a number of outbreaks due to articles of food where there was apparently no direct communication with the public water supply, notably at Coventry in 1933 and Penzance and Camberwell in 1923.

In reply to Sir Humphry Rolleston, Dr. Holden agreed that the medical officer of health was a specialist in preventive medicine and public health, and should always be glad to receive information and to advise his colleagues in the medical profession who were not so completely immersed as he in the subject which he professed. He regarded the Ministry not as his master but as his superior adviser in cases of need.

Engineering Evidence

Mr. C. E. Boast, Croydon borough engineer, next gave evidence. He said that in April, 1936, chlorination was carried out once or twice a week at the Addington well, and heavier dosages were given in January and May, 1937, owing to certain occurrences, in the first instance the death of a workman at the well and in the second discoloration with clay caused by the construction of another well. The workmen were good and reliable. He had excluded any with signs of tuberculosis, but he had not

in his mind the question of a typhoid carrier. He found it very difficult to believe even now that the outbreak was due to one of these men who was a carrier, though he agreed that the dates of his employment fitted in with that theory of causation.

Mr. H. F. B. Jones, formerly chief water engineer at Croydon, gave confirmatory evidence as to the selection of the men and their trustworthy character. He added that during the work on the well samples of the water were taken each evening before it was turned into the public supply, and if these were not satisfactory the water was pumped to waste all night.

Evidence was also given by Mr. F. S. Ellis, foreman in the water engineering department of the corporation, as to the sanitary precautions at the well. When Mr. R. J. Jackson, chief sanitary inspector, gave evidence that last year 4,000 boy scouts were on a camping ground in the vicinity the chairman said that it would require very strong persuasion to induce him or his assessors—who had visited the locality—to hold that the typhoid organism came from that camp into the Addington well.

Several workmen (who, because of the suggestion that one of their number was a carrier, were sworn in private and referred to by numbers) gave evidence as to the rules about sanitation, and said that to their knowledge these had never been broken.

Evidence of Consulting Bacteriologist

On January 4 Dr. Ernest Victor Suckling, consulting analyst and bacteriologist, was examined. In reply to Sir Walter Monckton he said that he had made a special study of matters relating to water supply, had had a wide experience of chemical and bacteriological examinations of all classes of water, and was well acquainted with waterworks practice. On November 10 he was consulted by the Croydon Corporation; he came to Croydon on the following day, and from that time onwards he had been in daily communication with the officials. All the recommendations he had made had been followed as quickly as circumstances would permit.

Is the supply at this moment, in your opinion, safe and wholesome water?—I am confidently of that opinion. It has been since the date I came here.

You have taken a great number of samples of the water, and I suppose in your investigation on the gathering ground you have acquired a mass of information upon which you have founded your opinion. Have you been able to trace at all the *B. typhosus*?—No, in no case have we succeeded in isolating it.

Is that a frequent difficulty when you are trying to deal with the causes of an outbreak?—That is commonly the case. It is extraordinarily difficult to isolate *B. typhosus* from water, sewage, and the like, but the fact that one gets negative findings does not entitle one to say it was not there.

The trouble is, I understand, that the bacillus is short-lived, and also that it occurs in association with more robust forms of bacteria which result in shortening even that short period. In other words, you start to search for a short-lived bacillus at much too late a period to be likely to find it.—Unless, of course, the source is continuing. Where there is an intermittent admission of typhoid bacilli one is weeks late in starting.

Can it be said that the infection in this case was probably water-borne?—Yes.

You have heard described possible sources of pollution to be found in the gathering ground. Can one exclude the possibility of the infection being brought from the gathering ground into the well?—I do not think that can be definitely excluded, but I regard it as improbable.

What do you say about the short length of latrine trench as a potential source?—I should regard that as the most probable source of typhoid, and that for two reasons: first, its proximity, and, secondly, the fact that it is concerned with human excreta, whereas the other potential sources are largely animal. *B. typhosus* is to be found in human excreta, but not in animal.

In reply to Sir Humphry Rolleston, Dr. Suckling said that certain *Salmonellas* might be found in swine, but

Local News

SCOTLAND

Payment of Hospital Staffs

At a meeting of the Royal Hospital for Sick Children, Glasgow, on December 22, 1937, Sir George A. Mitchell, deputy chairman of the board, made a statement concerning the decision of the directors to pay the members of the medical staff of the hospital. He said that the practice of paying medical and surgical staffs had been started by the rate-aided hospitals, and a demand had now been made that voluntary hospitals should follow suit. The directors of the Royal Hospital for Sick Children were satisfied that the time had come when they must ask the public to support them in recognizing financially in a reasonable manner the great services rendered to them by members of the medical profession on the staff. Times had changed, and many members of the profession, particularly the younger men, found it difficult to make ends meet, and if the medical, and very specially the surgical, services of skilled men were not adequately remunerated they would soon cease to be available. The directors were satisfied that their decision to remunerate the physicians, surgeons, and specialists would commend itself as reasonable and fair to the general public. The cost would be considerable, but they felt assured that the people of Glasgow and the West of Scotland would support them in this movement and readily provide the requisite funds. The Earl of Home, who presided at the meeting, gave some figures of the work of the hospital. In 1883, the first year of the old hospital, there were 260 patients; during 1937, 7,000 children had received treatment in the hospital and 1,076 in its country branch. Out-patients had numbered 92,000, and the daily average number of children resident in the hospital had been 254 and 79 in the country branch.

Institutional Maternity Services in Edinburgh

At a meeting in November last of the Edinburgh Obstetrical Society the president, Dr. Douglas Miller, took for the subject of his valedictory address the history of the Edinburgh Royal Maternity and Simpson Memorial Hospital. Dr. Miller said that in a Minute of the Edinburgh Royal Infirmary of October, 1755, Dr. Thomas Young, who might be regarded as the founder of the obstetrical school in Edinburgh, was given permission to furnish a ward of six beds at his own expense and to use it for the care of lying-in women and for the clinical instruction of students and midwives. This was probably the earliest record of the institutional care of lying-in women in Scotland. In 1791 the Edinburgh Lying-in Hospital, which could accommodate about twenty patients, was founded, largely through the personal exertions and private financial support of Dr. Alexander Hamilton, who succeeded Dr. Young in the chair of obstetrics in 1780. This remained the Edinburgh Maternity Hospital until 1839, when, on the death of Dr. James Hamilton, who had succeeded his father in 1900, the hospital premises were sold. During the next forty years the hospital occupied various sites, and it was not until 1879 that, helped by a generous donation from the National Fund established to perpetuate the memory of Sir James Young Simpson, the present hospital was built and dedicated to the memory of the great physician whose name it bears. The present century had seen a remarkable expansion in all aspects of the hospital's work and the development of many fresh activities. Dr. Miller mentioned particularly the endowment in 1901 of a bed to be reserved for the treatment of diseases of pregnancy, one of the earliest provisions, he said, for ante-natal treatment to

be made in any maternity hospital. The ante-natal department of the hospital was created by J. W. Ballantyne, whose insistent and eloquent advocacy of the claims of expectant motherhood led to the establishment and rapid growth of ante-natal services throughout the world. Another activity of the hospital outside its routine work which called for special mention was the Home for Unmarried Mothers, Lauriston Park. In 1934 the home, which hitherto had been maintained by public subscription, was generously endowed as a memorial to Dr. Haig Ferguson. That the hospital had justified the public's confidence was made clear by the progressive fall in maternal mortality from the extreme of thirty-five deaths per 1,000 for the decade 1880-90 to eleven per 1,000 for 1936, and that despite an ever-increasing number of "emergency" as distinct from "booked" cases. As early as 1909 the directors intimated that they proposed to make an appeal for funds for building and equipping a new hospital which could adequately meet all modern requirements. It was not until 1926, however, that the managers of the Edinburgh Royal Infirmary submitted a proposal to the directors of the maternity hospital for the construction of a new hospital on the site of George Watson's College, and agreed that it should have associated with it in perpetuity the name "Simpson Memorial."

ENGLAND AND WALES

London's New Midwifery Service

On the first day of this year the new domiciliary midwifery nursing service for London came into operation. This new service, which is being provided by the London County Council under the Midwives Act, 1936, is designed to cover the whole of London, and therefore every London mother, irrespective of her financial circumstances, will now be able to call on the services of a fully qualified midwife to act either as a midwife or, if a private doctor is engaged, as a maternity nurse. The full fees proposed to be charged for the attendance of midwives are: £2 for a first confinement, £1 10s. for a subsequent confinement, £1 10s. for maternity nursing. Reduced fees will, however, be charged where the patient or liable relatives are unable to pay the full fees, and where the circumstances justify such action the whole of the fee may be remitted. Over 160 midwives will be employed under the scheme—forty-seven of whom will be employed directly by the L.C.C. and the remainder by arrangement with upwards of forty voluntary organizations. Co-operation with the existing maternity services of the Metropolitan borough councils forms an important part of the scheme, and the midwives will be encouraged to make the fullest use, for the benefit of their patients, of the various services provided by the maternity and child welfare committees of the borough councils. Leaflets giving the names and addresses of the midwives and also the names of the hospitals and district nursing associations with which the L.C.C. has an arrangement can be obtained by applying at the local town hall or public health department, any borough council maternity and child welfare centre, the County Hall, Westminster Bridge, S.E.1, or any of the L.C.C. hospitals.

Queen's Institute of District Nursing

A report on midwifery cases attended by Queen's nurses and village nurse-midwives and another on the nursing of notifiable and other diseases for which public health authorities have power to pay have been issued by the Queen's Institute of District Nursing; they relate to the year 1936. There was an increase of 2,814 in the number of midwifery cases attended in which no medical practitioner was engaged for the confinement, the total being 67,452. Of the 3,897 midwives concerned, 1,166 were Queen's nurses and 2,731 were village and other nurse-

Mr. Sandilands, for the medical officer of health, said that he had had other offers of witnesses in support of the medical officer from all over England, but he proposed only to call one very senior medical officer of health to give evidence as to a medical officer's responsibility.

The Chairman: Is not that statutory?

Mr. Sandilands: I do not think it is altogether.

The Chairman asked Mr. Lyons whether he was in a position to bring forward any positive evidence about contamination by *B. typhosus* from any particular source.

Mr. Lyons: In this case, no, Sir. I can only give you theories and inferences.

The Chairman: There is no reason why you should do more. Your case may well be that there were a number of possible sources. That is sufficient for you. I only wanted to know before I made some observations that I was not prejudging any positive evidence you might later bring forward.

Number of Cases and Deaths

Sir Walter Monckton announced at the sitting of the tribunal on January 4 that the number of cases was 290 and the deaths 35. The names of ten patients dangerously ill with typhoid at Mayday Hospital were posted outside the town hall.

NEW YEAR HONOURS, 1938

In the list of New Year Honours, issued as a special supplement to the *London Gazette*, the names of the following members of the medical profession are included:

G.C.M.G.

The Right Hon. EARLE CHRISTMAS GRAFTON PAGE, P.C., M.B., Ch.M. Minister of Commerce and Deputy Prime Minister of Australia since 1934.

G.C.V.O.

THOMAS JEEVES, Baron HORDER OF ASHFORD, K.C.V.O., M.D., F.R.C.P. Physician-in-Ordinary to the King; Consulting Physician to St. Bartholomew's Hospital.

K.C.I.E.

ERNEST ALEXANDER WALKER, C.B., M.B., Ch.B., F.R.C.S.Ed., Major-General, I.M.S. Lately Director of Medical Services in India, Army Headquarters.

D.B.E. (Civil)

FLORENCE BARRACLOUGH BARRIE LAMBERT, C.B.E., M.B., B.S., D.P.H., J.P. For political and public services in London.

Knighthood

ROBERT JAMES JOHNSTONE, M.B., B.Ch., F.R.C.S., F.C.O.G. Emeritus Professor of Gynaecology in Queen's University, Belfast; Representative of Queen's University, Belfast, on the General Medical Council; Member of the Northern Ireland Parliament; President of the British Medical Association. For services to public health in Northern Ireland.

JOSEPH WILLIAM LEECH, M.D., D.Ch., M.S., F.R.C.S.Ed., J.P., M.P. Member of Parliament for Newcastle-upon-Tyne West Division since 1931; Lord Mayor of Newcastle-upon-Tyne, 1932-3; Sheriff, 1930-1. For political and public services.

WILLIAM GEORGE SAVAGE, M.D., D.P.H. Late County Medical Officer of Health for Somerset; Past President of the Society of Medical Officers of Health.

CHARLES MCMORAN WILSON, M.C., M.D., F.R.C.P., Dean of St. Mary's Hospital Medical School; Honorary Secretary, Faculty of Medicine, University of London.

CHARLES NORMAN PAUL, M.B., Ch.M. Honorary Dermatologist to Sydney Hospital. For public and philanthropic services in the Commonwealth of Australia.

C.B. (Military)

WILLIAM PORTER MACARTHUR, D.S.O., O.B.E., M.D., D.Sc., F.R.C.P.Lond., F.R.C.P.I., D.P.H., D.T.M. and H. Major-

General, A.M.S. Honorary Physician to the King; Commandant and Director of Studies, Royal Army Medical College, Millbank, London, S.W.

C.M.G.

THEODORE GRANT GRAY, M.B., Ch.B., M.P.C. Director-General, Mental Hospitals Department, Dominion of New Zealand.

JOHN NEWMAN MORRIS, M.B., B.S., F.R.A.C.S. For public and social welfare services in the State of Victoria.

PHILIP HENRY MANSON-BAHR, D.S.O., M.D., F.R.C.P., D.T.M. and H. Consulting Physician to the Colonial Office and Crown Agents for the Colonies since 1929; Lecturer and Deputy Director-General, Clinical Division, London School of Hygiene and Tropical Medicine.

ALBERT RUTHERFORD PATERSON, M.B., Ch.B., D.P.H., D.T.M. and H., Colonial Medical Service. Director of Medical Services, Kenya Colony.

C.I.E.

PERCY STRICKLAND MILLS, M.B., B.S., D.T.M. and H. Colonel, I.M.S. Surgeon-General with the Government of Bengal.

FREDERIC ALLAN BARKER, O.B.E., M.D. Lieut.-Colonel, I.M.S. Inspector-General of Prisons, Punjab.

REGINALD VICTOR MARTIN, M.R.C.S., L.R.C.P., D.O.M.S. Lieut.-Colonel, I.M.S. Officiating Inspector-General of Prisons, Bombay Presidency.

GERALD TYLER BURKE, M.D., F.R.C.P. Lieut.-Colonel, I.M.S. (retired). Lately Secretary, Medical Council of India; lately Professor of Medicine in the University of Lucknow.

C.B.E. (Military)

BRYAN PICKERING PICK, O.B.E., M.R.C.S., L.R.C.P. Surgeon Rear-Admiral, R.N. Honorary Surgeon to the King.

O.B.E. (Civil)

JANET VERA GOOD, M.R.C.S., L.R.C.P. Senior Woman Medical Officer, General Post Office.

EDWARD POHAU ELLISON, M.B., Ch.B. Chief Medical Officer and Deputy Resident Commissioner, Cook Islands, Dominion of New Zealand.

JOHN CHARLES FULTON, M.B., B.S. Medical Superintendent, Launceston Public Hospital, State of Tasmania.

The Rev. PETER MCGREGOR SHEPHERD, M.B., Ch.B. Representative of the United Free Church of Scotland Mission in the Bechuanaland Protectorate.

HUGH MORLEY OLIFF LESTER, M.R.C.S., L.R.C.P., D.T.M. and H. Colonial Medical Service. Deputy Director, Sleeping Sickness Service, Nigeria.

M.B.E. (Civil)

SELINA FITZHERBERT FOX, M.D., B.S. Founder and Director of the Bermondsey Medical Mission.

AINSLIE CLIFFORD WILLIAM DESSA, Indian Medical Department. X-Ray Department, Irwin Hospital, Delhi.

WILLIAM STANISLAUS MARTIN, Indian Medical Department. Civil Surgeon, Coonoor, Madras.

RAI BAHADUR PITAMBER PANT, Civil Surgeon, Etawah, United Provinces.

JOHN MAXWELL HALL, M.R.C.S., L.R.C.P. Colonial Medical Service, Senior Sanitary Medical Officer, Jamaica.

PAULINE VERSFELD MURRAY, M.B., Ch.B. For medical services in the Nyasaland Protectorate.

Kaisar-i-Hind Medal (First Class)

SARAH ANDERSON JAMIESON RANKINE, M.B., Ch.B. Medical Officer, St. Margaret's Hospital for Women and Children, Poona City, Bombay. For public services in India.

Mrs. MARY HILDA YOULE REMFRY, M.B., B.S. Wife of Mr. Justice C. O. Remfry, Bengal. For public services in India.

JOHN MICHAEL PEREIRA, M.B.E. Major, Indian Medical Department (retired). Superintendent, Patna Medical College Hospital, Bihar. For public services in India.

HARI VISHWANATH TILAK, M.B., B.S., F.R.C.S.Ed. Medical practitioner, Bombay. For public services in India.

heart disease, had an embolism in the third part of the axillary artery, which was successfully removed. The second case had an embolism at the bifurcation of the brachial artery. Embolectomy was successfully performed with recovery of the limb; the patient, however, died three weeks later from cardiac failure. Section of the sutured artery showed normal healing in the wall and the presence of a satisfactory lumen. In the third case, with sudden disappearance of the radial and ulnar pulses, a clot was removed from the bifurcation of the brachial artery, but this case was unsuccessful, and later gangrenous changes became manifest in the other limbs. Brachial plexus block anaesthesia was used in all three cases.

Correspondence

The Science of the Health Resorts

SIR,—With reference to Dr. Alfred Cox's letter in the *Journal* of December 18, 1937 (p. 1249), may I say that a scheme of teaching was framed to meet the varying needs of students, practitioners, and specialists, and was adopted by the International Society of Medical Hydrology at its annual meeting in Austria in 1936. It has now been submitted by the society's representatives to Governments and universities in the constituent countries. Facilities for teaching are understood to include provision for necessary research. The society's scheme is as follows:

1. That elementary instruction in medical hydrology and climatology be given to medical students as a part of general therapeutics, and that opportunities be provided for visits to the spas, with practical demonstrations.
2. That postgraduate study be made available for physicians and general practitioners to enable them to choose the right cases for spa treatment and the right spa for the case, and that study tours to the spas ("voyages d'études médicales") be organized for this purpose.
3. That at one or more of the central universities in each country advanced instruction ("cours de perfectionnement"), both theoretical and practical, be made available for those wishing to specialize in one of the branches of hydrological practice.
4. That the teaching of medical hydrology be held to include the following subjects: (a) The properties of medicinal waters and their uses internally and externally (crenotherapy); the accessory physical methods which are used at spas and other health resorts, such as sun and air baths, manipulations, and exercises; and climatology. (b) The medicinal uses of water (hydrotherapy) in hospitals, municipal baths, and town clinics, sanatoria, etc. (c) The properties and uses of marine baths and climates (thalassotherapy) with accessory physical methods of treatment.

The society's proposals have evoked considerable interest. As Dr. Cox reminds us, in some countries university teaching of this character already exists, as in France. In others, where there are few or no spas, the study of climates on the coast or in the mountains is of major importance, especially in relation to delicate children from the towns. In England the University of London did a great work by bringing within the reach of students from all parts facilities for study and special qualification in many subjects that had no place in the ordinary curriculum. It was not the fault of the University of London that a lectureship in medical hydrology and climatology was not founded more than twenty years ago or twelve years ago. Such opportunities do not return.

At present the word "physical" is in the ascendant. It is proposed to push this sharply defined "science of the health resort" into the new physical omnibus. That word

of many meanings is just now fully occupied with education, training, "jerks," and apparatus. Fortunately for another, better inspired, member of the physical family, radiology, it has missed the omnibus and is making good progress under its own colours.

But, Sir, there is a more serious side to this question. They say that in Germany half the people are now following "natural" ways of healing. *Absit omen!* But it may well be asked: Are the remedial powers of Nature no concern of the medical scientist? Should it not be one of the objectives of modern medicine to discover and restore our lost contacts with the energies in Nature? Persistence in a policy of separatism must mean increasing impoverishment to the medical body of any country. Perhaps it may be allowed to me to plead for unity in medicine, for inclusion rather than exclusion, not because it is expedient but because to my mind it is the only true ideal of our profession and is able to bring enrichment to its science and dignity to its practice.—I am, etc.,

London, Dec. 25, 1937.

R. FORTESCUE FOX.

Applying for Hospital Posts

SIR,—Perhaps you will allow one who has had nearly forty years' experience as applicant or elector to say something in defence of the personal interview.

In the first place I entirely agree with some of your correspondents that the official testimonial is an anachronism and should be abolished. It has degenerated to a mere form, which is in most cases disregarded by the electing body. Secondly, where the field is a large one the "short list" should always be employed and ample notice given to the selected candidates: not less, certainly, than a week. But to ask any body of electors to elect from the "short list" without a personal interview, other than the official appearance before the election committee, is, I venture to think, a mistake. Any man who is going to work either with a fellow member of the staff or with a house officer may reasonably desire to see and talk with his prospective colleague before he is asked to give a vote. Therefore I think that for the limited numbers of the "short list" the personal interview must be retained.

The applicant, even if his candidature should be unsuccessful, must not suppose that the time devoted to the interview has necessarily been wasted. It has more than once been my fortune to be able to help an unsuccessful candidate on a later occasion owing to the favourable opinion I have formed at our interview.

Lastly, I venture to hope that the statements of one of your correspondents on the character of his reception represent a most exceptional experience. All members of a hospital staff have themselves at some time been applicants, and must surely have a genuine sympathy with their applicant callers, and a desire to make the interview a pleasant memory to both sides.—I am, etc.,

Basingstoke, Jan. 1.

HUGH THURSFIELD.

Gastro-enteritis due to *B. dysenteriae* Sonne

SIR,—In view of the frequent mention of gastro-enteritis recently, I trust that the following case report will be of interest.

The illness appeared to begin in the evening of December 21 at a time when the patient, aged 26, was in his usual good health, with symptoms he described as being like a cold in the head with slight general bodily discomfort. He went to the office the next day (December 22), and was sent home in the afternoon on account of feeling weak and feverish, having had no lunch that day. In the evening he com-

midwives, a decrease of 89. Of the patients attended, 17,734 (26.3 per cent.) were primiparae. The number of maternal deaths was 174, corresponding to a mortality rate of 2.58 per 1,000 births and 2.65 per 1,000 live births. This compares rather more favourably with the figures for the two previous years; the rates attributable to sepsis being respectively 0.93 per 1,000 total births, 0.97 in 1935, and 1.25 in 1934. Seventeen patients died from non-puerperal causes, which reduced the maternal mortality from puerperal causes in 1936 to 2.33 per 1,000; the rate in urban areas was 1.58 per 1,000 and in rural areas 2.89. Of the total cases, 61,910 were in England, with a maternal mortality figure of 2.94 per 1,000, and 5,542 in Wales, with a mortality rate of 2.16. The number of times medical aid was requisitioned for mothers was 23,565 (36.7 per cent.), and for infants 4,119 (6.4 per cent.). The number of forceps cases was 4,287. As regards the causes of maternal death, 36.2 per cent. were sepsis (37.5 in 1935); and accidents of labour were 31.6 per cent. (28.6 in 1935); the eclampsia percentage was 11.5. Seventy of the fatal cases were not delivered by the midwife because it was necessary to summon medical aid before birth. Various difficulties were encountered due to failure of the patients to take advice, and it appeared that forty of the patients who died should have been booked with a doctor: five women refused adequate ante-natal care. The number of cases in which a medical practitioner was engaged and the midwife acted as maternity nurse was 32,504, representing an increase of 1,586 on the number for 1935. A considerable amount of home nursing was undertaken by Queen's nurses for notifiable cases. There was a slight increase in the number of pneumonia cases attended, and it was notable that there was only a difference of 7.1 per cent. in the recovery rate of those nursed in urban areas where hospital accommodation was easily available and in rural districts where the removal of the patient was much more difficult in cases of acute illness. Epidemics of measles in various parts of the country resulted in a large increase in the number of cases dealt with by Queen's nurses, but the proportion of children who afterwards developed pneumonia was smaller than usual. The large number of children under the age of 5 who suffered from non-notifiable diseases was very obvious, and it is concluded that this fact indicates that the medical profession, the local authorities, and parents are realizing more and more the necessity for trained nursing care, even in those conditions which might seem to be of less importance than the acute illnesses generally associated with infectious diseases. The total number of visits paid in respect of the nursing of cases of notifiable and other diseases for which public health authorities have the power to pay was no fewer than 1,027,152 in respect of 69,686 cases. Of these 14,479 were cases of pneumonia, while tuberculosis, uncomplicated influenza, and measles each accounted for over 4,000 cases.

The Heberden Society

A quarterly meeting of the recently formed Heberden Society will be held at the house of the Medical Society of London, 11, Chandos Street, W.1, at 8.30 p.m., on Thursday, January 13, when Dr. William Goldie of the University of Leeds will read a paper, illustrated by lantern slides, on "The *Streptococcus haemolyticus* in the Aetiology of Rheumatic Fever and Rheumatoid Arthritis." Dr. Mervyn Gordon, F.R.S., and others will take part in the discussion. All medical practitioners are cordially invited to attend. The society is composed of clinicians who are or have been working at the British Red Cross Clinic, Peto Place, N.W. Its object is the study of the rheumatic diseases, mainly from their clinical aspect. A limited number of medical practitioners who have not worked at the clinic but who are interested in the study of arthritis and allied conditions are eligible for election. Further particulars may be had from the honorary secretary, Dr. Kenneth Stone, 58, Chesterfield House, W.1.

Medical Society of London

The second half of the 165th session of the Medical Society of London opens on January 10 with a pathological meeting at 8 p.m. Discussions will be held at 11, Chandos Street, W.1, at 8.30 p.m., as follows: January 24, recent advances in surgery of the sympathetic nervous system; February 14, what can be expected of deep x-ray therapy; February 28, causes and treatment of flatulence; March 14, uraemia; March 28, diagnosis and treatment of lung abscess. The Lettsomian Lectures, on "A Survey of the Changes and Results of Treatment of Diabetes in the Last Fifteen Years," will be delivered by Dr. George Graham on February 21 and March 2 and 7, at 9 p.m. The annual general meeting will be held on May 9, at 8 p.m., and will be followed by the Annual Oration, on "Planning a Hospital," by Sir Henry Gauvain, and a conversazione.

Reports of Societies

FEMORAL EMBOLLECTOMY

At the December meeting of the Liverpool Medical Institution, with the vice-president, Dr. R. E. ROBERTS, in the chair, Mr. E. N. WARDLE read a paper on femoral embolectomy.

Mr. Wardle traced the history of embolectomy from Suabanejeu's first attempt at the operation in 1895, and pointed out that most of the early operations had been upon the femoral artery; the first successful case recorded was that of Labey in 1911. Information collected during the war period upon the suture and ligation of injured blood vessels was of great importance, and the paper of Professor Key of Stockholm, in 1923, was the first authoritative review of a series of such cases; he had collected fifty-one from the literature, including twelve of his own. Geoffrey Jefferson of Manchester (*British Medical Journal* 1925, 2, 985) later published a paper with a record of the cases observed since Professor Key's account had appeared. The condition usually occurred in patients with heart disease, but several cases had been observed in which this aetiological factor could not be found. The symptoms and physical signs of the lodgment of an embolus at the division of the common femoral artery were briefly described, together with the steps of the operation for its removal. It was emphasized that the success of the operation depended very largely upon the diagnosis being made and the embolus removed within two hours of its lodgment.

A patient was then demonstrated upon whom Mr. Wardle had carried out this operation in November, 1936. The points of aetiological interest were that the embolus occurred in the left femoral artery nine days after an operation for an injury to the right ankle; and that at no time did the patient show any evidence of a cardiac lesion. Four days after embolectomy he had pain in the chest, but no definite signs of a pulmonary embolus were ever found. He was shown to have now a comparatively normal circulation in the leg, without any swelling, even after being on the limb all day. The points put forward for discussion were: the source of the embolus, whether the femoral artery was now patent at the affected area; and whether it would have been just as effective to tie the vessel above and below the site of lodgment of the embolus and its associated thrombus.

General Discussion

In the discussion which followed Mr. F. ROBERTS EDWARDS described three personal cases in which the embolus was removed. The first case, a patient with

logical point of view. Though he naturally requires to know the chief facts in the history and clinical condition of the patient, he is not expected to make a complete clinical examination, or to assess the relative value of the evidence obtained from various sources, or to advise the patient what treatment is required. It is the fact that the radiologist is less likely to be swayed by other considerations and concentrates on the x-ray evidence that makes his opinion so valuable to the surgeon. If the two opinions on the films agree the patient is in all probability having a correct interpretation placed on this evidence. If the two disagree a consultation between the two types of specialist, always desirable, becomes imperative. Should the patient wish to get other opinions in this or any other country, is he not entitled to any and all of the films that have been taken?

I am well aware that the above description of the duties of a radiologist will not meet with the approval of some of our radiological colleagues, but they do express, I believe, the views of surgeons as a whole. Not for a moment is it suggested that as a matter of experience there is any difficulty put in the way of films being seen by any and every medical man whom a patient may wish to consult—far from it; but this is done in many cases purely as a matter of courtesy. Abdominal and chest cases, I imagine, call for special consideration, since the taking and interpretation of films form but a part of the x-ray examination. I have purposely confined myself to a class of case of which I have had experience.—I am, etc.,

London, W.1, Jan. 3.

H. A. T. FAIRBANK.

Treatment of Burns

SIR,—Mr. P. H. Mitchiner's statement in his excellent article on the treatment of burns and scalds in the *Journal* of January 1 (p. 27), that gentian violet does not produce coagulation, must have caused considerable surprise to all who have had opportunities of using this method.

It is true that this dye was not introduced for its coagulant properties but primarily as an antiseptic; it was found, however, that in addition to any antiseptic properties it possessed it also formed a tough, firm eschar similar in many ways to that produced by tannic acid but also having certain advantages over the latter. Briefly, these advantages are: (1) The eschar is flexible, and in spite of the increased movement allowed there is less liability for cracking to occur over the flexures. (2) It does not contract as much as does the eschar formed by tannic acid, and hence in those cases in which a burn completely encircles a limb there is less liability to swelling and oedema. (3) The presence of underlying sepsis can be diagnosed more easily and suitable treatment instituted earlier. (4) Gentian violet is said to be less destructive to isolated islands of epithelium.

These are some of the advantages of gentian violet considered as a coagulant, but in addition it is an antiseptic, which tannic acid is not. A further point worth mentioning is that an aqueous solution can be preserved indefinitely, but even with the addition of antiseptics tannic acid rapidly deteriorates. The chief disadvantage that I have found lies in the fact that gentian violet is a dye, and not only the patient but everything that comes in contact with him acquires a purple colour which is very difficult to remove.—I am, etc.,

London, W.2, Jan. 3.

GERALD H. C. OVENS,
Surgical Registrar, St. Mary's
Hospital.

Treatment of Psychoneuroses

SIR,—The pronouncements of Dr. T. A. Ross (*Journal*, December 18, 1937, p. 1247) on the subject of psychotherapy cannot fail to be of peculiar interest, for most of us are familiar with Dr. Ross's work, *An Introduction to Analytical Psychotherapy*. With Dr. Ross's main thesis—namely, that a large proportion of psychoneurotic patients are readily amenable to treatment of a comparatively brief duration—I am in cordial agreement. Indeed, I am strongly of the opinion that the difficulties of this form of treatment have been in the past, and are still, grossly exaggerated. To state, as one of your correspondents does, that "the psychological approach is still a tortuous by-way without any guideposts" seems to me, to say the least of it, a considerable overstatement of the case. Surely the stream of psychological literature which has poured forth from the medical presses of this country, of America, and the Continent ever since the war should have helped a little to blaze the trail if not to make a well-worn path. In view of this wealth of literature and the diversity of opinions which it implies it would appear that the practice of psychotherapy is a highly individual matter, and one which, except in its main outlines, cannot in the last resort be taught or communicated to another. Such at least has been my personal experience; and in such modest *exposés* of my methods as I have at times essayed I have been acutely conscious that though the general scheme of approach was communicable the real essence of my treatment somehow eluded explanation. To those psychological purists who deprecate the intrusion of a personal factor on the part of the operator this of course will be sheer heresy. So far, however, from making any apology for such an attitude, I see no reason why one should not enlist the full resources of one's personality in the practice of psychotherapy as in any other form of treatment. Further, I would suggest that those (mainly psycho-analysts) who fondly imagine that they have freed themselves from every trace of what I suppose one must call transference take perhaps an unduly sanguine view of the situation.

To come to less controversial matters, I think that the function of psychotherapeutic clinics is definitely limited. The mere number of cases to be treated renders this necessarily so, and I quite agree with your correspondent Dr. E. Fretson Skinner (December 11, 1937, p. 1196) that the out-patient clinic in its present form provides no solution of the problem, though I think it might be of definite service as a sort of clearing-house. The only kind of clinic of which I have had any experience is the Ministry of Pensions Clinic, instituted for the treatment of war neuroses. Judging by that experience, I should imagine that the type of material which presents itself at such a clinic as the one at Sheffield would be extraordinarily diverse. If, however, the clinic did no more than recognize and segregate the cases of indubitable psychosis and potential psychosis, it would still perform a considerable service. Cases, for instance, of manic-depressive psychosis with suicidal tendencies, euphemistically described under the term "nervous breakdown," might at last be recognized for what they are, and so enabled to live out their legitimate term of years. Essentially, however, the treatment of the psychoneuroses is an individual matter and one which does not fit in readily with the ordinary routine of general practice. Its proper milieu and atmosphere are provided neither in the crowded clinic nor in the busy consulting-room of the ordinary practitioner. For this and other reasons it would seem that the treatment of

plained of generalized severe myalgic pains, headache, and "hot and cold feelings." When seen he was in bed, shivering and with a flushed face, a dry furred tongue, and a dry hot skin; there was no sore throat or cough; the temperature was 104° F., pulse rate 80, and respiration rate 20. General physical examination revealed no other abnormal signs. The condition was thought to be influenza, or possibly malaria as he had been in India, where he had had, amongst other things, malaria, typhoid fever, and dysentery, amoebic and bacillary (Flexner, Shiga). He was given aspirin 10 grains and a hot drink. About midnight he felt very sick, for the first time apparently, and vomited. Later on in the night he vomited several times more and had diarrhoea—three or four liquid stools, brown and yellow in colour, with no blood, pus, or mucus, being passed. A blood film taken at the height of the temperature during the night showed no abnormality of red or white cells, and no protozoa. The urine was normal. The next morning (December 23) a purge was given, and soon produced a large watery stool, after which the patient said he felt much better. The temperature fell rapidly to normal, and after a slight rise that evening remained there. The diarrhoea was easily checked by a mixture containing belladonna, opium, and chalk, and the patient recovered rapidly except for some diarrhoea and griping abdominal pains for the next few days, due to his going on to a very full diet the day he was allowed to get up and go out—for which indiscretion Nature exacted full retribution in the form of a set of painful haemorrhoids.

Bacteriological examination (by Dr. C. W. Morley) of the stools taken on the third day of the illness (December 23) showed a large number (50 per cent.) of non-lactose-fermenting organisms, which after fermentation and agglutination reactions proved to be *B. dysenteriae* Sonne. The patient usually had his meals in various restaurants in the city, and insisted that his food was invariably of the very best. However, the night before his general malaise began (December 21) he dined alone at a strange restaurant, where he had a "made-up" meat steak, regarding the integrity of which he was not so certain.

The interesting features of this case are the unusual onset with a rigor simulating severe influenza or malaria; the comparatively late development of acute gastro-enteric symptoms (that is, late on the second day); and the marked severity of the condition. It is thought that it would be of interest to record that an attack of gastro-enteritis of this nature could be associated with a definite *B. dysenteriae* Sonne infection, which is usually presumed to produce gastro-enteric disturbances of mild degree.—I am, etc.,

THOMAS G. OSLER.

St. Mary's Hospital, London,
W.2, Jan. 1.

* An article on Sonne dysentery, by Dr. Reginald Miller, appears at page 64 of this issue, and an annotation on the subject was published in the *Journal* of December 11, 1937, at p. 1176.—Ed., *B.M.J.*

Use and Abuse of Antiseptics

SIR,—The two articles by Professor L. P. Garrod and Mr. Geoffrey Keynes on the use and abuse of antiseptics must have proved both interesting and instructive to a large number of medical practitioners.

Some months ago my complacency over hypodermic injections was rather disturbed by reading of a case of gas gangrene occurring after a varicose vein injection, and a case of severe cellulitis following an ordinary subcutaneous injection of, I think, morphine. It occurred to me that chloroform should be a good solution to keep both syringes and needles in, and I am now doing this. It is only necessary to pass them through spirit before using. This readily dissolves any of the drug remaining. I

understand that chloroform is not only lethal to all forms of micro-organisms, but also to their spores, and perhaps one of your contributors could confirm or refute this.—I am, etc.,

Bristol, Dec. 29, 1937.

CHARLES CORFIELD.

Who Owns X-Ray Negatives?

SIR,—In Dr. Asten's letter on the above subject in the *Journal* of January 1 (p. 47) the following statement appears:

"The radiologist, like the biochemist and the bacteriologist, and possibly others in a team, contributes his skill as an aid to diagnosis, and it is the opinion based upon such skill and knowledge alone for which payment is made, and not anything tangible such as a mere photograph."

In your footnote to this letter you quote, without adverse comment, a medico-legal correspondent as having said (when this subject was under discussion four years ago): "The point that the films had no intrinsic value seems sound as expressing the view that the patient pays for service and skill only."

So far as specialists are concerned, at any rate, these statements are surely founded on a misconception of the parts played respectively by the radiologist and the specialist in the investigation and treatment of a case. Take a fracture case, for instance. The surgeon sends the patient to the radiologist so that films may be taken and be available for the surgeon, to assist him in deciding the best method of dealing with the case. A report without the films is useless in most cases, no matter how eminent the radiologist. After setting more films are taken to enable the surgeon to decide whether the position of the fragments is satisfactory or not. Later yet more films are taken, again for the use of the surgeon, who alone has to take the responsibility of saying whether splints may be discarded with safety or not. The radiologist's report in most fracture cases is really superfluous. Now suppose the patient, before the treatment is completed, is obliged to move to a distant part of the country or perhaps go abroad—he expects, and rightly expects in my opinion, to take the films with him so that they may be at the disposal of the second surgeon as they were of the first. Supplying him with prints is not enough. Personally I feel sure that most patients with fractures visit the radiologist with no other idea than that films will be taken for the use of their respective surgeons. When the first set of films are taken at a hospital the position depends on whether or not the patient has paid for the x-ray examination. If he has not the films are the property of the hospital, and it is only by courtesy that they are placed, temporarily, at the disposal of an outside surgeon. If, on the other hand, fees have been paid at the hospital, the films should be at the disposal of the patient to take to any surgeon he may select. For many years I have acted on this view in talking to patients, and, almost without exception, they have had no difficulty in obtaining possession of the films. When we turn to other conditions affecting bones and joints the position is not quite the same, since the radiologist's opinion is now of definite value, though the patient often does not realize this. In all such cases the patient expects the surgeon to examine the films and give his opinion on them. It is the surgeon who has to correlate the evidence the films provide with that gleaned from clinical and other sources, for he alone has to take the responsibility of advising the patient. The radiologist gives his opinion on the films essentially from the radio-

Dr. Gray seems to hint that other persons in that list besides himself feel aggrieved. Out of 113 nominators concerned only one withdrew his name after the publication of Mr. Mitchiner's address. The feeling of the graduates to whom the circular was sent may be gauged by the fact that within a few days of the circulation of the address, and several weeks before polling day, considerably more than one-third of the whole accessible electorate had signified in writing their intention to vote for Mr. Mitchiner and their desire to add their names to any list of his supporters. There can be no question that the policy announced by the association and by Mr. Mitchiner commands the overwhelming support of the electorate. Perhaps it was knowledge of this fact which deterred Dr. Gray and his friends from bringing forward a candidate in support of their views and in opposition to Mr. Mitchiner.

Dr. Gray accuses the Graduates' Association of being unconcerned with the interests of education and of the students of London University. The primary purpose of the association since its foundation nearly forty years ago has been to defend the interests of graduates. That it has done so is clear from the response the graduates have made from time to time, especially during the last fifteen years that I have been president, in support of candidates nominated by the association in University elections for Parliament, for the Senate, and for the Standing Committee of Convocation. But it is surely rash of Dr. Gray, who apparently is in favour of a change that would degrade the final University examination in medicine to the level of the Conjoint diploma, to reproach the association, which desires to maintain that examination at its present high degree-level, with indifference to the interests of education and of students of the University who are destined to become graduates and who are vitally concerned to maintain the status of their degree.

I submit, Sir, that on the more important question, the "problem of the final M.B., B.S.Lond." as you have described it, Dr. Gray is unacquainted with, and consequently misrepresents, the facts. The University Grants Committee transferred to the Court of the University as long ago as 1929 the office of Mentor of the Schools, together with the function of distributing grants to those schools. Dr. Gray is mistaken both as to the source of the complaint and the terms in which it was made. The latest pronouncement of which I am aware on this question was made by the Court to the Senate in December, 1936, in the following statement:

"In making their grants to schools, the Court's attention was again directed to the small number of students in medical schools who take a university degree, and the Court resolved that, in communicating to the medical schools the Court's decisions with regard to grant, those schools be informed that the Court have noted with regret that in comparison with the rest of the country the number of London students who achieve a university degree is very low; that they are aware that the causes contributing to this are many and complex; that the recent changes in the scheme of the examinations of the University may have the effect of making a degree more easily accessible; and that the Court hope that at the end of the next quinquennium the figures will show an improvement."

The final paragraph, in its suggestion that the recently revised medical curriculum would have the effect of making the degree "more easily accessible," and that the improvement could not very well be manifest "until the end of the next quinquennium," contradicts, in my submission, Dr. Gray's suggestion that pressure is being exercised on the University by any grant-giving body. The very temperate and sober statement by the Court,

especially in its last sentences, gives point to the letter from my colleague Professor Greenwood in your issue of January 1. It is the Board of the Faculty which in completely ignoring that very important and laborious revision is, in fact, flouting the advice of the Court.

The real explanation for the relatively "small number of students in London medical schools who take a university degree" is to be found, as the Haldane Commission quite explicitly stated, in the circumstance that the Conjoint Board of the Royal Colleges offers to London medical students a qualification to practise of lower standard, exacting a shorter period of training and rendered more accessible by, among other factors, the greater frequency with which the Conjoint Final Examination is held as compared with the M.B., B.S. (four times a year as against twice a year). This competition of a lower qualifying examination with the M.B., B.S. has become less serious in the last few years; stirred by a growing consciousness of their responsibility to the university from which they derive so large a proportion of their income, the London medical schools are increasingly restricting their admission of students to those entering for a university course, either of Oxford, Cambridge, or London, and this rule is likely to become universal. Whereas at the date of the Haldane Report less than one-third of the students at London medical schools were undergraduates of London University, at the present time the proportion of such undergraduates varies from 93 per cent. to 49 per cent., the average for the twelve schools being over 70 per cent.

The position is thus immensely better than it was when the Haldane Commission reported. Moreover, in that report it is stated that "the average annual entry of University of London students in the London medical schools for the quinquennial period ending 1909 was 80," including women students, who constituted a very considerable proportion. The last issue of the *University Calendar* shows that in the twelve medical schools there are now no fewer than 2,890 students entered for the London degree, a figure which indicates that the average annual entry for the quinquennium ending with 1937 was approximately 500—six times as large as in 1909.

Professor Greenwood very pertinently points out that the Colleges as corporations are licensing, not teaching bodies, and "can make little contribution to the solution of an educational problem." In this connexion it is important to note that the Commissioners who framed the present Statutes for the University, following the Haldane Commission, deliberately eliminated the representation of the Royal Colleges upon the Senate previously enjoyed by them, and by so doing clearly indicated their conviction that a complete educational separation between the Colleges and the University was desirable. With Mr. Mitchiner's election to the Senate there will be eight medical members of that body; they are likely to be evenly divided upon this question of co-operation of the University with the Colleges, and no clear medical lead can result. Dr. Gray seems to suggest that there is no harm in bringing forward this proposal for co-operation because the other members of the Senate can be relied upon to defeat the proposal if its defeat is desirable. That seems to me a curious encouragement for its presentation, and as he himself says the objections to it are many and various and may well prove "insuperable," I find it increasingly difficult to understand what motive can explain the persistence with which Dr. Gray and his friends are pushing it.—I am, etc.,

London, W.1, Jan. 3.

E. GRAHAM-LITTLE.

the psychoneuroses is likely to remain the province of those who devote themselves solely or partially to this speciality.

I think that the profession as a whole is fully alive to the extent to which a neurotic element enters into many disorders where it would not *a priori* be suspected. So far from underrating this possibility, there seems to me a great danger of exaggerating the part it plays. In an age when such terms as "inferiority complex," "escape from reality," "fantasy formation," and the like are on everybody's lips there seems little likelihood of overlooking the psychological aspect of things.—I am, etc.,

Leeds, Dec. 27, 1937.

J. E. MIDDLEMISS.

Hormone Treatment of Prostatic Hypertrophy

SIR,—While acting as ship's surgeon on a voyage to Buenos Aires I came across a passenger who was doing the round trip for the benefit of his health.

He had been advised to undergo an operation for enlarged prostate, but owing to bronchial trouble a sea voyage had been ordered before the operation. Having recently read in a French journal of some successful results from hormone therapy, I suggested giving him a course of treatment if I could procure a preparation of testosterone salts in Buenos Aires. I succeeded in obtaining the testosterone propionate in sesame oil. Before starting treatment I verified the fact that he was suffering from a hypertrophied prostate with incomplete chronic retention. At first I limited the injections to two a week; after the sixth injection the nocturnal frequency of micturition was reduced from six or seven times to once, and the dysuria had decreased. The pain and heaviness over the bladder region also disappeared. I then gave him three injections a week. After the twelfth injection, in addition to the functional improvement there was also a decrease in the size of the prostate, and his physical and mental condition showed a marked improvement. I administered six more daily injections until there was an indication of overstimulation. I think I might say that on arriving in London the patient was very grateful.

The conclusion may be drawn that hormone therapy, at least in uncomplicated cases of prostatic adenoma, is satisfactory and free from ill effects.—I am, etc.,

S. M. DOWLING, M.R.C.S., L.R.C.P.

Woodford Green, Dec. 28, 1937.

Causation of Rickets

SIR,—In your annotation on perspectives in biochemistry (*Journal*, December 25, 1937, p. 1285), which, however, does not profess to be a comprehensive one, there is no reference to the article by Sir Edward Mellanby in which he reiterates his belief in the existence of the so-called "cereal-factor" or "toxamin" as a potent agent in the causation of rickets. It is possible to disagree with his views for the following reasons.

The time taken by the human infant to double its birth weight is 180 days, that for the puppy-dog nine days. Corresponding with this, the milk of the human species contains 1.6 per cent. protein and 0.035 per cent. calcium, while the figures for that of the bitch are 7.1 per cent. and 0.241 per cent. Sherman suggests that for the child of 3 years and upwards an allowance of 1.0 gramme of calcium, in the form of a quart of cow's milk, should be given each day. Considering the rapid growth of the young dog and the likelihood that a puppy, a few days old, of one of the moderate-sized breeds could easily drink in a day 100 c.cm. of bitch's milk, containing 0.241 gramme

of calcium, an allowance of 1.0 gramme of calcium a day for the puppy of from 6 to 7 weeks and over would not seem to be excessive. In Sir Edward Mellanby's 1925 paper (M.R.C. Special Reports, No. 93), however, we find that the amount of calcium supplied each day to puppies of 6 to 7 weeks and over was of the order 0.045 to 0.085 gramme. In harmony with this and due essentially to the existent calcium deficiency, as I have previously pointed out, the condition exhibited in the rib sections illustrating this report is one of atrophy and osteoporosis only, without, so far as I can observe, there being any evidence of the presence of rickets.

On these grounds, as well as on others which space will not allow me to discuss here, I have serious doubts as to the reality of the existence of the "cereal-factor" or "toxamin," and as to the part that it is alleged to play in the production of rickets. These remarks, which apply equally to the case cited above in which osteomalacia was produced in adult dogs on somewhat similar diets, are based on an article of mine which was published in the *British Medical Journal* (1933, 2, 599), and on one by Emslie and myself in the *Biochemical Journal* (1934, 28, 1503).—I am, etc.,

Aberdeen, Dec. 12, 1937.

J. P. MCGOWAN.

The Problem of the Final M.B., B.S.Lond.

SIR,—After reading Dr. A. M. H. Gray's letter (*Journal*, December 25, 1937, p. 1300) I wish in thanking my nominators to assure them that I intended no discourtesy to anyone, and certainly not to Dr. Gray, to whose comradeship and military teaching I am so greatly indebted.

I had thought my views on this subject were realized, as I have never been at pains, when it has been mentioned in my presence, to conceal that while in no way averse to reciprocation between all the bodies whose students enjoy the facilities of the London medical schools, I should view with dismay any proposal for co-operation between only two or three of them as being unlikely to be to their advantage, or to enhance the prestige and popularity of their degrees. I have therefore viewed with increasing anxiety the proposals for such a partial agreement, and so find myself, in this matter, at one with the Graduates' Association.—I am, etc.,

PHILIP H. MITCHNER.

London, W.1, Jan. 1.

SIR,—In your issue of December 25, 1937, Dr. A. M. H. Gray makes an attack upon the University of London Graduates' Association, for the actions of which as President I take full responsibility, and I would ask you therefore to allow me to answer him.

Shortly after Mr. Mitchiner's adoption as the association's candidate he handed to the clerical staff of the association a batch of nominations (including Dr. Gray's) for publication with his election address. In conversation with Dr. Gray some considerable time after the issue of the association's circular he told me that while dissenting from Mr. Mitchiner's views, with which he had been long familiar, on the particular issue of co-operation with the Royal Colleges, he warmly desired his election on personal grounds. He made no protest to me regarding the inclusion of his own name in the list of nominators, and his letter in the *British Medical Journal* was the first intimation that I received of his objection to what he must know is the usual procedure in University elections, in which nominations of candidates are published and are invited for no other purpose.

state it. It is to make shoes that will accommodate the toes in their normal alignment, with room for them to move within the shoe. To achieve this, the inner border of the shoe must be quite straight, because the big toe lies, normally, in the line of progression. Such a shoe is known as a "sandal-form" shoe. No walking shoe of this shape is displayed by any of the big shoe firms because it is not fashionable; and considerations of fashion are far more powerful than those of comfort or health. Correct shoes need not be expensive; they wear well and keep their shape since they have not to withstand abnormal pressures as with "fashionable" shoes.—I am, etc.,

London, W.I, Dec. 29, 1937.

ALFRED C. JORDAN.

SIR,—In connexion with Dr. Thomas Marlin's letter on this subject (*Journal*, December 11, p. 1198) I should like to give the results of seventeen years' experience with marching boots for soldiers.

There are racial differences in the length and width of feet. A fair proportion of young soldiers start their army careers with toes already retracted or deformed by civilian boots or shoes. Permanently cramped, retracted, deformed, or ankylosed (including hammer) toes are more common than many people would care to admit. In order to conform to civilian "fashion" army boots are generally too tight over the toes for comfort. I have had experience of three types: (1) British boots, (2) French boots, both of which are rather narrow over the toes for the normal foot, and (3) American boots, which are wide over the toes but are too heavy. A soldier, therefore, has to choose either a pair of boots which fit at the heel and cramp the toes, or else a pair which fit easily and give room for the toes but are loose at the heel. The result is that after marching, say, ten miles he will probably have blisters on the toes in the first case, or on the heels in the second.

The boots should always fit at the heel and should be wide enough to enable the toes to expand to their natural limit when marching, as they would do if the feet were naked. In most cases compression of the toes reduces the circulation, and after a long march oedema may be seen above the ankle, or sloughing of portions of the skin between the toes, or there may be cheesy deposits. This interference with the circulation can also be the cause of varicose veins of the leg. I have even seen a case of osteomyelitis occur after a march of several weeks from septic abrasions over one or more of the small bones of the foot.

Some time ago I went to a surgical bootmaker and got him to make me a pair of "experimental boots" fitting close at the heel and being extra wide over the toes. As a result there was complete circulation and ventilation in the boots by the unimpeded movement of the toes. After long marches my feet were warm and comfortable and the socks were dry, and I was one of the very few who were not dog-tired, since pain and discomfort cause fatigue. The bootmaker measured my instep and made the uppers accordingly. I have a high instep, and the uppers did not meet for lacing. He had evidently been making boots for "flat-footed" people, in which case the instep is supported by the sole. By introducing two fingers under the tape during the second measurement this shortness in the width of the uppers was rectified.

New marching boots should be steeped in a pail of water for forty-eight hours when the tannin and other chemicals used in "curing" produce a dark-brown colour in the water; they can then be dried and "dubbed."

The type of shoes seen in bootmakers' windows for children of tender years, which are somewhat spatulate over the toes, do not look ungainly, and if the style in boots and shoes for grown-up people could be changed to this pattern a new generation would grow up with normal feet.—I am, etc.,

London, W.I, Dec. 17, 1937.

G. G. COOPER.

Partial Glossectomy as a Cure of Stuttering

SIR,—I read with interest Dr. William Brockbank's account (*Journal*, December 18, p. 1239) of the operation advocated in 1841 for the cure of stammering. There is no logical reason why it should not correct the stammering habit, but the adoption of such a course indicates complete ignorance of speech training. The hangman can cure indigestion, but there are other and better methods!

The two main factors in speech and song are the production of the vocal tone in the larynx and the moulding of that tone into words during its passage through the mouth by movements of the tongue, lips, and jaws. Perfect speech and perfect song depend upon maintaining a correct balance between these factors, which may be said to be conflicting, inasmuch as the continuity of the vocal tone is necessarily broken for the pronunciation of the explosive consonants, which are the particular bugbear of the average stammerer. In a less degree the vocal tone is checked for all the other consonants. In contrast, we are all familiar with the singer who is concentrating on vocal tone and neglecting his word formation. The same organs are used in speech and song, but in speech the tendency is to concentrate on the words and to neglect the voice, while in song the opposite is found. In nearly every case the stammerer can sing fluently, because if he concentrates on vocal tone rather than on word formation he corrects the loss of balance. His tongue, lips, and jaws have been too active in comparison with his larynx; since the tongue is the chief agent in consonant production, it is easy to believe that if the mobility of the tongue is curtailed surgically it will help to re-establish the correct balance. Anyone who has had a dyspeptic ulcer of the tongue will remember the efforts subconsciously made to modify the tongue movements in speech. It is obvious, however, that since the same organs are used in speech and song the stammerer who can sing must need very little readjustment to enable him to speak.

It must be remembered that the stammerer can very often mimic dialect and accent, the reason being that he is then compelled to pay more attention to the vowel sounds, for which the vocal tone is resisted in a less degree than in the case of the consonants. This again substantiates the theory that stammering is a habit of unbalanced speech, and that the obvious method of correction is to establish correct balance.—I am, etc.,

London, Dec. 22, 1937.

H. ST. JOHN RUMSEY, M.A.,
Speech Therapist and Lecturer at
Guy's Hospital.

Morsier and Junet (*Schweiz. med. Wschr.*, Oct. 16, 1937) describe two cases of myoclonus of the pharynx and larynx. In both the movements were rhythmical, symmetrical, longitudinal, and regular, occurring from forty to two hundred times a minute. The movements are due to simple muscular contractions. They are not influenced by respiration, and it is not known whether they occur during sleep, but they sometimes stop during voluntary movements—for example, deglutition. They are produced most commonly as a result of arteriosclerosis or of inflammatory lesions.

Opportunities for Women in Medicine

SIR.—"Cambridge Woman Graduate's" letter in the *Journal* of December 25, 1937, raises a vexed question. In its wider implications, however, apart from Cambridge graduates in medicine, the grievance is not a new one. To put it plainly, women, as a rule, are tolerated, not welcomed, in the medical profession, or, with a few outstanding exceptions, in its lower ranks only. To take the Public Health Service, in which I happen to have been in the past most interested, there are few, if any, of the higher appointments, such as medical officer of health in the counties or county boroughs, held by a woman. There are, indeed, assistantships in plenty, but it is depressing to work for years with no prospect of promotion, it may be, subordinate to one who is only superior by virtue of his sex; and these remarks apply, *pari passu*, to other branches of the profession, such as honorary posts in hospitals, which naturally go to alumni of these hospitals, most of which are closed to women undergraduates.

I may add that being off the active list, having started my medical career in the 'nineties, I have no axe to grind, but I cannot but feel that even now, when many more posts are open to them than was the case in the past, women are still *cæteris paribus* at great disadvantage in competition with men in the medical profession. I could enlarge at further length on the subject if your space permitted.—I am, etc.,

EVA MCCALL.

Sussex, December 25, 1937.

SIR.—I was delighted to read in the *Journal* of December 4 (p. 1124) of the opportunities for medical education afforded to women students at the new West London Medical School, and agree with the writer of that article and with several of your correspondents that such facilities are long overdue. But there is still cause for anxiety. The injustice of the present position—"that women are deterred from entering the profession"—is made clear by the article, and the unfairness of past events hinted at—"the experiment . . . was tried . . . and abandoned . . ."—though just how unfair those happenings were can only be known to those who, like myself, were actually working at a hospital while an anti-women campaign was being conducted. In view of all this, it is disquieting to learn that "there is no present intention of confining the school to women students" and that "the future development of the school in this respect cannot be foreseen," though if there are lessons to be learnt from history in this case they might be foreseen only too clearly. In plain language, is there any guarantee that these twenty-five places, or any proportion of them, will be reserved for women students, not only now but in the future? Unless this is assured, can we expect the women to believe that they are not being made use of in an emergency, only once more to find the doors shut against them when their usefulness has passed?—I am, etc.,

DOUGLAS E. BARTON, M.B., B.S.

Morden, Surrey, Dec. 28, 1937.

Correct Footwear

SIR.—One item of women's clothing stands out prominently as responsible for discomfort and disability. It is the shoe, and in particular the toe of the shoe. Take the shoes of a small child and of a woman. Compare the shapes of the toes, and it will be seen that in the latter there is insufficient toe-room. Look at the plantar aspect

of the toes of the average small child and compare it with that of the average woman. In the former the toes are separate and straight, in the latter there is evidence of lateral compression-cramping and some degree of deviation from the straight. The inner border of the shoe should be straight up to the level of the tip of the great toe. If it deviates outward it will in time produce some degree of valgus deformity. Where this deviation is great, as in the shoe with the comparatively sharp mesial point, gross deformity will result in the course of time. Long years of wearing anatomically incorrect shoes will in many cases spoil the feet and rob them of beauty. It may be years before symptoms send the patient to seek advice, and by that time deformity is established and restoration of form and function well-nigh impossible.

Fashion decrees for women's feet a shape of shoe-toe which is anatomically incorrect, and which is the chief factor in altering the shape of the toes. Where this alteration is great it is accompanied by other changes in the feet which, but for the offending shoe, need never have occurred. To preach to the unwilling in private practice the doctrine of the straight inner border is unprofitable and a mere beating of the air. To attempt to lessen the amount of disability due to preventable foot troubles it is desirable that the manufacturers should put on the market a model acceptable to women and at the same time anatomically correct. Education as to correct footwear and the ills which follow the use of the incorrect shoe, in the course of years, bear fruit and stimulate a demand which is at present all too small. The Ministry of Health should have figures and be able to assess the amount of trouble arising from "bad" shoes, and will be able, too, to judge if it would be worth while to arrange for annual "foot" lectures by expert lecturers to the senior classes in girls' elementary schools and secondary schools throughout the country. I plead for room for the toes. May the importance of toes and shoes receive due notice in the national fitness campaign! Here is a field for preventive medicine, and at low cost. Once correct shoes have achieved popularity they should cost no more than to-day's shoes. There remains only the cost of the essential education. Results would not come quickly, but by 1980 figures should be starting to show a drop in the number of chiropodists and in the number of operations for hallux valgus!—I am, etc.,

C. GIBSON.

Worthing, Dec. 30, 1937.

SIR.—In the *Journal* of December 11 (p. 1198) Dr. Thomas Marlin tells us that many disabilities may be traced to foot-discomfort; he is certain the whole construction of footwear requires alteration. Dr. Tom Hare (December 25, p. 1302) insists that the medical profession should direct the correct shoeing of mankind. It is safe to say that over 90 per cent. of women in this country and in all classes of society show obvious deformity of the feet. The commonest deformity is a crowding together of the tips of the toes; instead of lying side by side and separate, as in bare-footed tribes, the little toe is deflected inward, the great toe outward, while the intermediate toes to which prevailing shoe-fashions allow no space assume the well-known "hammer" form. Constant pressure upon abnormal projections thus arising leads to corns, bunions, and other painful local reactions that give constant employment to an army of chiropodists. Especially common is a large and hideous projection at the metatarso-phalangeal joint of the great toe. The same, though to a lesser degree, is true of many other feet. To remedy these troubles is difficult, but prevention is simple, so simple that it seems ridiculous to have

We have received from Bristol the following note supplementing the obituary of Professor GEORGE BUCKMASTER, which appeared last week at page 48: Buckmaster published a number of papers on blood pigments and their derivatives, and spent considerable time on the blood gases, for which work he and J. A. Gardner devised their tapless blood-gas pump—an instrument designed to avoid experimental errors through leakage. He was specially interested in the carriage of CO₂ in the blood, and pointed out the possibility of this gas combining with haemoglobin. He also studied chloroform anaesthesia and the blood gases during anaesthesia. In 1919 he was appointed Professor of Physiology in the University of Bristol, a post he held with great distinction for ten years. Buckmaster was essentially a student and a philosopher, with no time or interest for utilitarian affairs. A great and compelling teacher and a much-loved colleague, he became a very part of the life of Bristol University. He was a brilliant and witty conversationalist, and it seemed a cruel irony of fate that his last illness left him for months completely aphasic. He married Miss Amy Elizabeth Brooks, and had one son and one daughter. His son died as a victim of the war in 1919. His daughter, after taking her medical degrees, married Dr. Ronald Tasker.

We regret to announce the death on December 14, 1937, after an illness of only two days, of Dr. GEORGE BURROWS BROWN, aged 58. He was educated first at Rossendale Grammar School, and afterwards at Durham University, where he graduated at the early age of 21 years as M.B., B.S. Then he proceeded to the West Indies, where he practised for four years. On his return to England he practised in Manchester. On the outbreak of the great war he joined the R.A.M.C., and served as a temporary captain on all fronts; on the termination of the war he retired with the honorary rank of Captain R.A.M.C. He was medical officer of health for Failsworth for ten years, when he retired to Worthing. After some years' rest on account of ill-health he decided when his health was regained to start practice in Worthing, and was appointed district medical officer. Dr. George Brown was much loved by the poor, to whom he was ever kind and generous. He leaves a son and two daughters; the younger daughter, Mary, is a student in her fourth year at Sheffield University. His brother, Dr. J. Percival Brown, practises at Bacup.

Dr. JOSEPH HAROLD ASHWORTH, D.P.H., died on December 18, 1937, after a long illness, at his residence in Kersal, Manchester, aged 67. Educated at Manchester Grammar School and Owens College, he graduated M.B., Ch.B.Vict. in 1894. As a student he represented the then Owens College at lacrosse, and was on two occasions a member of the side which was beaten in the final of the Senior Flags competition. After a short period of residence at the old Clinical hospital he left to take over the practice founded in Cheetham Hill by his elder brother, the late Percy Ashworth, M.D., F.R.C.S. He remained in practice without interruption till 1916, when he volunteered and was accepted for foreign service in the R.A.M.C. He went to France as lieutenant attached to the 57th General Hospital in 1916, but was invalided home with myocardial deficiency in 1917. His heart and general health never fully recovered, and he was obliged to give up the strain of a busy general practice in 1920, since which date he lived in semi-retirement in Kersal. Dr. Ashworth married in 1901 Bertha, youngest daughter of the late P. J. Ramsay, J.P.; she died in 1927. He is survived by a daughter and two sons, the elder of whom, Dr. H. K. Ashworth, is visiting anaesthetist to the Royal Infirmary and other Manchester hospitals.

We regret to announce the death on December 23, 1937, at Hungerford, Berks, of Dr. THOMAS GORDON STARKEY-SMITH. He was born in 1880 the youngest son of T. Starkey-Smith, F.R.C.S., of Warrington, Lancs. and studied medicine at St. Thomas's Hospital, taking the English Conjoint diplomas in 1907, the M.B., B.S.Lond.

in 1908, and the M.D. in 1910. After holding the post of senior obstetric house-physician at St. Thomas's Dr. Starkey-Smith began general practice, and during the war was medical officer in charge of the Savernake Red Cross Hospital. His appointments included those of anaesthetist to the Savernake Hospital, medical officer and public vaccinator for Hungerford, and medical officer to the infirmary and the infant welfare centre. He was well known locally as a Freemason and cricketer, and through his enthusiasm for ancient customs gave strong support to the picturesque Hocktide celebrations at Hungerford. He joined the British Medical Association in 1912 as a member of the Reading Division.

Mr. DONALD DOUGLAS DAY, who died at Harleston, Norfolk, on December 20, 1937, aged 79, was formerly well known as a surgeon in Norwich and the surrounding country. At St. Bartholomew's Hospital he won a senior scholarship and the Lawrence scholarship in 1880, in which year he qualified M.R.C.S., L.S.A., and graduated M.B., B.S.Lond., with a gold medal in surgery. After holding a prosectorship at the Royal College of Surgeons of England he became house-surgeon to the Norfolk and Norwich Hospital, and making his home in that city was later elected assistant surgeon, and finally full surgeon, to the hospital. He obtained the F.R.C.S. in 1883. Mr. Day was a member of the British Medical Association for half a century, and in his years of active surgical practice contributed notes on lithotomy and on abdominal operations to these columns.

Dr. DAVID MORGAN, for sixteen years medical superintendent of the Cunard Steamship Line, died on December 26, 1937, after a long illness, aged 75. He studied medicine at University College, London, and Edinburgh, graduating M.B., C.M.Ed. in 1884. For some years he helped Hugh Owen Thomas and Sir Robert Jones in their orthopaedic work, and from 1897 to 1910 he was examining officer for the Cunard Company at Liverpool for passengers and emigrants to America. Dr. Morgan was one of the earliest to take up medical radiology, and for some time acted as radiologist to the Royal Southern Hospital, Liverpool. He joined the British Medical Association in 1889, and at the Annual Meeting at Liverpool in 1912 was vice-president of the Section of Electrotherapeutics. Since his retirement from the service of the Cunard Company in 1926 he had lived at Hampstead Way, London, N.W. During the war he superintended the fitting out of the *Mauretania* as a hospital ship and sailed in her to the Dardanelles.

One of Glasgow's oldest medical practitioners, Dr. ROBERT WILSON STUART, died recently after a very brief illness. The son of an Aberdeen merchant, Dr. Stuart went to Glasgow in the early 'seventies, and, after studying at Anderson's College and the Royal Infirmary, took the L.R.C.P. and S.Ed. in 1879. Going to Shetland as an assistant, he succeeded to the practice of his principal at Dunrossness, and shortly afterwards was appointed medical officer of health for the districts of Dunrossness, Sandwick, and Cunningburgh. A few years later he returned to Glasgow, where for close on half a century he has carried on a large and successful practice in the north-west area of the city. Soon after his return he became associated with the late Dr. Angus Macphree in the work of the Glasgow Training Institute for Nurses, in Scotia Street. The institute had been started by Dr. Macphree some years earlier for the purpose of improving the status of handymen and raising them from the "Sairey Gamp" plane to one approaching nearer that of the trained nurse. When the State Registration of Midwives Act came into force during the war handymen who were in active practice at the time were admitted to the new register on passing a very nominal examination. It was Dr. Stuart's boast that practically all the Glasgow "howdies" so admitted had been trained by Dr. Macphree and himself. Dr. Stuart, who had been a member of the British Medical Association for fifty-

Obituary

H. B. BUTLER, F.R.C.S.Ed.

Senior Surgeon, Royal Surrey County Hospital, Guildford

The untimely death of Harold Butler on Christmas Day was a shock to his colleagues and many friends. For over thirty years he had worked for the people of Guildford. His great surgical skill, kindness of heart, and selfless care of his patients, both in and out of hospital, had endeared him to hundreds of people in the district. The crowded cathedral church on the day of his funeral bore witness to their affection.

Harold Branson Butler was born in Guildford on October 13, 1875. After leaving St. Paul's School he went on to Sidney-Sussex College, Cambridge. Wander-



lust lured him to New Zealand for a while, after which he returned to study medicine at St. Bartholomew's Hospital, taking his M.R.C.S., L.R.C.P. in 1901. After a short period in general practice at Buckingham, and later as medical officer at Powick Asylum, he returned to Guildford to assist his father in his practice. Always surgically minded, he took the Fellowship of the Royal College of Surgeons of Edinburgh in 1903, and devoted himself to developing his skill in surgical technique and

diagnosis. By visits to surgical clinics, including Lord Moynihan's at Leeds and that of the Mayo brothers in America, he and his colleague Mr. Eric Sheaf made themselves familiar with the latest surgical methods. They were thus able to raise the standard of provincial surgery at Guildford to a very high level.

For over thirty years Mr. Butler has worked assiduously at the Guildford Hospital, never sparing himself by night or day, always finishing his list, even when fatigue warranted his leaving some work to his deputy. This ultra-conscientiousness surely left its mark on his strong constitution. An attack of double pneumonia two years ago should have warned him to conserve his energies, but his work, especially his hospital work, came first, and he worked just as hard until a few days before Christmas, when his cerebral arteries gave way.

H. B. Butler had been a member of the British Medical Association for thirty years. He was president of the Surrey Branch in 1925-6 and chairman of the Guildford Division in 1927-8. He contributed some valuable papers to the medical journals, notably those on shock and gastrectomy. He was a justice of the peace for Guildford, and rendered valuable service to the town. For his work with Red Cross hospitals during the war he was made an M.B.E. He is survived by his widow, née Hilda Bethune Denham Smith, and his son Denis and daughter Audrey (Mrs. John Parker). His colleagues at the Royal Surrey County Hospital have lost a fine surgeon, a lovable colleague, and an unselfish friend.

T. B. J.

MALCOLM BRICE SMYTH, M.B., B.Ch.

Physician, Belfast Hospital for Sick Children

It is with regret that we record the death, on December 21, 1937, of Dr. Malcolm Brice Smyth, at his residence in University Square, Belfast. It was only a few weeks ago that he was carrying out his ordinary routine, and now an illness of two months' duration has removed one of the best examples of the family doctor, a physician loved and esteemed by his patients and by them regarded as healer and friend.

Malcolm Brice Smyth was a student of Trinity College Dublin, graduating B.A., M.B., B.Ch. in 1900. He acted as house-surgeon in the Royal Victoria Hospital, Belfast, with a view to a career in surgery, but he gave up his interests in surgery to carry on the family practice on the sudden death of his brother, Sidney. Notable as an active sportsman in his youth, he maintained his interest in shooting and fishing until within a few weeks of his death. With his patients he was the personification of kindness, and earned their love and devotion—not from an excess of sentiment, but because of an exceedingly practical mind that saw when the need was greatest and where help could be best applied. His father was co-founder of the Belfast Hospital for Sick Children with the late Sir John Fagan, and all his life Malcolm Smyth maintained a deep and earnest interest in the welfare and progress of this institution, which has steadily established itself as one of Belfast's outstanding charities over a period of sixty-five years. He succeeded his brother, Sidney, who was honorary physician to the hospital, on his death, and for nearly thirty years was a member of the medical staff of this hospital so intimately connected with the name of Brice Smyth. For several years he was on the surgical staff of the Belfast Maternity Hospital. To it he rendered valuable service as one of the best obstetricians in and around Belfast. Some years ago he resigned from the active staff, and had since been an honorary consulting surgeon to the newly developed and reorganized Royal Maternity Hospital. He was a vice-president of the Section of Diseases of Children at the 1937 Annual Meeting of the British Medical Association in Belfast. Sincere sympathy is felt towards his widow and their three daughters.

Mr. Howard Stevenson, F.R.C.S., writes:

The death of Malcolm Brice Smyth leaves a blank not only in the ranks of the medical profession in Belfast but among a large circle of friends. His medical education took place at Trinity College, Dublin, where he had the distinction of being captain of the rugby fifteen. After graduating in 1900, Smyth returned to Belfast, where his father and brother were engaged in practice, and obtained a resident post in the Royal Victoria Hospital. He early displayed a keen interest in diseases of children, and was elected visiting physician to the Belfast Hospital for Sick Children, a position he held until his death. Enjoying a large practice, Smyth belonged to that small group, now unfortunately dying out, the old-fashioned family doctor. His relation with his patients was much closer than that of merely a physician—he was their confidant and friend. His loss in this respect will be much felt. Shooting and fishing were his relaxations; at both he excelled. He was never happier than when out for the early morning flight of duck or casting a fly over a pool. I think we must look to these sporting instincts to account for much of his great popularity among his friends. It was impossible to be in Smyth's company without realizing his charm of manner and tolerant outlook; it was equally impossible to imagine him doing a mean act or speaking an unkindly word.

absorbent in water from the Scout reservoir reaching taps of as much as twenty-eight parts per million. In 1929 a serious complaint of lead poisoning was made. By October, 1930, the Board had full knowledge that cases of lead poisoning had occurred, but did not apply for borrowing powers to erect a hardening plant till May, 1932. A Ministry of Health inquiry was held in May, 1933, but no hardening plant was installed until 1936. An analytical chemist who had tested the water said in evidence that it could not be passed through lead or tin-lined pipes (such as were fitted in the public-house) without absorbing some of the lead. If it stood for an hour it might absorb a dangerous quantity. The question for decision was, therefore, whether a water undertaker who supplies to the stop-cock outside premises water that is pure but capable of absorbing dangerous quantities of lead has a duty to warn the occupiers of that danger. The Commissioner found that the Board had satisfied their statutory duty but that they had also a common law duty to warn the consumer that he must take the necessary precautions to prevent the pure water which they supplied from becoming contaminated with lead. He was satisfied that they had not given the occupiers warning of any kind, and he therefore awarded the couple £873 damages and costs.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

M.S.—Branch I (Surgery): G. S. Ferraby, K. L. James, C. J. B. Murray. Branch IV (Laryngology, Otolaryngology, and Rhinology): M. P. Ellis.

UNIVERSITY OF BIRMINGHAM

The following medical degrees were conferred at a congregation held on December 17:

M.D.—H. B. Hunt.
M.B., Ch.B.—J. H. Briscoe-Smith, R. T. R. Freshwater, K. A. Marandi, P. E. Morris, Frances C. Myatt.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

FINAL M.B., Ch.B.—Section II: R. L. J. Derham, H. D. T. Gawn, M. E. M. Herford, F. J. W. Hooper, G. L. Page (with distinction in public health), Anna H. Silberstein. In Group II (completing examination): P. N. Heron, P. K. Jenkins.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—T. O'Neill.
M.B., B.Ch., B.A.O.—J. C. Dundon (first-class honours), J. A. Allen, P. Buckley, P. Coffey, K. A. Flaherty, F. S. Kelleher, D. J. G. Maher-Loughnan, C. Marchant, E. F. Mulcahy, Ellen M. M. Murphy, P. Murphy, J. S. O'Mahony, P. J. Ryan. Part I: Mary Corbett, J. Hutch, L. Kelly, D. J. R. McConnell, D. O'Keefe, P. O'Keefe, Mary F. O'Leary. Part II: C. J. Clohesy, G. R. Cubitt, J. Fitzgerald, J. G. Paton, M. F. Ronayne.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The course of lectures for 1938 is arranged as follows: January 17, Professor J. Cole Marshall, The surgical treatment of detachment of the retina; January 19, Professor Reginald T. Payne, Cancer of the stomach as a surgical problem; January 21, Professor R. C. Brock, Pathology, diagnosis, and treatment of intrapulmonary new growths; January 24, Professor William E. Underwood, Recent observations on the pathology of hydronephrosis; January 26, Professor J. I. Munro Black, The lympho-epitheliomata; January 28, Professor Maxwell Ellis, The function of the bronchial tubes; January 31, Professor T. W. Mimpriss, Treatment of retention of the testis; February 2, Professor Harold Rodgers, Endoscopic appearances of normal gastric mucosa and its variations in disease; February 4, Professor T. F. Todd, Rectal ulceration following irradiation treatment of carcinoma of the cervix (pseudo-carcinoma of the rectum); February 7, Professor H. J. B. Atkins, Chronic mastitis;

February 9, Professor T. Stewart Heslop, An experimental study of the neurogenic origin of peptic ulceration; February 11, Professor P. B. Ascroft, An experimental study of the surgical treatment of arterial hypertension; February 14, Sir Arthur Keith, F.R.S., The prehistoric people of Mount Carmel; February 16, Dr. W. E. Gye, Some recent work in experimental cancer research. All the lectures begin at 5 p.m.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—F. B. Akeroyd, J. S. Lancaster, J. D. B. Perkins.
MEDICINE.—F. Bastawros, F. C. E. Diamond, D. C. Light.
FORENSIC MEDICINE.—F. Bastawros, F. C. E. Diamond, D. C. Light.

MIDWIFERY.—J. M. Hardy, P. H. Hay-Hedde, R. Lipkin.

The diploma of the Society has been granted to F. Bastawros, F. C. E. Diamond, and D. C. Light.

The Services

DIRECTOR OF R.A.F. MEDICAL SERVICES

Air Commodore A. V. J. Richardson, C.B., O.B.E., has been appointed Director of R.A.F. Medical Services, Air Ministry, as from March 1, in succession to Air Vice-Marshal Sir Alfred W. Iredell, K.B.E., C.B., who retires from the Service on that date.

HONOURS

Lieut.-Colonel R. K. Mallam, R.A.M.C., has been appointed an Officer of the Military Division, and Captain G. E. S. Stewart, I.M.S., a Member of the Military Division, of the Most Excellent Order of the British Empire, for valuable services rendered in the field in connexion with the operations in Waziristan during the period January 17 to September 15, 1937.

DEATHS IN THE SERVICES

Lieut.-Colonel CHARLES JOSEPH MACCARTIE, Bengal Medical Service (ret.), was born on March 30, 1851, the son of Daniel MacCartie of Skibbereen, and graduated B.A. and M.D. in 1873 and M.S. in 1874 at the Queen's University of Ireland. He entered the Indian Medical Service as surgeon on September 30, 1874, became surgeon lieutenant-colonel after twenty years' service, and retired on June 25, 1900. All his service was spent in military employment, and he had a fine record of war service: Afghanistan 1878-80 in the actions at Saifudin and Shahjui, severely wounded near Kandahar, mentioned in dispatches in the *London Gazette* of October 24, 1879, medal; Burma 1891-2, medal with clasp; Chitral 1895, the relief of Chitral, medal with clasp; North-West Frontier campaign of 1898, at Tirah, clasp; Mohmand, Malakand, and Bajaur operations, clasp. He was granted a good service pension on September 10, 1927. He was the author of *A New System of Field Hospitals and Ambulances for Hill Warfare*, 1898. He had been a member of the British Medical Association for thirty years.

Lieut.-Col. ROBERT MCLAUCHLAN DALZIEL, I.M.S. (ret.), died at Muckhart, by Dollar, on December 17, 1937, aged 61. He was born on July 13, 1876, and was educated at Dollar Academy and at Edinburgh University, where he graduated M.B., C.M., in 1899. He entered the Indian Medical Service as lieutenant on January 29, 1901, became lieutenant-colonel on July 29, 1920, and retired on January 29, 1926.

Surgeon Major GEORGE SULLIVAN CLIFFORD HAYES, O.B.E., late 1st Life Guards, died at Le Manoir Forest, Guernsey, after an operation, on December 20, 1937. He was educated at Guy's Hospital, and took the M.R.C.S.Eng., L.R.C.P.Lond. in 1902. After filling the posts of clinical assistant at Charing Cross Hospital and resident medical officer at the Hospital for Women in Soho Square he entered the Army, and soon afterwards was posted to the Household Brigade, from which he retired as surgeon major of the 1st Life Guards, and joined the Reserve of Officers. He raised Lord Derby's Field Ambulance in 1915, and commanded it in France in 1915-16. After the war he went to South Africa, where he compiled a report on *The Physical Conditions and Mental Defects of School Children in Southern Rhodesia*, a report to the British South Africa Company in 1920.

three years, was keenly interested in the new Maternity Services (Scotland) Act and in the fight which is now going on among the profession in Scotland for more adequate remuneration for those taking service under that Act and for the insistence on free choice of doctor and continuity of service to the patient. With a long and wide experience of maternity work behind him he had little patience with much that has been voiced by propagandists. Two years ago Dr. Stuart gave up his panel work. Asked how he was filling in the unwonted leisure time thus left him, his invariable answer was, "I'm doing research work. I'm trying to discover when child-bearing became a pathological, instead of a normal physiological, process."

By the death of DANIEL FREDERICK RAMBAUT, M.D. (writes Dr. J. Loughheed Baskin) a very distinguished colleague has passed away, one who was among the earliest medical men to introduce occupational therapy into mental hospitals. He was the registrar of the Medico-Psychological Association many years before it obtained the Royal prefix, for which the late Dr. J. R. Lord was responsible, and three years ago he became its president. Those who knew him in his early life remember him as a brilliant athlete. At the Royal School, Armagh, he was held in great respect. He was the champion hurdler of Ireland, and once succeeded in beating the English champion. He made a mathematical study of this sporting event, and demonstrated that three strides between the hurdles are necessary. He and the late Alexander Macdonald were international rugger men, the latter being captain of the Irish fifteen. He was also a good cricketer and hockey player. Rather short, strongly built, and handsome, he was a good companion and staunch friend, and though his sympathies were with the mentally afflicted, in ordinary life he did not suffer fools gladly.

As one of his old colleagues (writes Dr. H. Horsman McNabb) I know the death of ALEX. HILL GRIFFITH, M.D. Aberd., F.R.C.S. Ed., consulting ophthalmic surgeon, Royal Infirmary, Manchester, consulting surgeon, Manchester Royal Eye Hospital, which occurred at his residence at Woking on November 24, will be deeply regretted by all his old students, friends, patients, and other colleagues. After graduating M.B., C.M. he came to the Manchester Royal Eye Hospital as house-surgeon in 1879, later becoming a member of the honorary staff, and it was here that his chief work was done. From the first he showed his energy and zeal. He was responsible for the introduction of cylindrical lenses in the correction of astigmatism, and his work in diseases of the choroid and vitreous became universally known. Griffith won the Middlemore Prize in 1897, and was the first president of the North of England Ophthalmological Society, in whose meetings and welfare he took the keenest interest. Jovial and kindly by nature, he put his whole heart into his work, and was greatly respected for his sincerity and ability.

Dr. ABRAHAM HEPWORTH ROBINSON of Bridlington died suddenly on December 26, 1937, aged 77. A student of the University of Edinburgh, he took the M.R.C.S. Eng. in 1888 and graduated M.B., C.M. Ed. in 1893. He had practised at Low Moor, Bradford, for about forty years. He took over from his uncle, Dr. Whitterton, and his son, Dr. H. W. Robinson, now carries on the practice, which has been in the family for more than one hundred years. While at Low Moor Dr. A. H. Robinson was an active political worker; he was appointed to the Bench in 1889 and was the senior Justice of the Peace for Bradford. Since his retirement, about fifteen years ago, he had lived mainly at Bridlington. He had been a member of the British Medical Association for over thirty years.

In the obituary notice of Dr. C. E. Jones-Phillipson, published last week, he was incorrectly stated to have been an old student of St. Bartholomew's Hospital. He was, in fact, a St. Thomas's man: a student there from 1891 to 1896.

Medico-Legal

COMPLAINT OF FAULTY DIAGNOSIS

At Manchester Assizes on December 10 Mr. Commissioner (now Mr. Justice) Henn Collins dismissed a claim made by a former policeman against a medical man, that the doctor had failed to examine him properly or skillfully and to diagnose tuberculosis.

The plaintiff said that in May, 1934, he had joined the Lancashire County Constabulary, passed a medical examination, and went through a strenuous course of training. In September he was transferred to the police barracks at Walkden as a probationer. On November 1 he developed a persistent cough, and in January, 1935, he saw the defendant, who did not examine his chest but gave him some medicine. At the end of February the doctor examined his throat and gave him an application. In March his cough became much worse, but the doctor when examining him did not ask him to strip, but applied a stethoscope outside two pullovers and a vest. In May and June he went for a cruise, and towards the end of June he complained to the doctor that his cough was as bad as ever. He felt very tired, his appetite had gone, and his weight had dropped. In July, when he complained he could not carry on his work, the doctor had said, "Nonsense!" In August he was told to take cod-liver oil, and towards the end of the month, when he was too ill to get up, the doctor still did not diagnose anything wrong with him but recommended that he should be sent to a seaside division. He consulted another doctor, who diagnosed tuberculosis, for which he was discharged from the police.

A sanatorium officer said that the plaintiff was suffering from advanced tuberculosis of both lungs with ulceration, and would not work again. His expectation of life was only a few years.

The defendant said in evidence that he had diagnosed catarrh in April, 1935, after examination with a laryngoscope. Later on, examining the chest with a stethoscope and by other methods, he had found nothing abnormal. The plaintiff never was robust, and had not been getting enough food. He was not particularly happy at the Walkden station. On August 1 he had seen the plaintiff at the station and examined him thoroughly. It had never occurred to him that tuberculosis was present, and it was easy to be wise after the event. On August 26 a senior police surgeon had examined him and found no evidence of any localized disease in his lungs. He was a case of long-standing tuberculosis which had shown no signs for a considerable time and had then flared up.

The learned Commissioner, giving judgment, said that a man faced with such an awful blow was apt to attribute his misfortune to some neglect or other. Once it was conceded that the signs of this type of tuberculosis might not be apparent at all times a medical man who failed to detect them could not be charged with negligence. He was satisfied that the defendant had found sufficient physical signs to account for the cough. He could not believe that the doctor had used a stethoscope outside the patient's underclothing, for if he was being slipshod he would not bother to do anything so entirely useless.

LEAD POISONING FROM WATER

An interesting point of law arose during an action tried at the recent Manchester Assizes.

A married couple who had managed a public-house supplied with water by the Irwell Valley Water Board sued the Board for damages for personal injury due to lead poisoning, and alleged that the Board had not carried out their statutory duty. The evidence showed that the couple had suffered illness in 1934 and 1935, had been forbidden to drink more water from their own taps, and had given up their licensed house in June, 1937. Mr. G. L. Lynskey, K.C., said that the highest figure taken by any authority as a standard was one part of lead in one million parts of water, and that above that proportion the water was dangerous. Between 1928 and the end of 1935 there had, he said, been a

¹ Manchester Guardian, December 3 and 4, 1937.

EPIDEMIOLOGICAL NOTES

Typhoid Fever.—At the time of going to press 290 cases have been notified in the Croydon outbreak with thirty-seven deaths. During the week ended January 1, 1938, there were three cases and five deaths.

Diphtheria and Scarlet Fever.—During the week under review notifications of diphtheria were lower both in London and in England and Wales than the "expected" numbers based on the median values for the last nine years, and much lower than those for the corresponding week last year. The same holds true for scarlet fever, with the exception that the figures for England and Wales were somewhat in excess of those for the corresponding week last year—2,244 compared with 2,053. The reduction in incidence of these diseases is particularly opportune in London, where an epidemic of measles is beginning to make itself felt, as it has for several weeks past in Manchester.

Dysentery and Infective Enteritis.—The incidence of dysentery in England and Wales appears to be falling, with 270 cases notified against 411 in the previous week. In Wales there was only one case, against eleven (ten in Swansea) in the previous week. The widespread character of the disease is evident from the mere list of areas chiefly affected (the figures in brackets are notifications in the previous week): Chester, 1 (14); Devon, 28 (42), of which 16 were in Okehampton and 4 in Barnstaple; Essex, 19 (33); Kent, 25 (8), of which 13 were in Tonbridge; Norwich, 29 (21); Nottingham, 7 (21); Stafford, 20 (18), of which 12 were in Cannock; and Surrey, 11 (10), of which 4 were in Carshalton and 2 each in Sutton and Malden. The metropolitan boroughs chiefly affected were: St. Pancras, 12 (14); Lewisham, 8 (21); Islington, 6 (3); and Bermondsey, 4 (7); a few boroughs escaped completely. Of the 17 cases notified in the county of Middlesex 6 were in Hornsey, 4 in Enfield, and 2 in Willesden. The great majority of these cases appear to be of the mild Sonne variety; it is not possible to give the fatality rates as the weekly returns do not include deaths from dysentery. On the other hand, the figures for deaths from enteritis and diarrhoea under 2 years are available but not the numbers of notified cases. The deaths, however, provide a reliable comparative index of the prevalence and severity of these infections. During the week the deaths were 49 and 12 in England and Wales and London respectively, compared with 57 and 15 in the previous week and 44 and 9 in the corresponding week last year.

Medical News

The Hunterian Lecture will be delivered before the Hunterian Society at the Mansion House, E.C., on Monday, January 17, at 9 p.m., by Dr. Gustav Singer of Vienna, on "Functional Disorders of the Intestine."

An exhibition of Chinese art to raise money for Chinese medical relief is being held at 9, Conduit Street, W., and will remain open until January 28.

The German Society of Balneology and Climatology will hold its annual meeting at Kiel from February 24 to 27, when the subjects for discussion among others will be thalassotherapy, including the physics and meteorology of coastal climate, treatment of tuberculosis on the flat land and on the coast, and treatment of children at sea.

In connexion with the jubilee meetings of the Indian Science Congress Association, which opened at Calcutta on January 3 under the presidency of Sir James Jeans, honorary degrees are to be conferred by the University of Calcutta on eight visiting men of science, including Dr. Charles S. Myers, Principal of the National Institute of Industrial Psychology, and Dr. Straub, Professor of Pharmacology at Munich.

The League of Nations has sent a medical mission to the Far East to take measures to prevent or control the spread of epidemics. The mission is headed by Inspector-General Lasnet of the Académie de Médecine. Dr. Hermann Mooser, representing Germany, and Dr. Robert Cecil Robertson, representing Great Britain. The mission will first visit Hong Kong and continue its work in South China.

The first number of a new journal entitled *Konstitution und Klinik* will be published this month under the general editorship of Professor Dr. W. Jaensch and Professor Dr. F. Rott of Berlin, by J. A. Barth, Leipzig. The price is RM. 7.60.

The December issue of the *Journal of Nervous and Mental Diseases* contains a sympathetic appreciation of Dr. Kinnier Wilson by Dr. Foster Kennedy, which was delivered before the American Neurological Association last June.

The issue of *La Presse Médicale* for December 18, 1937, is devoted to articles by Italian physicians and surgeons, including an article by Professor Catterina on the occasion of the fiftieth anniversary of Bassini's operation for hernia.

The Mental After Care Association (founded in 1879) earnestly appeals for funds to carry on and extend its work for early and after-care patients and those suffering from nervous diseases. Nearly 4,000 were assisted last year. The president is Viscount Wakefield, and the secretary Miss E. D. Vickers, 354, Grand Buildings, W.C.2.

Sir Joseph Skevington, consulting surgeon to King Edward VII Hospital, Windsor, since 1903, retired on January 1, but he will remain as honorary radiologist. He was presented with an illuminated album bearing the signatures of the Duke of Gloucester, president of the hospital, and members of the committee.

At the Philadelphia General Hospital a "blood bank" has been established—the second in the United States—where quantities of blood, stored in refrigerated vaults, are immediately available for emergency transfusions.

Mr. Leslie Paton has been elected an honorary member of the Royal Society of Medicine of Budapest on the occasion of the centenary of its foundation.

The University of Paris has recently conferred an honorary doctorate on Professor E. W. Archibald of McGill University, Montreal, who was elected an Honorary Fellow of the Royal College of Surgeons of England in 1927.

Dr. Grégoire, professor of surgery in the Paris Faculty of Medicine, has been elected a member of the Académie de Médecine in succession to the late Professor de Lapersonne.

Dr. Marinesco, professor of neurology at Bucarest, has recently been elected Grand Officer of the Legion of Honour. He is the first Rumanian doctor to receive this high distinction.

A Reuter telegram states that the epidemic of infantile paralysis in Victoria has now reached a figure of 1,400 cases notified, and there have been seventy-eight deaths. The disease is spreading into South Australia and Tasmania.

A medical centre has recently been created in the Belgian Congo by the free University of Brussels.

Miss Emily Benziehausen has given the Pittsburg Children's Hospital one million dollars for the investigation of diabetes in children.

An institute for investigation of the cause of influenza has been founded at Budapest.

The Budapest correspondent of the *Daily Telegraph* states that by a decree of the Minister of the Interior inoculation against diphtheria has become compulsory in Hungary. No conscientious objections will be allowed. Every Hungarian child must be inoculated—free of charge—at the age of 2 and again at the age of 6.

A monument has been erected in Rio de Janeiro to the memory of Professor Miguel Conto, who was president of the National Academy of Medicine for twenty years.

EPIDEMIOLOGY AND VITAL STATISTICS

No. 51

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 25, 1937. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Irish Free State. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (ii) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns (iii) in Northern Ireland. (d) The 13 principal towns (ii) in the Irish Free State. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1937.					1936 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever												
Deaths	27	7	9		3	18	1	8		—		
Diphtheria		1	2			—	—	1		—		
Deaths	1,291	149	198	4	45	1,334	169	251	2	43	1,336	215
Dysentery												
Deaths	270	72	58	—	—	29	4	47		—		
Encephalitis lethargica, acute												
Deaths	6	—	—	—	—	5	—	—		—		
Enteric (typhoid and paratyphoid) fever												
Deaths	19	1	7		6	21	2	7		—	22	—
Erysipelas												
Deaths		1	81		4		1	81		5		
Infective enteritis or diarrhoea under 2 years												
Deaths	49	12	3	2	3	44	9	9	6	1		
Measles												
Deaths	31	1	506	2	295*	3	—	50	2	4		
Ophthalmia neonatorum												
Deaths	67	4	23		—	71	4	30		—		
Pneumonia, influenzal§	1,093	149	403		10	982	113	17		10	1,152	142
Deaths (from Influenza)	46	4	15	1	2	57	12	4	1	—		
Pneumonia, primary												
Deaths		24		18	25		25	323	29	14		
Polio-encephalitis, acute						1	—	—		—		
Deaths	5	—	—	—	—	7	2	2		—		
Poliomylitis, acute												
Deaths		1					—	—		—		
Puerperal fever			11		1	31	2	25		1		
Deaths		1					1					
Puerperal pyrexia	122	5	16		—	106	13	22		3		
Deaths												
Relapsing fever												
Deaths												
Scarlet fever	2,244	131	493	2	86	2,053	196	394		35	2,451	293
Deaths	7	1	1		1	5	1	1	2	2		
Small-pox												
Deaths												
Typhus fever												
Deaths												
Whooping-cough	18	6	46	—	5	16	4	357	9	6		
Deaths			3		2							
Deaths (0-1 year)	431	77	97	16	31	369	65	103	38	27		
Infant mortality rate (per 1,000 live births) ..	72	64				59	54					
Deaths (excluding stillbirths)	5,711	1,105	916	182	195	5,339	1,058	811	232	164		
Annual death rate (per 1,000 persons living)	14.1	13.9	17.2	12.4	17.3	13.3	13.2	15.6	16.1	15.7		
Live births	5,011	1,004	803	197	195	6,014	1,148	901	312	20		
Annual rate per 1,000 persons living ..	12.4	12.6	16.4	13.9	17.3	15.6	14.3	18.5	21.6	19.3		
Stillbirths												
Rate per 1,000 total births (including stillborn)	268	37				254	32					
	51	36				41	27					

(i) 122 great towns in 1936

(ii) 12 " " " "

(iii) 9 " " " "

* 292 cases in Belfast alone

† All cases notified as puerperal pyrexia after October 1, 1937

‡ Type of pneumonia not specified in figures for Irish Free State and Northern Ireland

§ Death from puerperal sepsis includes primary form in figures for England and Wales and London (administrative county), Northern Ireland, and Scotland

N.B.—The figures for notifications in the Irish Free State were not available in time for publication this week.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

22 Gas Masks and Cardiovascular Disease

H. LUCKE (*Dtsch. med. Wschr.*, November 26, 1937, p. 1797) draws attention to the dangers of gas-mask exercises for persons who, after a certain age, may be suffering from hitherto undetected cardiovascular disease. When, in addition to the application of a gas mask, the person wearing it is called on to perform certain duties entailing physical exertion the strain may be too much on the powers of adaptation, particularly if he is suffering from coronary disease. Professor Lucke's first patient was a man, aged 60, who developed typical angina pectoris. Medically examined nine weeks after the gas-mask exercises, an electrocardiographic test showed no abnormalities of the heart, and his blood pressure was normal. There were, however, signs of sclerosis of the aorta and emphysema. After six months he recovered. Much more serious were two other cases. The ages of the men were 53 and 60, and in the first case the wearing of a gas mask for only about fifteen minutes provoked sudden and violent pain in the chest associated with a sensation of suffocation. Although the mask was promptly removed, attacks of angina became daily worse, and the patient was unable to resume his work as a tailor. He was found to be suffering from marked cardiac insufficiency. The electrocardiographic findings were suggestive of coronary disease, and x-ray investigations showed considerable sclerosis of the aorta. No improvement followed, and he continued to be unfit for work. The third case was remarkably similar to the second, and in all three cases there had been no signs of coronary disease till the gas-mask exercises provoked them.

23 Expiratory Index in Tuberculosis

G. L'ETTORE and F. BAGNOLI (*Riv. Patol. Clin. Tuberc.*, October 31, 1937, p. 721) discuss the variations in the expiratory index—a ratio between the range of movement of the chest wall in expiration and in inspiration—in pulmonary tuberculosis before and after collapse therapy. The authors, after examining 162 cases classified according to their constitutional type and the various forms of tuberculosis from which they were suffering, come to several conclusions. (1) The expiratory index is definitely higher in the affected lung. (2) It is higher in the infiltrative and exudative forms of tuberculosis, especially in the case of recent lesions. (3) In subjects with an old lesion the appearance of recent infiltrative changes in the opposite lung gives rise to a higher expiratory index in the secondarily affected lung. (4) After phrenic avulsion or the induction of a pneumothorax the expiratory index is raised on the treated side, since in these cases inspiration is almost absent or very slight (at most 1 cm.), whereas expiration remains unaltered. (5) In some cases in which there was no active inspiratory movement but good expiratory movement it was nevertheless found possible to establish an efficient artificial pneumothorax. During the course of their investigations the authors also found that respiratory movements are greatest at the margins of the lungs and least at the apices, which accords with Forlanini's findings.

24 Meningo-encephalitic Complications of Rubeola

E. ADLER (*Hygiea*, October 31, 1937, p. 774) gives an account of an epidemic of rubeola which occurred in Sweden in the late winter and spring of 1937, and in which two cases with meningo-encephalitic manifestations were observed. The first patient was a girl of 16, who, on the eighth day of the rash, suffered from vomiting and headache. About a week later she became drowsy

and lost some control over her bladder. Loss of muscular tone, ataxia, and a mask-like cast of her features developed, and there were various abnormal reflexes. All these indications of meningo-encephalitis had disappeared after two months. The other patient was a girl, aged 12, who, on the sixth day of the rash, suffered from headache, vomiting, and giddiness. A day later epileptiform convulsions were associated with almost complete loss of consciousness, followed by a phase of agitation. Recovery in this case also was complete. In both there was a rise of the albumin and cell content of the cerebrospinal fluid. The author has collected twenty similar cases from the literature, and has found that the meningo-encephalitic symptoms have usually appeared between the sixth and seventh days of the rash. This complication of rubeola seems to be most common in young persons, females suffering more often than males. As a rule the temperature was normal between the appearance of the rash and the onset of meningitis, which was ushered in by fever lasting only a day or two. Common to all these cases was the completeness of the recovery in spite of the alarming character of the symptoms.

Surgery

25 Brauer's Precordial Thoracotomy

B. THÉODORESCO and N. VISINEANU (*Arch. Mal. Cœur*, September, 1937, p. 689) advocate, in view of six recent cases, a wider application of Brauer's precordial thoracotomy in cases of irremediable cardiac insufficiency. Often too much is expected from the operation in patients already moribund, in those in which it fails to prevent a cardiac lesion from progressing, or in other cases when it is not really indicated. In their series the authors had no deaths, although the operation was performed in patients who were all seriously ill. They believe that the major indication for the operation is grave cardiac insufficiency with enlargement of the heart. The presence of pericardial adhesions is a less important indication. Operation must be postponed if a progressive rheumatic lesion is present. Before operation an injection of morphine should be given, and combined local and regional anaesthesia should be used. Costal resection should be extensive in order to prevent recurrence of the cardiac insufficiency. Post-operative treatment is important. The operation does not cure cardiac lesions but enhances the functional capacity of the heart. Cardiac stimulants which before operation are "valueless" are "reactivated" after it.

26 Pelvic Neuralgia

J. RIBE (*Ann. bras. Gynec.*, October, 1937, p. 335) finds that obstinate neuralgia is often a predominant symptom in the evolution of malignant tumours, particularly of the pelvis, and among these neoplasms of the cervix are most common. When these tumours are themselves inoperable and the intense pelvic neuralgia cannot be relieved by analgesics, then the following palliative operations may have to be considered: (1) sympathectomy; (2) chordotomy, in which the best results are achieved by division of the anterolateral tracts; (3) the subarachnoid injection of alcohol. Unfortunately the conduction of pain from the pelvic region may be by one or more of several paths; hence the unsatisfactory and transient nature of the results obtained by peripheral operations, such as sympathectomy or resection of the presacral nerve. Moreover, since cancer is essentially invasive, it has only to spread to other parts of the cerebrospinal system for severe pain to make a renewed appearance. A more

Letters, Notes, and Answers

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QUERIES AND ANSWERS

Painful Tongue

Dr. S. M. GRÓSZ (Budapest) writes in reply to "Worried" (*Journal*, December 18, 1937, p. 1259): The case seems to be one of Möller's superficial glossitis, as pernicious anaemia may be excluded. Though there was no response to ovarian extract, the possibility of a climacteric origin should not be overlooked; some gastric disturbance may also be of aetiological significance. As a mouth-wash I should recommend huckleberry tea, made from 250 grammes of huckleberries in 1.5 litres of water, inspissated to half this volume and squeezed out; its frequent use is of greater value than the application of silver compounds. Concerning general treatment, I recommend the intravenous administration of vitamin C, suggested by Volhard. I would like to hear from "Worried" if this treatment has any effect.

Income Tax

Supplementary Reserve Commission Gratuity

"EPSILON" inquires whether an annual gratuity of about £25 falls within the non-taxable class of gratuities referred to in a note which appeared in the *Supplement* of November 7, 1936.

No. "Epsilon's" gratuity is an annual payment made in connexion with an express or implied contract for service and as such is liable to income tax. The gratuities which we explained were not taxable are lump sum payments made on cessation of an appointment, and though arising out of the service rendered cannot be regarded as "annual," and are therefore not assessable to tax.

LETTERS, NOTES, ETC.

Chlorine Mixture for Typhoid

Dr. ALEXANDER FRANCIS (London, W.1) writes: I would strongly advocate the giving of Burney Yeo's chlorine and quinine mixture to all typhoid fever suspects. There is much doubt as to the advisability of administering T.A.B. vaccine in such cases, but the chlorine mixture is absolutely harmless and safe. I had very considerable experience of the treatment of typhoid fever when in charge of a hospital in the west of Queensland, where typhoid was very prevalent. Many of the cases were desperate, because the bushmen made of the cases and would not come to hospital until the light of illness and would not come to hospital until the second or third week of the disease, after all home remedies, including "trying to ride it off," had failed. From the time I made use of Burney Yeo's chlorine mixture I was fortunate enough not to have a fatal case, and some of the recoveries in patients who were brought to hospital in the "typhoid state," delirious, with tongues like boiled leather and with sordes on the lips, were amazing. It is a common practice to chlorinate water in order to destroy the typhoid bacillus,

and if chlorine mixture were given to suspects it would almost certainly prevent the disease from developing, and at all events make an attack much less severe. It is important that the mixture be made according to Burney Yeo's directions.

** The instructions quoted in Martindale's *Extra Pharmacopoeia* are as follows: *Mistura Chlori cum Quinina* (Burney Yeo). To potassium chlorate, in powder, 30 gr., in a 12-oz. bottle, add hydrochloric acid 60 m.; cork and shake well to liberate chlorine; absorb this by gradually adding, and shaking after each addition, distilled water q.s. to 11 oz.; and quinine sulphate 24 gr. (or 36 if ordered), syrup of orange 1 oz. Dose.—1 oz. (30 ml.) every two, three, or four hours for typhoid; it quickly cleanses the tongue.

The Quintuplets and their Doctor

On May 28, 1934, Mrs. Elzire Dionne, a young French-Canadian living in a settlement two hundred miles north of Lake Ontario, gave birth to five living girls. Dr. Allan Roy Dafeo of Callander arrived after the birth of two of the infants, but was present during the delivery of the remaining three and took charge of the whole situation. The progress of the Dionne quintuplets has been a subject of world-wide publicity almost from the date of their birth. In the *Canadian Medical Association Journal* for November, 1937, Drs. A. R. and W. A. Dafeo reported that at 3 years the



children had reached an average weight of 30 lb. 8 oz.—at birth it was 2 lb. 11 oz. In general their health and physical development has been satisfactory. Two years ago we reproduced in this column a Christmas and New Year card showing the "quins" and their doctor at play on the nursery floor. Dr. A. R. Dafeo now sends us, with the compliments of the season, a contemporary group taken beside the self-contained wooden house where the children live under State care and protection; beneath the photograph is a little view of their home.

Cambridge Medical Women

The writer of a letter published in the *Sunday Times* of January 2 said with reference to Cambridge medical degrees: "Though women are admitted with men to this examination and take the same papers and viva voce, and appear, if successful, in the same lists as men, yet they are not recognized by Cambridge University as having taken the degree and they are not entitled to add M.B.(Cantab.) after their names. They are not entitled, for instance, to make use of those words on a brass plate." This is incorrect. A woman who has received the title of the degree of M.B. from the University of Cambridge may add "M.B." to her name on her professional diploma or elsewhere; and in fact "M.B." is added to her name in official lists published by the University.

Local Application of Prontosil Red

Dr. J. F. P. GALLAGHER writes: I have obtained excellent results in the treatment of erysipelas and acute dermatitis by using as a local application prontosil red, 7½ grains dissolved in 1 oz. of distilled water. The value of this preparation as an external application should not be overlooked.

long period, while others do better with a smaller total dose made up of large daily doses given within a short period. Carcinomata of the larynx can be classified according to the results obtained from radiotherapy. Relatively mobile tumours consisting of non-differentiated cells benefit from large total doses spread over a long period, as well as from smaller total doses given within a short period. Fixed tumours consisting of well-differentiated and infiltrating cells are not always influenced by an increase of the total dose; on the contrary, this technique may sometimes render the tumour radio-resistant. The author concludes that there are two main forms of radiotherapy: (1) the quantitative simple, elementary therapy, the two main factors of which are the total dose and the continued treatment; and (2) qualitative radiotherapy, which is physiological and the two main factors of which are very large daily doses given at appropriate times and the periodicity of the treatment, which is non-continuous.

32 Loss of Taste after Mastoidectomy

WAYNE, Y. H. HO (*Arch. Oto-laryng.*, Chicago, August, 1937, p. 146) describes the clinical methods of testing the perception of taste. The following aqueous solutions were used as testing reagents: 5 per cent. solution of cane sugar for sweet taste; 10 per cent. solution of sodium chloride for salty taste; 1 per cent. solution of acetic acid for sour taste; and 1 per cent. solution of quinine sulphate for bitter taste. The tip of the tongue is exceptionally sensitive to sweet taste, the side of the tongue to the other tastes. Six cards with the following words are held in front of the patient: sweet, salty, sour, bitter, no taste at all, peculiar taste. When the tests are made he is instructed to point out on the card which the taste is. Whenever the facial nerve is divided within the bony canal above the point where the chorda tympani leaves it taste is lost over the anterior two-thirds of the tongue. In persons who had undergone a radical mastoid operation loss of taste was invariably found. None of these patients had noticed any change of taste subjectively because the involvement is unilateral. Other conditions investigated were acute otitis media, chronic middle-ear suppuration, and fracture of the skull.

33 Exocranial Complications of Petrous Suppuration

R. MASPÉTIOL (*Ann. Oto-laryng.*, September, 1937, p. 790) divides these rare complications of middle-ear suppuration into three groups. A first group of sublabrynthine osteitis, in which the abscess reaches the surface in the region of the lower opening of the carotid canal. The infection spreads along the sheaths of the vessels and becomes a latero-pharyngeal abscess. A second group of "apicitis," in which the abscess breaks through actually into the wall of the pharynx. Clinically such cases present inflammatory swellings along the Eustachian tube or in the soft palate. A third group, in which the abscess reaches the surface of the petrous bone above the labyrinth. If the infection breaks through to the surface of the skull instead of becoming subdural a temporal or occipital abscess results or an abscess beneath the sterno-mastoid muscle. The pathology is distinct from that of Bezold's abscess, where the suppuration spreads from the mastoid cells. The exact localization of the suppurative focus in the petrous bone can be deduced from the localization of these peripheral abscesses. The clinical features and treatment are described separately for each group. A neck incision for draining the abscess is usually necessary, unless it opens spontaneously into the pharynx. Anatomical experiments were made in order to study the pathway taken by the pus. Some of the bone beneath the labyrinth was removed with a gouge. A hole was then made with a drill until the petrous bone was just pierced on the lower surface. Then a few cubic centimetres of plaster-of-Paris were injected under pressure. This accumulated invariably around the internal

jugular vein or internal carotid artery and a swelling occurred in the neck. In the second and third groups experimental proof was much more difficult to obtain.

34

Laryngeal Stenosis

R. LUCHSINGER (*Schweiz. med. Wschr.*, November 6, 1937, p. 1065) discusses the treatment of the respiratory and speech difficulties in cases of midline fixation of both vocal cords as a result of bilateral paralysis of the recurrent laryngeal nerve. A number of workers recommend the operative repair of the stenosis, while others rely on conservative treatment or on a combination of tracheotomy and the application of a speech cannula and conservative treatment. An entirely new method of treatment was suggested by Froeschels. It consists of "explosive jerks" exercises (*Stossuebungen*) for the vocal cords. Of the eleven cases reported by the author ten were treated successfully by a combination of tracheotomy, a valve cannula, and exercises by Froeschels's method, while one case was treated successfully with vocal exercises alone. The author recommends the carrying out of functional vocal and respiratory tests in every case before and after the operation, so that the results of the operation may be properly assessed.

35

Lengthening the Nasal Septum

M. W. MOOTNICK (*N.Y. St. J. Med.*, September, 1937, p. 1509) describes a new plastic operation which is indicated in cases where the columella is drawn up and either the tip of the nose or the alae project too far down with a resulting ugly outline of the face. An incision is made in the midline of the columella, and through this incision the cartilage of the septum is stripped of mucoperichondrium on each side, as in a submucous resection. But the elevation of the mucoperichondrium is carried upwards for a distance of only 3 cm. on one side and for 2 cm. on the other side—an important point in the operation. The next step is to make two parallel incisions in the covering of the septal cartilage by way of the nares. These incisions begin at the lower edge of the cartilage at the anterior and posterior ends of the columella, and extend upwards for 3 cm. on the one side and 2 cm. on the other side. The two parallel incisions are then united by a third incision, which joins their upper ends. The columella is thus liberated and may easily be lowered to the desired position, the rectangular flap of mucoperichondrium descending with it. The columella is anchored in the new position by two mattress sutures passing through the mobile septum at the lower end of the septal cartilage. A few more stitches are used to hold the septal flap in position and the columella incision is closed. Owing to the difference in length of the incisions on each side the denuded areas of the septum do not occur at the same level. The cartilaginous septum is not deprived completely of its nutrition at any point and the exposed areas heal nicely by granulation followed by smooth scarring.

Obstetrics and Gynaecology

36

Endometriosis

J. NOVAK (*Med. Klinik*, October 22, 1937, p. 1424), in a description of the histology of extra-uterine endometriosis, points out that the islets of endometrioid tissue contain typical uterine glands, usually but not always surrounded by the tissue in which they are embedded in their natural site, which tissue undergoes decidual transformation during the premenstrual phase and pregnancy. Occasionally heterotopous foci contain smooth muscle, and not infrequently certain of them consist of the characteristic cytogenous tissue only. The heterotopous endometrial islets undergo cyclical menstrual changes: the result of their intraperitoneal discharge of blood is the formation of

radical operation, such as chordotomy, is therefore necessary to interrupt the centripetal fibres of both the vegetative and the central nervous system. Two examples of this operation are given. In the first patient the anterolateral tract was cut through on both sides at a distance of one segment apart. Both pain and thermal sensation were abolished, but a remarkable dissociation of sensibility occurred, since analgesia was complete below the level of the ninth dorsal segment on one side and tenth dorsal segment on the other, whereas thermal sensation was only affected from the knee downwards. This patient was completely relieved of all pain for the seven months before her death. The operation in the second case, however, was a complete failure, for though bilateral chordotomy was also performed the section was intentionally not so deep, and the highest level of analgesia was at the twelfth dorsal segment and thermal sensation was unaffected. The patient was relieved for a few days only, after which the pains returned.

Therapeutics

27 Fresh-air Treatment of Pneumonia

1. JOCHIMS (*Med. Welt*, November 27, 1937, p. 1663) has observed in children's wards the effect of pure, gently moving, cool or warm, moist or dry, air introduced into a special "weather chamber" containing two cots. Sick-room air which is too warm and moist quickly produces restlessness and limpness, and the good effect of transferring the patients to the cool-air chamber is notable. Without giving figures Jochims confirms the conclusion of Degkwitz and of Wallace (*British Medical Journal*, 1937, 1, 657) that nursing pneumonia patients in fresh air considerably diminishes the mortality; he prefers to continuous fresh-air treatment, however, alternation of periods of five to six hours in cool conditions with similar periods in a warmer, closed apartment. The alternating treatment, he finds, throws less strain on the circulation and permits, with less disturbance, the nurse's observation and attentions. A favourable effect of alternating treatment is observed, half an hour after replacement in warm surroundings, in an increase of 3° to 5° C. in the surface temperature of the unclothed parts, which increase lasts for four to five hours. Jochims has also found, by measuring the area of moistening of a metal plate by the patient's expired air, that in the cold chamber nasal respiration is greatly facilitated. The freedom from dust of the chamber air is another beneficial factor. During the cool period the child is well packed in a warmed bed, wearing a woollen cap: the range of air temperature is 10° to 14° C. The duration of the fresh-air treatment is shortened if signs of cardiac weakness or cyanosis are noted; it is unsuitable for premature and other infants inclining to low temperatures, and needs special care when spasmophilic patients are concerned.

Haematemesis and Melaena

28 Haematemesis and Melaena

E. MEULENGRACHT (Münch. med. Wschr., October 1, 1937, p. 1565) relates his further experience with an unrestricted diet in the treatment of 368 cases of acute or chronic gastric or duodenal ulcer complicated by haematemesis or melaena. The patients received food and drink on the first day after the haemorrhage. The food was semi-liquid and was given five times a day. Alkalis, atropine, and iron were given at the same time. This rule was particularly enforced in cases in which the haemorrhage had been very severe. The patients were allowed to move in bed and to get up after fourteen days. Under this treatment the patients fared much better than under the old starvation regimen. Their strength returned and the regeneration of the blood was more rapid, while the period of convalescence was shortened. There was no exacerbation of the haemorrhage as a result of the diet. The mortality from haemorrhage decreased from 7.9 per cent. to 1.3 per cent.

Laryngology

29 Blocking the Recurrent Laryngeal Nerve

R. SEGRE and A. JACHIA (*Minerva med.*, November 4, 1937, p. 485) carried out surgical blocking of the recurrent laryngeal nerve in four patients suffering from tuberculous laryngitis. All the cases showed circumscribed lesions of the left half of the larynx, mostly of an ulcero-infiltrative character affecting the true and false vocal cords. They had all been treated previously by various methods, including the galvanocautery. One patient also showed perichondritis of the arytenoid cartilage. The pulmonary lesions were slight and stationary, although the sputum was positive. The operation was carried out under local anaesthesia. In three cases an oblique incision was made along the anterior border of the sterno-mastoid, and in one (a young lady) a transverse incision was made for aesthetic purposes along the upper border of the clavicle. The nerve was then exposed and ligatured with catgut. During the first few days after the operation there was complete aphonia, the voice gradually improving in the course of a month until it became quite normal. About a fortnight after the operation the ulcero-infiltrative lesions slowly but progressively subsided.

30 The Sphenoidal Sinus

F. W. DIXON (*Ann. Otol., etc.*, St. Louis, September, 1937, p. 687) presents an anatomical study of the sphenoidal sinuses based on the examination of 1,600 skulls. The two sides rarely develop symmetrically. It is not uncommon to find one sinus rudimentary while the other is well developed and invades the lesser wing of the sphenoid and the pterygoid process. In 7 per cent. of the skulls the optic nerve was so deeply embedded that it appeared as a cylindrical ridge in the interior of the sinus. In such skulls only a thin plate of bone covered the nerve and bony dehiscences occurred frequently. The lateral wall sometimes showed a cylindrical indentation due to the internal carotid artery. In 1 per cent. of the sinuses there were dehiscences with the internal carotid artery clearly seen on the lateral wall. The volume capacity of the sinuses varied enormously, from 0 to 14 c.cm. on each side. When the sinuses were considered in age groups it was found that there was no increase in the size of the cavity after puberty. Bony septa in the sinuses were found in 32 per-cent. of skulls. These sprang from every surface and occurred in every conceivable variation, dividing the cavities into medial, lateral, superior, inferior, anterior, and posterior cells. Such anatomical conditions would seriously interfere with drainage. Many of these subdivisions of the sphenoidal sinuses were due to abnormally placed posterior ethmoid cells. In fifty-five skulls in this series an abnormally placed ethmoid cell occupied the upper part of the sphenoidal sinus and had pneumatized the space about the optic nerve and partially enclosed it. Therefore in optic neuritis the rhinologist must consider both the ethmoid and the sphenoidal sinuses.

31 X-Ray Therapy of Laryngeal Carcinomata
September, 1937

31 X-Ray Therapy of Laryngeal Carcinoma. H. COUTARD (*J. Radiol. Électrol.*, September, 1937, p. 462) stresses the diversity of the histological structure of carcinoma of the larynx. This diversity is responsible for the inconstant results of x-ray therapy—for example, out of the nine cases treated in 1932 six patients were alive after five years, thus giving 66 per cent. of five-years cure, whereas of the cases treated in 1931 only two out of seven (28 per cent.) were alive after five years. The author gives a detailed account of the evolution of his radiotherapeutic technique. He believes that the therapeutic results are determined by three main factors: (1) the total dose of x rays; (2) the daily dose; and (3) the appropriate variations of the intensity of the daily doses. Certain cases benefit from relatively small daily doses spread over a

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dense adhesions, that of encapsulated accumulation of blood the production of chocolate or tarry cysts. Endometriosis is more familiar to the gynaecologist than the general surgeon, and is probably the cause of many acute intraperitoneal haemorrhages coming to operation for supposed acute appendicitis and then attributed to "corpus luteum haemorrhage" or an unknown source. Extension to the rectum from the pouch of Douglas may closely simulate a rectal cancer with stenosis, but the mucosa, though distorted, is not invaded. Considering the pathogenesis of endometriosis, Novak accepts Sampson's implantation theory, and remarks that retrograde transfer of menstrual blood and fragments through the tube has been proved. That other modes of production occur is shown by the occurrence of foci of endometriosis in the lymph glands and round ligament, and even in the limbs (the thigh and the forearm muscles in two recent reports). Probably certain foci are formed locally from the peritoneal epithelial or subepithelial tissue, and transmission is effected in certain cases in lymph or blood vessels. Novak regards the result of operative treatment, unless the whole of the uterus and both ovaries are removed, as uncertain. In the case of extensive endometriosis of the recto-vaginal or vagino-vesical septum complete resection of the endometrioid tissue is technically very difficult; removal of the uterus and ovaries is fortunately followed by shrinkage of that portion of the tumour which is left behind, so that the severe pain is cured.

37 F. C. VAN TONGEREN (*Zbl. Gynäk.*, October 16, 1937, p. 2422) in his last 200 laparotomies at the Amsterdam Women's Hospital (Caesarean operations and cases of general peritonitis excluded) found endometriomata in no fewer than twenty-eight patients. The twenty-two cases in which it had been unsuspected included twelve of uterine fibromyomata out of ninety-four cases of this condition. A contributing factor in diagnostic errors is the variability of the intensity of menstrual pain; dysmenorrhoea may be so severe as to lead (as in two of these cases) to an initial diagnosis of acute appendicitis, or may be slight in comparison with the chronic intermenstrual pain. Operative treatment is preferred and is done on conservative lines; in ovarian endometrioma simple resection is undertaken, and has been followed in two patients, previously sterile, by pregnancy going uneventfully to term. Irradiation with x rays is thought to be suitable in patients nearing the menopause who have small tumours and dysmenorrhoea as the sole symptom. Van Tongeren describes in detail cases of endometrioma of (1) the round ligament, which was adherent to the Fallopian tube, (2) the external abdominal ring, and (3) the perineum. In the last-named situation endometrioma is very rare, and in most cases has affected the site of repairs after labour; here, however, it occurred on each side, as a tender bluish nodule, in the scars following lateral incisions for vaginismus. No recurrence has followed in the two years since excision.

38 Delivery of Over-weight Babies

E. HAUCH (*Hospitalstidende*, November 2, 1937, p. 55) classes as over-weight those babies which at birth weigh more than 4,500 grammes. In his maternity hospital in Copenhagen 191 babies weighing 4,500 to 5,000 grammes were born in the course of about 25,000 confinements. There were thirty-two babies whose weight at birth ranged from 5,000 to 6,000 grammes, and only five whose weight at birth exceeded 6,000 grammes. In the course of twenty-six years Professor Hauch has observed among 42,500 babies six weighing 6,000 grammes or more—a rate of 0.0014 per cent. In four cases the head was born spontaneously, and only in two did its extraction require forceps. Much more difficult was the birth of the shoulders, which was effected by expression alone in only one case. In all the other cases an arm had to be pulled down. All but one of the babies were males. After describing in detail the manoeuvres to be attempted in

delivering such over-weight babies, the author notes that Caesarean section seldom solves the problem, for its true character is usually not recognized till the head has already been born. It is most difficult to diagnose overweight in a child before serious obstacles are encountered to the delivery of the shoulders. This complication may, however, be suspected if confinement is long overdue, and in one of the author's cases pregnancy had gone three weeks beyond term. He has in many cases induced labour when he has suspected that the child was becoming too big or when pregnancy had gone beyond term, and he believes that by a most careful supervision of pregnancy it should be possible to anticipate the birth of some over-weight children at least by the artificial induction of labour.

Pathology

39 Testosterone and the Female Genital Tract

G. COTTE, J. F. MARTIN, and E. MANKIEWICZ (*Gynécologie*, October, 1937, p. 561) have examined the action of testosterone propionate on female rabbits. Cotte and Noël have previously shown that testosterone acetate, in rabbits, (1) inhibits the sexual cycle of the non-castrated animal, preventing follicular ripening and luteinization, and (2) lacks the capacity of folliculin to induce rut in the castrated animal. The propionate has a five times greater biological activity, but in the castrated rabbit produces no secretory phenomena in the endometrium. On the other hand, it has a well-marked effect on stroma cells, producing sclerotic changes in the ovary and uterine cornua, and sclerosis and cyst formation in the mammary gland. In the ovary, ovulation is profoundly disturbed and many atretic follicles are seen; these changes are probably brought about through the hypophysis. Arrest of uterine haemorrhage has been reported by Mocquot and Palmer after therapeutic administration of testicular hormone.

40

Vitamin C Content of Milk

B. HANNISDAHL (*Tidsskr. norske Laegeforen.*, October 15 and November 1, 1937, pp. 1068 and 1111) has investigated the vitamin C content of cows' milk, testing it quantitatively for ascorbic acid under various conditions. Wide fluctuations in the ascorbic acid content of the milk were found, and they evidently depended on the quality of the fodder, the mode of transport of the milk from cow to consumer, and the length of the interval between milking and consumption. Some of the milk was obtained from stall-fed cows, some from cows whose stall feeding included green fodder, and some from cows at pasture. These investigations extended from the beginning of May till the middle of July, 1936. During this period there was on the whole a rise in the ascorbic acid content of the milk, which fluctuated between 1.7 mg. of ascorbic acid per litre to 11.7 mg. The lowest figures were found in the oldest supplies of milk, the highest in the milk whose itinerary between cow and consumer was the shortest. The use of transparent glass vessels for the transport of milk also played a part in determining the ascorbic acid content of the milk, which varied according as these vessels were kept during transport in a wagon or allowed to travel on its roof, fully exposed to sunlight. Under the latter conditions the ascorbic acid content of the milk varied according as the weather was cloudy or sunny. Milk from pasture-fed cows contained more ascorbic acid than that from stall-fed plus green-fodder-fed cows, and still more than from the exclusively stall-fed cows. But even under the best conditions the author comes to the conclusion that milk does not contain enough ascorbic acid to meet the vitamin C requirements of the human body when one litre of milk is consumed per day. Other sources of vitamin C must, therefore, be drawn on in a town such as Oslo, where the consumption of milk per head is only 0.58 litre.

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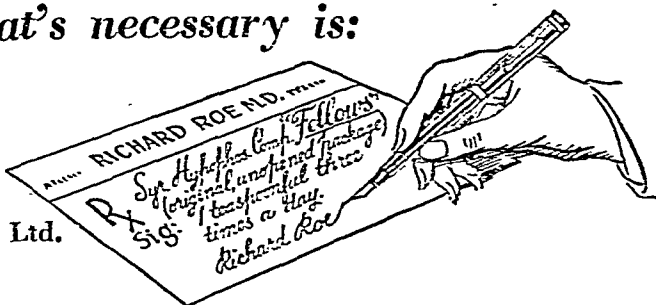
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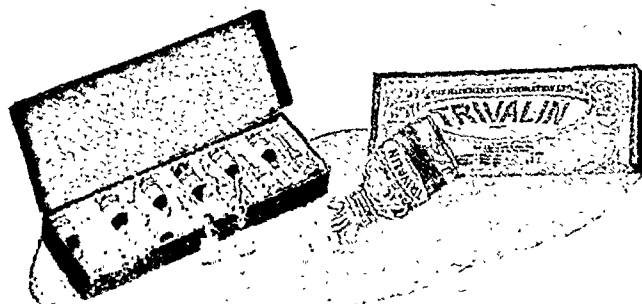
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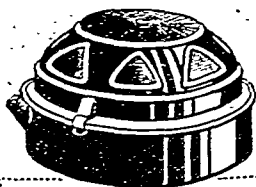
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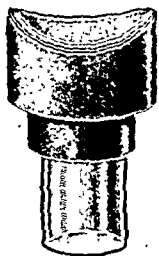


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For terms and further particulars apply to the Medical Superintendent (Telephone Nos. 2356 and 2357 Northampton), who can be seen in London by appointment.

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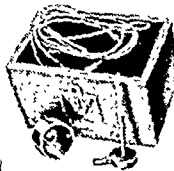
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Applications are invited from duly registered medical practitioners possessing a diploma in Sanitary Science Public Health or State Medicine for the appointment of Medical Officer of Health of the Borough.

Salary £1,000 per annum, rising by annual increments of £50 to a maximum of £1,200 per annum, plus motor-car allowance of £50 per annum.

Terms and conditions of appointment and forms of application will be supplied on receipt of a stamped and addressed foolscap envelope.

Applications, with not more than three recent testimonials, must be received by the undersigned not later than January 15th, 1938.

Town Hall, J. KENNEDY ALLERTON,
Worthing. Town Clerk.
December, 1937

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COURSE OF INSTRUCTION IN THE
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The COURSE will consist of TWELVE LECTURES, dealing with Homoeopathic Philosophy, Materia Medica, and Remedy Selection. The lectures will be given weekly on Tuesday afternoons at 4.30 p.m. in the Homoeopathic Hospital, 104, Gros Western Road, Glasgow, W.2. Commence January 11th, 1938.

Lecturer: Dr. H. Henderson Patrick.

In conjunction with the lectures clinical demonstrations will be given at the Glasgow Homoeopathic Hospital Dispensary, 5, Lynedoch Crescent, Glasgow, C.3, and at the Scottish Homoeopathic Hospital for Children, Mount Vernon.

Fee for complete Course, payable in advance is Dr. Ross, Glasgow Homoeopathic Hospital, 114. The Course is open to registered medical practitioners only.

LONDON HOSPITAL MEDICAL
COLLEGE
F.R.C.S.

A COURSE in OPERATIVE SURGERY for the Final Fellowship Examination in February next will begin on Monday, January 17th, 1938. The fee for the course will be Ten Guineas.

Further particulars may be obtained from Dr. A. E. CLARK-KENNEDY, M.D., F.R.C.P., Dean, London Hospital Medical College, Turner Street, E.1.

NORTH-EAST LONDON
POST-GRADUATE COLLEGE.
PRINCE OF WALES'S GENERAL HOSPITAL,
N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING-ALEXANDER, M.D., Dean

F.R.C.S. (Edin.)
EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes—
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MASTERY OF MIDWIFERY
M.C.O.G.
D.C.O.G.

Short Intensive Postal and Oral Courses in preparation for these Diplomas. Apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

COUNTY BOROUGH OF CROYDON. PUBLIC HEALTH DEPARTMENT. ASSISTANT DENTAL SURGEON.

Applications are invited from male licentiates in dental surgery for the post of whole-time Assistant Dental Surgeon. The duties will consist chiefly in the inspection, re-inspection, and treatment of children attending the elementary schools of the Borough, but will also include dental work under the Council's Maternity and Child Welfare and Tuberculosis Schemes. The person appointed will also be required to give instruction in dental hygiene as and where required. Applicants must have had at least one year's previous experience in the dental treatment of children. The successful applicant will work under the supervision of the Medical Officer of Health and the Senior Dental Officer.

The salary will be £450 per annum, rising by annual increments of £25 to £500 per annum. The post is designated under the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and a deduction of 5 per cent. will be made from the salary. The successful candidate will be required to pass a medical examination. Canvassing will be a disqualification.

Applications on forms to be obtained from the Medical Officer of Health, Town Hall, Croydon, accompanied by copies of not more than three testimonials of recent date, must be returned to him not later than 11 a.m. on Monday, January 24th, endorsed "Assistant Dental Surgeon." The appointment is subject to two months' notice of termination on either side.

Town Hall, Croydon.
December 24th, 1937.

E. TABERNER.

Town Clerk.

METROPOLITAN BOROUGH OF ISLINGTON. Appointment of ASSISTANT MEDICAL OFFICER.

The Council invite applications from members of either sex whose age must not exceed 40 years for the appointment of an Assistant Medical Officer, whose duties will consist mainly of maternity and child welfare work, to be carried out under the direction of the Medical Officer of Health. The duties will include certain administrative work in the wards of two voluntary Welfare Centres, clinical work at the Council's Day Nursery, artificial sunlight treatment, diphtheria immunisation clinics, and such other duties in connection with maternity and child welfare and public health as may be required by the Council.

Candidates must be registered medical practitioners, with the Diploma of Public Health or Degree of Sanitary Science. They must also possess special children's and infants' experience and knowledge of the treatment of nutritional disorders of infancy, and previous experience of maternity and child welfare work, ultra-violet light therapy and diphtheria immunisation.

The salary for the appointment will be at the rate of £600 per annum, rising by annual increments of £25 to £750 per annum. The candidate appointed will be required to devote whole time to the duties of the office, and will not be allowed to practise privately. The appointment will also be subject to the rules and regulations of the Council from time to time in force relating to their officers.

Applications, accompanied by copies of not more than three recent testimonials, on forms to be obtained from the undersigned, must be delivered at the address stated below not later than Wednesday, January 26th, 1938, endorsed "Appointment of Assistant Medical Officer."

Canvassing, directly or indirectly, will disqualify. Town Hall, W. ERIC ADAMS.
Upper Street, N.1. Town Clerk.
December 30th, 1937.

CITY OF LEEDS. KILLINGBECK SANATORIUM. SENIOR ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited from registered medical practitioners (male) for the post of Senior Assistant Resident Medical Officer at the Tuberculosis Sanatorium, Killingbeck (242 beds).

Applicants must be unmarried, and preference will be given to those who have held a general hospital appointment and had experience in the treatment of pulmonary and surgical tuberculosis in sanatoria. Under the present salaries scale of the Council, the commencing salary for the post is £425 per annum and the maximum salary £500 per annum, with board, residence and laundry. These emoluments being valued for superannuation purposes at £120 per annum, together with annual increments of £25 subject to satisfactory service. The first increment will take effect on April 1st following the completion of twelve months' service.

The person appointed will be required to pass a medical examination and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, on a form to be obtained from the undersigned, together with copies of three recent testimonials, and endorsed "Tuberculosis Officer," must be received at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on Saturday, January 15th, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.
J. JOHNSTONE JERVIS,
Medical Officer of Health.

LEICESTER ROYAL INFIRMARY. (500 Beds) RESIDENT ANAESTHETIST.

Applications are invited for the above post, for a period of six months in the first instance. Salary £150 per annum for the first six months, £200 per annum for the second six months, and £225 for the third six months, together with board, residence and laundry.

Applications, giving full particulars, accompanied by copies of three recent testimonials, should be forwarded to the undersigned forthwith.
GEO. W. COOLING,
January 8th, 1938. House Governor.

COUNTY BOROUGH OF HUDDERSFIELD ST. LUKE'S HOSPITAL. RESIDENT MEDICAL OFFICER.

Applications are invited from registered medical practitioners for above appointment, which is for one year. Salary £230 per annum, with board, residence and laundry.

Applications, stating age, training, qualifications and experience, should be forwarded to the Medical Officer of Health, Huddersfield, so as to reach him not later than January 15th, 1938.

Town Hall, Huddersfield, January, 1938. SAMUEL PROCTOR.
Town Clerk.

LIVERPOOL DENTAL HOSPITAL. Pembroke Place, 3.

The Committee invites applications for the post of HON. ANAESTHETIST. Attendance one half-day per week. Applicants must possess a medical qualification.

Further particulars may be obtained from the Hon. Director, by whom applications must be received not later than Wednesday, February 2nd, 1938.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, London, S.W.1.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

A vacancy exists for an ASSISTANT MEDICAL SUPERINTENDENT at the CENTRAL MENTAL HOSPITAL, TANJONG RAMBUTAN, in the FEDERATED MALAY STATES.

Qualifications.—Candidates must be British Subjects of European parentage, under 35 years of age, and must have had at least two years' experience as an Assistant Medical Officer in a County, City or Borough Mental Hospital, in Great Britain or Ireland. Possession of medical qualifications registrable in the United Kingdom and a Diploma in Psychological Medicine is essential.

Salary.—£840 a year rising by annual increments of £35 to £1,120 a year.

Quarters.—Furnished quarters are provided at a small rental.

Passages.—Free passages will be provided both for an officer and his family on first appointment and when proceeding on or returning from leave.

Terms of Appointment.—The appointment is pensionable, subject to a probationary period of three years in the first instance.

Duties.—The officer will be required to assist the Medical Superintendent in the treatment of patients, maintenance of discipline, etc., in the Mental Hospital. He may be required to give lectures and clinical teaching on mental diseases to students of the College of Medicine, Singapore.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, London, S.W.1.

ROYAL HOSPITAL, RICHMOND, SURREY.

Applications are invited for the following post, which falls vacant immediately:—
JUNIOR HOUSE SURGEON. £100 per annum, with board, furnished apartments and laundry. Candidates must be fully qualified, registered, and single. Form of application can be obtained from the Secretary-Superintendent.

GOVERNMENT OF INDIA

1. Applications are invited from women candidates for the appointment of PROFESSOR OF MATERNITY AND CHILD WELFARE at the ALL-INDIA INSTITUTE OF HYGIENE AND PUBLIC HEALTH, Calcutta.

2. Candidates must possess a registrable medical qualification and must have experience of the executive and administrative aspects of Maternity and Child Welfare. Preference will be given to candidates possessing also experience in directing or conducting research and in lecturing to students.

3. Agreement for five years in the first instance. Pay according to age and qualifications in scale Rs. 450, rising by triennial increments of Rs. 50 to Rs. 850 a calendar month, plus Overseas Pay of Rs. 100 when salary is Rs. 600 or less, or of Rs. 150 when salary is Rs. 650 or more. (Rupee = 1s. 6d. approximately). House allowance. Provision for 6d. approximate passage to India and return. Fund first-class termination of service (overseas pay and return passage admissible only to seaport and non-Asiatic domicile).
4. Further particulars and forms of application may be obtained, on application by postcard, from the High Commissioner for India, General Department, India House, Aldwych, London, W.C.2. Last date for receipt of completed applications January 17th, 1938.

ROYAL AIR FORCE DENTAL BRANCH

TEMPORARY CIVILIAN APPOINTMENTS

Vacancies exist at certain Royal Air Force Stations for temporary appointments as whole-time civilian dental surgeons. Preference will be given to applicants under 30 years of age.

Further information may be obtained by applying to the Secretary, Air Ministry (D.M.S.), Admiralty House, Kingsway, W.C.2.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

The General Committee will, at their meeting to be held on January 25th, 1938, proceed to the election of an HONORARY DENTAL SURGEON. Applications, stating age, qualifications, etc., should be sent to the undersigned on or before January 18th, 1938.

I. A. BEARDSALL,
Secretary-Superintendent

ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES FOR THE UPPER AND MIDDLE CLASSES, NORTHAMPTON.

A RESIDENT MEDICAL SUPERINTENDENT is required for this Institution. He must be either a Doctor of Medicine of one of the Universities of the United Kingdom or Ireland where residence and exercise are required to take a degree, or a Fellow or Member or Licentiate of one of the Royal Colleges of Physicians or Surgeons of the United Kingdom or Ireland, and must have had experience in the treatment of Mental Diseases. Salary £2,000 per annum, with unfurnished residence, coals, electric light, vegetables, and washer allowance. Further increments will be at the discretion of the Committee of Management. The creation of the Committee of Management will be subject to a salary and emoluments will be subject to a deduction towards the Hospital's Superannuation Fund.

Candidates qualified as above are requested to send in their applications and not more than three testimonials on or before January 31st, 1938, to the Chairman, Sir Charles V. Gunning, Bart., C.B., C.M.G., c/o The Clerk of the Committee of Management, St. Andrew's Hospital, Northampton. Candidates whose qualifications are approved will be invited to attend a meeting of the Governors of the Hospital of which they will receive notice, and the testimonials of other candidates will be returned. The gentleman selected will be required to enter upon his duties not later than May 2nd, 1938. Canvassing is strictly prohibited, and disqualify.

By Order of the Committee of Management,
CHARLES V. GUNNING,
Chairman

UNIVERSITY OF WALES THE WELSH NATIONAL SCHOOL OF MEDICINE.

Applications are invited for the DAVID DAVIES PROFESSORSHIP OF TUBERCULOSIS. The person appointed will also hold office as Director of Research and Honorary Consultant to the Welsh National Memorial Association. The appointment is a full-time one, and the combined emolument is at the rate of £1,500 per annum. Further particulars of the appointment may be obtained from the Secretary, The Welsh National School of Medicine, The Parade, Cardiff.

S. C. EDWARDS,
Secretary

COUNTY BOROUGH OF BIRKENHEAD.
Department of the Medical Officer of Health.

BIRKENHEAD MUNICIPAL HOSPITAL.
DEPUTY MEDICAL SUPERINTENDENT.

Applications are invited for the appointment of Deputy Medical Superintendent (Resident) at the Birkenhead Municipal Hospital (547 beds). The remuneration attached to the appointment will be £450 per annum, rising by increments of £25 to a maximum of £550 per annum, together with residence, board, etc.

Applicants must be single, fully qualified and registered, and must be capable of performing major surgical operations.

The appointed candidate will have the status of Assistant Medical Officer on the staff of the Medical Officer of Health.

The appointment will be made subject to the Local Government and Other Officers' Superannuation Act, 1922, and is determinable by three months' calendar notice on either side.

Candidates who possess an extra qualification in surgery will be specially considered.

Forms of application and further particulars relating to this appointment can be obtained from Dr. MORLEY MATTHEWS, Medical Officer of Health, 9, Hamilton Square, Birkenhead.

Canvassing, directly or indirectly, will disqualify the applicant.

Applications, endorsed "Deputy Medical Superintendent," should reach the undersigned not later than Saturday, January 15th, 1938.

Town Hall, E. W. TAME, Town Clerk.

DERBYSHIRE COUNTY COUNCIL.
WALTON SANATORIUM, Near Chesterfield.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the post of Junior Resident Assistant Medical Officer at the Derbyshire County Sanatorium. Candidates with previous institutional experience of tuberculosis will be preferred, and practical experience of artificial pneumothorax work will be considered an additional qualification. Candidates must be single.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, together with board, lodging, etc.

The successful candidate will devote the whole of his time to the duties of the Office.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before January 20th, 1938.

W. M. ASH, County Medical Officer.

New County Offices, County Medical Officer, Derby.

January 3rd, 1938

COUNTY MENTAL HOSPITAL.
Whittingham, Preston, Lancs.

RESIDENT JUNIOR ASSISTANT MEDICAL OFFICER, single, required. Salary £500, rising by increments of £25 to £600. No emoluments. £50 per annum is paid when the successful candidate obtains the Diploma in Psychological Medicine. The successful candidate will be required to live in the hospital and charges at the rate of £150 per annum will be made for board, fuel, and apartments and washing. Candidates must be duly registered under the Medical Act.

Applications, stating age, which must not exceed 30, qualifications and copies of testimonials, should reach the Medical Superintendent not later than the morning of January 18th, 1938. The successful candidate will be required to undergo medical examination. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909, and the Regulations of the Lancashire Mental Hospitals Board.

KENT COUNTY COUNCIL.
RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer at the County Hospital, Pembury (520 beds).

The salary for the appointment is £250 a year, with residential emoluments which are valued at £120 a year.

The appointment is a whole-time one, and will be for a period of one year only and not renewable.

Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by 10 a.m. on Monday, January 25th, 1938.

Sevenson House, W. L. PLATTIS, Clerk of the County Council, December 24th, 1937.

COUNTY BOROUGH OF WEST BROMWICH.

HALLAM HOSPITAL (472 beds).

HOUSE PHYSICIAN.

Applications are invited from duly qualified Male Registered Practitioners for the above-mentioned post.

The appointment is for six months, with eligibility for a further six months. Either party may give six weeks' notice terminating the appointment. There is a visiting staff of eight physicians and surgeons, one resident surgical officer and three resident medical officers.

The person appointed will be required to act under the general direction of the Medical Officer of Health and the Medical Clinical Superintendent.

Salary £200 per annum, and board residence. All fees received by the person appointed will be payable into the funds of the Council.

Applications, stating age, experience and qualifications, together with copies of three recent testimonials, must be forwarded to the Medical Officer of Health, 2, Lodge Road, West Bromwich, so as to arrive not later than by first post on Thursday, January 13th, 1938.

Town Hall, ALFRED WICKHAM, Town Clerk.
West Bromwich, December 24th, 1937.

BUXTON CLINIC FOR RHEUMATISM AND ALLIED DISEASES.

Applications are invited for the appointment of HOUSE PHYSICIAN. Candidates must be fully qualified and registered, and must have had previous hospital experience. The appointment is for six months, but is renewable.

Applications, accompanied by three recent testimonials, should be in the Secretary's hands not later than January 22nd, 1938.

The appointment is to start on February 1st, 1938. The Clinic has full facilities for physical and hydrological treatment, and has its own radiological department. Investigatory work in Biochemistry, Pathology, and Bacteriology is carried on in conjunction with the Devonshire Royal Hospital.

Salary: £150-£200 per annum, with board, residence and laundry.

Buxton, H. S. NEEDHAM, Secretary, Buxton Clinic, Ltd.

ANCOATS HOSPITAL, MANCHESTER.

ASSISTANT PATHOLOGIST, lady or gentleman, whole-time appointment, no private work allowed. Salary £400 per annum: live out. Luncheon and tea provided. The appointment is for twelve months and is renewable. During the first six months a certain amount of research work will be conducted.

RADIOLOGICAL OFFICER, lady or gentleman, whole-time appointment, non-resident, no private work allowed. Salary £400 per annum, with luncheon and tea. The appointment is for twelve months and is renewable. Candidates must hold the D.M.R.E. diploma.

Applications for the above posts, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before January 19th, 1938, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. GAFFORNE,
General Supt. and Secretary.

BOOTLE GENERAL HOSPITAL.
BOOTLE, LIVERPOOL, 20. (103 Beds.)

ONE HOUSE PHYSICIAN.

TWO HOUSE SURGEONS.

ONE CASUALTY OFFICER.

Applications are invited for the above posts, tenable for 6 months from April 1st next. The salary attached to each post is £120 per annum with board, residence and laundry.

Applicants must be duly qualified and registered under the Medical Act.

Applications, with copies of testimonials, should reach me as soon as possible.

A. J. COOPER,
Secretary-Superintendent.

HOVE GENERAL HOSPITAL.
(50 Beds.)

Applications are invited for the posts of HONORARY CLINICAL ASSISTANTS in the Gynaecological Department and in the Ear, Nose and Throat Department. Typewritten applications showing qualifications and past and present appointments must be received by the undersigned not later than February 1st, 1938. No testimonials need be sent in the first instance.

K. C. BOOKER,
Secretary-Superintendent.

CITY MENTAL HOSPITAL, HUMBERSTONE, LEICESTER.

ASSISTANT MEDICAL OFFICER (Male).

Residential General Hospital experience is desirable. Salary £150 per annum, together with board, lodging, washing and attendance, valued for purposes of superannuation at £150 per annum. If the applicant be married he will be permitted to live out, and the salary will commence at £200 rising by £50 per annum to £600. An additional £50 per annum will be paid for possession of a D.P.M.

The appointment is subject to the provision of the Asylums Officers' Superannuation Act, 1909.

There is a good laboratory and two active Psychiatric Clinics, one attached to the Leicester Royal Infirmary.

Applications, giving particulars of experience, etc., together with names of three referees—one of which should be non-professional and marked "A.M.O." to be sent to the Medical Superintendent.

KENT AND SUSSEX HOSPITAL.
ROYAL TUNBRIDGE WELLS.
(110 Beds.)

Applications are invited for the post of HOUSE SURGEON to the Ear, Nose and Throat Department and RESIDENT ANAESTHETIST, to commence duty on January 29th, 1938. Salary £150 per annum, with board residence and laundry in the Hospital.

The Hospital contains the following departments: Medical (Surgical), Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological, X-ray and Electrotherapeutic, Massage, Pathological, Venereal Diseases, etc.

Applications, stating qualifications, together with certificate of registration, and copies of not more than three recent testimonials, should be sent to the undersigned as soon as possible.

TOM B. HARRISON,
January 3rd, 1938. Superintendent-Secretary.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE.
(109 Beds.)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON, which post becomes vacant on February 1st, 1938. The appointment is for six months, but a senior post at a higher salary may be given after that period if mutually agreed upon. Candidates must be duly qualified and registered Medical Practitioners, single, and of British birth and nationality, and should have experience of refractions. Salary at the rate of £200 per annum, with board, residence and laundry. The Hospital is recognized by the Examining Board for the D.O.M.S.

Applications, stating age and qualifications, together with copies of not more than three testimonials, should be sent to the undersigned.

JOHN W. STRICKLAND,
Secretary.

GRIMSBY AND DISTRICT HOSPITAL.
(164 Beds.)

Applications are invited for the posts of:—
(a) SENIOR HOUSE SURGEON (Male).
(b) JUNIOR HOUSE SURGEON (Male).

Remuneration at the rate of £200 and £150 per annum respectively, with board, residence, etc.

Candidates must be fully qualified and registered, and previous Hospital appointment experience is desirable. Duties to commence February 1st, 1938.

The successful candidates will be appointed for six months, and may apply for re-election.

Applications, stating age, qualifications, experience, and not more than three recent testimonials, to be forwarded to the undersigned immediately.

H. B. COATES,
January 4th, 1938. Secretary-Superintendent.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.
(114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of HOUSE SURGEON at the above Hospital.

Salary £150 per annum (rising to £150 at the end of six months) satisfactory service, and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, must be received not later than Thursday, January 6th, 1938.

J. W. PEARCE,
General Superintendent.

BEDFORD COUNTY HOSPITAL.

Wanted, an HONORARY PATHOLOGIST for Bedford County Hospital. Facilities given for private work. Applications to be sent to the Secretary.

(AMENDED ADVERTISEMENT.)
MIDDLESBROUGH EDUCATION COMMITTEE.
 Appointment of ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly qualified candidates, who are not over 45 years of age, for a position as Assistant School Medical Officer to act under the School Medical Officer in connection with the medical inspection and treatment of school children, and such other duties as may be required by the Education Committee.

Commencing salary £500 per annum (provided the successful candidate has had not less than three years' postgraduate experience), rising by annual increments of £25 to £700 per annum. The Committee may, at their discretion, take into account previous experience as an Assistant School Medical Officer in determining the amount of the commencing salary. The successful candidate will be required to devote his (her) whole time to the duties of the office. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass satisfactorily a medical examination. The appointment will be terminable by two calendar months' notice on either side.

Forms of application may be obtained on application to the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned not later than Monday, January 17th, 1938.

Canvassing in any form will disqualify.
 Town Clerk's Office, - PRESTON KITCHEN.
 Municipal Buildings, Town Clerk.
 Middlesbrough.
 December 31st, 1937

CITY OF BIRMINGHAM EDUCATION COMMITTEE

Appointment of ASSISTANT SCHOOL MEDICAL OFFICER (male or female).

Applications are invited for the appointment of Assistant School Medical Officer (male or female). Candidates must have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification. Salary according to "Askwith" Scale (£500 to £700 by annual increments of £25). £10 per annum travelling expenses allowed.

Forms of application (to be returned not later than first post on Monday, January 31st, 1938), together with further information, may be obtained from the undersigned on receipt of a stamped addressed foolscap envelope. Communications should be endorsed "Assistant School Medical Officer." Canvassing will disqualify.

Education Office, P. D. INNES, Chief Education Officer.
 Margaret Street, Birmingham, 3.
 January 1st, 1938.

LANCASHIRE COUNTY COUNCIL.
HIGH CARLEY SANATORIUM, near Uxterston.
JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the High Carley Sanatorium, near Uxterston, which contains 130 beds for adult cases of pulmonary tuberculosis, and 21 beds in the Oubas House Children's Sanatorium, near Uxterston, for pulmonary cases. Salary £300 per annum, together with board, residence and laundry.

The appointment will be for a period of twelve months. The medical staff consists of medical superintendent and one assistant. Mr. Morrison Davies acts as senior Visiting Consulting Chest Surgeon. There are excellent facilities for reading for M.D. Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Offices, Preston. Letters to be marked "High Carley M.O."

Closing date January 24th, 1938.
 GEORGE ETHERTON,
 County Offices, Clerk of the County Council.
 Preston, January 4th, 1938.

CITY AND COUNTY OF BRISTOL.
SOUTHMEAD MUNICIPAL GENERAL HOSPITAL.
JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the above appointment which is tenable for six months at a salary of £200 per annum.

Applications, accompanied by three recent testimonials, to be sent to the Medical Officer of Health, 40, Prince Street, Bristol, 1, forthwith.

BOROUGH OF EALING.
ASSISTANT MEDICAL OFFICER OF HEALTH.
RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointments from duly qualified medical men with a Public Health qualification.

Assistant Medical Officer (Man).—A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

Resident Assistant Medical Officer. (Man—Single).—A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school children at schools and health centres in the borough of Ealing.

The person appointed will reside at the Isolation Hospital where furnished rooms and board will be provided.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £350 per annum, rising by £25 per annum to a maximum of £550, plus board and residence as indicated above and valued at £150 per annum.

A deduction of 5 per cent. will be made from the salary in each case in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointments can be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom applications accompanied by copies of not more than three recent testimonials must be delivered not later than January 20th.

R. H. WANKLYN,
 Town Hall, Ealing, W.5. Town Clerk.

BOROUGH OF EALING.
OPHTHALMIC SURGEON.

Applications are invited from registered medical practitioners of recognised consultant and specialist status in ophthalmology for the position of Ophthalmic Surgeon in connection with the Council's Health Centres. The successful applicant will be required to attend on three sessions a week during 40 school weeks, or 120 sessions in the year, for the purpose of examining and advising patients referred to him by the medical staff of the School Medical and Maternity and Child Welfare Services.

The remuneration will be £275 per annum. Canvassing will be a disqualification.

Forms of application and copies of terms of appointment may be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom applications, accompanied by three recent testimonials and endorsed "Appointment of Ophthalmic Surgeon," must be delivered not later than January 20th.

R. H. WANKLYN,
 Town Hall, Ealing, W.5. Town Clerk.

COUNTY BOROUGH OF BLACKBURN.
LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of Assistant Medical Officer of Health and Assistant School Medical Officer to act under the direction and supervision of the Medical Officer of Health who is also School Medical Officer. The salary is at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The person appointed must, prior to April 1st, 1930, have held the appointment of Medical Officer of an Ante-Natal Clinic with the approval of the Minister, or have had at least three years' post-graduate experience in the practice of her profession and special experience of practical midwifery and ante-natal work.

Preference will be given to candidates who have enjoyed special postgraduate experience in the treatment of venereal diseases, and of diseases of children, and who hold a registrable degree or diploma in Public Health.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than January 22nd, 1938, endorsed "Assistant Medical Officer of Health."

CHAS. S. ROBINSON,
 Town Hall, Blackburn. Town Clerk.
 December 17th, 1937.

CITY AND ROYAL BURGH OF DUNFERMLINE.
RESIDENT OBSTETRICAL OFFICER.

Applications are invited for the post of Resident Obstetrical Officer (male) at the Maternity Hospital (35 Beds), Dunfermline.

Candidates should have held previous resident appointments in a Maternity Hospital and have had experience in ante-natal and post-natal work. Preference will be given to candidates who hold or are reading for membership of the College of Obstetricians and Gynaecologists. The officer appointed will be called on to act as outdoor consultant under the Maternity Services (Scotland) Act, 1937, and will also be required to assist in the Maternity and Child Welfare Scheme and to undertake such other duties as may be assigned to him by the Medical Officer of Health.

The salary will be at the rate of £400 per annum rising by annual increments of £25 to £475 per annum with emoluments valued at £150 per annum and travelling expenses.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the selected candidate will be required to pass a medical examination. The appointment will be terminable by three months' notice on either side.

Forms of application may be obtained from Dr. C. Barclay Reekie, Medical Officer of Health, 1, Douglas Street, Dunfermline, and must be returned to him, accompanied by copies of three recent testimonials, not later than January 15th, 1938. Canvassing will disqualify.

ANDREW SHEARER,
 City Chambers, Dunfermline. Town Clerk.
 December 20th, 1937.

CITY OF LEEDS
ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than three years' postgraduate experience, including experience in General Medicine and Surgery, and special experience in Obstetrics and Ante-Natal work, and in the treatment of Children's Diseases and Disease of Women. Preference will be given to candidates possessing the D.P.H.

Under the present Grading Scheme of the Council, the commencing salary for the post is £500 per annum and the maximum salary £700, with annual increments of £25, subject to satisfactory service, and the first increment will take effect on April 1st following the completion of twelve months' service.

The person appointed will be required to pass a medical examination, and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the undersigned.

Applications, endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at the Health Department, 12, Market Buildings, Vicar Lane, Leeds 1, not later than 10.30 a.m. on Saturday, January 22nd, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
 Medical Officer of Health

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners with appointments as in the Council's Laboratories, and candidates should have special experience in one or more branches of pathology in relation to the diagnosis and treatment of disease, the fifth is at the Central Histological Laboratory.

Experience in morbid histology and post-mortem work is essential. Forms of application and further particulars (stamped addressed foolscap envelope necessary) from Medical Officer of Health (S.W. Division 2), County Hall, Westminster Bridge, S.E.1, returnable by January 17th, 1938. Canvassing disqualifies.

SMEDLEY'S HYDROPATHIC ESTABLISHMENT, MATLOCK.

HOUSE PHYSICIAN, male, unmarried, and fully qualified, required. Salary to commence at £300 per annum, with residence, board, and laundry. Appointment with view to permanency and good prospect. Previous experience in a similar appointment necessary. Duties include attendance at local Hydropathic Hospital. Applications, with qualifications, experience, age, and nationality, together with copies of three recent testimonials, to be sent to Dr. Harbison Smedley's Matlock.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.)	NEATH AND DISTRICT. (Medical Aid Association.)	PUBLIC HEALTH
LLWYNYPYA, CLYDACH VALE PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)	FIFE AND KINROSS JOINT SANATORIUM BOARD. (Resident Medical Officer.)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie St., Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Locum Practices.)	Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B 17				

January 5, 1938.

By Order of the Council

G. C. ANDERSON, Secretary.

NORFOLK AND NORWICH HOSPITAL. Norwich. (417 Beds.)

Applications are invited for the following posts: **GENERAL HOUSE SURGEON** and **HOUSE SURGEON** to the Special Departments (Ear, Nose and Throat and Ophthalmic). Salary for post of General House Surgeon, £120 per annum. Salary for post of House Surgeon to Special Departments, £160 per annum, both with board, residence and laundry. Candidates (males) must be unmarried and must possess registered qualifications.

Applications, stating age, nationality, etc., together with copies of testimonials, should reach the undersigned not later than Tuesday, January 11th, 1938. **FRANK INCH,** House Governor and Secretary
December 31st, 1937.

SEVERALLS MENTAL HOSPITAL. COLCHESTER.

Required, an **ASSISTANT MEDICAL OFFICER** (lady) at the above-named Hospital.

Persons registered under the Medical Acts, with experience of a resident appointment in a General Hospital, are invited to apply for the appointment. Salary £110, rising annually by £25 to £160 per annum. Possession of the Diploma of Psychological Medicine carries £50 per annum extra to the scale.

The appointment is subject to the terms of the **Asylum Officers' Superannuation Act, 1909.** Applications, stating full particulars of qualifications, experience, etc., etc., to be addressed to the Medical Superintendent.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.

HOUSE SURGEON wanted. Ophthalmic experience preferred. Duties to commence early in February. There are fifty beds for In-Patients and large Out-Patient Department. Salary £150 a year, with furnished apartments, board, and laundry. Ladies and gentlemen applying should state age and experience, and send copies of three recent testimonials to reach the Secretary not later than first post January 18th.

EUSTACE LEES,
December 30th, 1937. Secretary

LONDON JEWISH HOSPITAL. Stepney Green, E 1

General Hospital. (109 Beds.)

Applications are invited for the post of **SURGICAL REGISTRAR.** Honorarium at the rate of sixty guineas per annum.

Particulars of the appointment can be obtained from the Secretary, to whom candidates must send ten copies of their applications, with copies of three recent testimonials, not later than Friday, January 21st, 1938.

COTON HILL MENTAL HOSPITAL. STAFFORD.

Wanted an **ASSISTANT MEDICAL OFFICER** (male, unmarried). Salary £400 per annum, with residence, board, and laundry. Applications, with testimonials (copies only), to be sent to the Chairman as soon as possible.

THE CHILDREN'S HOSPITAL. King Edward VII Memorial. Birmingham, 16.

OUT-PATIENTS' DEPARTMENT

With a view to improving the Out-Patient Services, the Board invites applications for the following posts:

RECEIVING ROOM OFFICER, who must be a Paediatrician to attend from 9 a.m. to 1 p.m., and who will see all new cases attending in the morning including casualties. Salary £150 p.a.

SENIOR CASUALTY HOUSE SURGEON (resident) Salary £125 p.a.
FIRST ASSISTANT to the ORTHOPAEDIC DEPARTMENT, who will assist at the Orthopaedic Clinic on Thursday mornings and attend a Fracture Clinic one morning weekly. Salary £100 p.a.

In addition to the above, the personnel of the Out-Patient Department includes a whole-time First Assistant to the Ear and Throat Department and a Junior Casualty House Surgeon.

The appointments are for one year, with eligibility for reappointment.

Particulars of duties, etc., can be obtained from the undersigned. The duties to commence on March 31st, 1938. Applications, together with copies of testimonials, should be sent to the undersigned.

HAROLD F. SHRIMPTON,
House Governor.

December 21st, 1937.

(Advertisements continued on p. 58)

MANCHESTER ROYAL INFIRMARY.

HOUSE PHYSICIANS (4 Vacancies).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments, which become vacant as follows: Two on February 15th, and two on March 15th, 1938. Applications will be considered to be for any of these posts unless it is specially stated to the contrary. Applicants must be registered and hold a medical and surgical qualification.

The appointments are for six months, subject to the provisions of the Bye-laws as to notice, etc. Salary at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,

December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEON (Neuro-Surgical Department).

HOUSE SURGEON (Orthopaedic Department).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments, which become vacant on February 15th, 1937. Applicants must be registered and hold a medical and surgical qualification.

The appointments are for six months, subject to the provisions of the Bye-laws as to notice, etc. Salaries at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,

December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEON (Aural, Gynaecological and Ophthalmic Departments).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, vacant on February 15th, 1938. Applicants must hold a medical and surgical qualification and be registered.

The appointment is for six months, subject to the Bye-laws as to notice, etc. Salary at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,

December 21st, 1937. Gen. Supt. and Secretary.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEONS (4 Vacancies).

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointments vacant on February 15th, 1938. Applicants must hold a medical and surgical qualification and be registered.

The appointments are for nine months, subject to the provisions of the Bye-laws as to notice, etc. Salary at the rate of £50 per annum, with board-residence and allowance for laundry.

Applications, stating age, to be sent to the Chairman of the Medical Board not later than January 15th, 1938.

By Order,

W. R. TINDALE,

December 21st, 1937. Gen. Supt. and Secretary.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, JUNIOR HOUSE SURGEON (male). Salary £150 per annum with board, residence and laundry. No out-visiting. Candidates must hold registered qualifications in medicine and surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER,

Secretary.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.

JUNIOR HOUSE SURGEON (male) required. Salary at the rate of £120 per annum, with board, residence and laundry. Medical and Surgical qualifications required. Eligible for Senior post at £150 per annum after a period of satisfactory service.

Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

BRISTOL ROYAL INFIRMARY.

Applications are invited for the following Resident Medical Appointments for the six months commencing March 1st, 1938.

3 HOUSE PHYSICIANS (one of whom also acts as House Physician to the Cancer Dept.).

4 HOUSE SURGEONS and 1 ASSISTANT HOUSE SURGEON.

1 HOUSE SURGEON to the Casualty Department.

1 HOUSE SURGEON to the Fracture Department.

1 HOUSE SURGEON to the Ear, Nose and Throat Department.

1 SENIOR OBSTETRIC HOUSE SURGEON.

1 JUNIOR OBSTETRIC HOUSE SURGEON.

Salaries at the rate of £80 per annum, except in the case of the Senior Obstetric House Surgeon, who will receive a salary at the rate of £100 per annum, and the Senior Casualty House Surgeon, who will receive a salary at the rate of £150 per annum.

Candidates, who must be duly qualified, to send in their applications on forms to be obtained from the undersigned, which must be returned on or before January 15th, 1938, together with copies of not more than three testimonials.

The elected candidates must become members of the Medical Defence Union before taking up their appointments.

ELLIS C. SMITH, F.C.S.,

Secretary and House Governor.

PRINCE OF WALES'S HOSPITAL.

Greenbank Road, Plymouth

(Formerly South Devon and East Cornwall Hospital). (264 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £120 per annum, with board, residence and laundry.

Appointment is tenable for six months and is subject to renewal. Duties to commence January 26th. The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by January 14th.

ARTHUR R. CASH,

Gen. Supt. and Secretary.

Prince of Wales's Hospital,

Greenbank Road, Plymouth.

PRINCE OF WALES'S HOSPITAL.

Devonport

(Formerly the Royal Albert Hospital, Devonport). (64 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £120 per annum, with board, residence and laundry.

Duties to commence January 29th, 1938. Appointment is tenable for six months and is subject to renewal, or promotion to the senior position when this post becomes vacant. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than January 14th.

ARTHUR R. CASH,

Gen. Supt. and Secretary.

Prince of Wales's Hospital,

Greenbank Road, Plymouth.

DURHAM COUNTY HOSPITAL.

Durham City. (100 Beds.)

MALE HOUSE SURGEON required; duties to commence February 1st, 1938.

Salary at the rate of £150 per annum, with board, residence and laundry. Appointment for six months, subject to renewal for similar period.

Applications, stating age, experience, and nationality, accompanied by three recent testimonials, should be addressed to the undersigned not later than January 14th, 1938.

NORMAN BROWN,

December 22nd, 1937. Secretary

MANCHESTER NORTHERN HOSPITAL.

(General Hospital, 113 Beds.)

Cheetham Hill Road, Manchester, 5

Applications are invited for the posts of RESIDENT HOUSE PHYSICIAN and RESIDENT HOUSE SURGEON. Salary £100 per annum, with board and residence.

The appointments are for six months from mid-February, 1938 (successful candidates are eligible for reappointment for a further six months).

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, should be sent to Mr. JAMES C. DANIELS, Secretary, 38, Barton Arcade, Manchester, 3, by January 20th.

THE ROYAL INFIRMARY, SHEFFIELD

(500 Beds.)

The Board of Management invite applications for the undermentioned posts:

(1) SENIOR CASUALTY OFFICER.

(2) HOUSE PHYSICIAN.

The salary attached to (1) is £150 per annum, with board and residence, and the appointment will be tenable for the six months' period commencing January 1st, 1938. This post is next in seniority to that of Resident Surgical Officer.

The salary of (2) is £80 per annum, with board and residence, increasing after six months' service to £100 per annum. This post will be tenable for the residue of the period of six months to April 30th, 1938, when the successful candidate will be eligible for re-election to this or one of the other resident posts.

Applications, with copies of testimonials, to be sent to the General Superintendent and Secretary December 31st, 1937.

WINSLEY SANATORIUM.

near BATH.

The Governors invite applications for the appointment of a whole-time ASSISTANT RESIDENT MEDICAL OFFICER (Male) Salary £250, with apartments, board, laundry, etc.

The appointment will be made for a period of twelve months (subject, however, to termination during such period by one calendar month's notice on either side).

Forms of application can be obtained from the undersigned, to whom all applications should be addressed, accompanied by not more than three recent testimonials, not later than first post January 14th, 1938.

T. A. W. CARLISLE,

Winsley Sanatorium, Secretary

near Bath. December 22nd, 1937.

THE ROYAL HOSPITAL.

Wolverhampton.

(Incorporated under Charter.)

GYNAECOLOGICAL AND OBSTETRIC DEPARTMENT.

ASSISTANT RESIDENT MEDICAL OFFICER (Female) required for the above Department (60 beds), duties to commence February 1st, 1938. Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum. Board, furnished rooms and laundry provided. Applications, with copies of testimonials, to be forwarded to the undersigned.

W. H. HARPER,

Wolverhampton. House Governor.

December 29th, 1937.

THE STOCKPORT INFIRMARY.

(140 Beds.)

The Board invite applications for the post of RESIDENT SURGICAL OFFICER (male and unmarried). Salary £250 per annum, together with board, residence and laundry.

Previous resident hospital experience essential. The resident staff consists of a Resident Surgical Officer, two House Surgeons and a House Physician.

Applications, with copies of three recent testimonials, stating age, nationality, qualifications and experience, to be sent to the undersigned on or before January 12th, 1938. Duties to commence February 15th, 1938.

H. G. PRICE,

Secretary-Superintendent.

NUNEATON GENERAL HOSPITAL.

(100 Beds.)

HOUSE SURGEON required on February 2nd next. Salary at the rate of £150 per annum, with board, lodging and laundry. The appointment is for six months in the first instance.

Applications are invited from duly qualified and registered medical men and women, giving particulars of experience (if any), and should be addressed to the Secretary of the Medical Board at the Hospital. Copies of two recent testimonials may be enclosed.

ROYAL SURREY COUNTY HOSPITAL.

Guildford. (216 Beds.)

Wanted, February 1st, 1938, HOUSE SURGEON (male); six months' appointment, for £150 per annum, the F.R.C.S. Duties: General Surgery, Paediatrics and Casualties. Salary £150 per annum, with board, residence and laundry.

Applications, stating age and experience, with copies of not more than three testimonials, to reach the Secretary-Superintendent not later than January 11th, 1938.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION. 85, Eccleston Square, S.W.1 (Telephone: Victoria 7222), supplies qualified Dispensers, Book-keepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

WHOLE OR PART-TIME WORK WANTED in London or Essex by Woman Doctor.—Reply, MACLEAN, 8, Stewart Avenue, Upminster, Essex. Telephone: Upminster 3088.

PARTNERSHIPS

WANTED, PARTNER, FOR HALF SHARE of rapidly increasing Practice near London. Receipts total £1,200. Panel 850. Very good prospects for future increase. Hospital.—Address, No. 2834, B.M.A. House, Tavistock Square, W.C.1.

ACTIVE PARTNER OR PARTNERS REQUIRED for old-established well-equipped Nursing Home: 16 patients (borderline and convalescent), Surrey Hills, 21 miles South London. Suitable for retired Doctor.—Write, SIREAD BREACH AND CO., 2, Clement's Inn, W.C.2, Solicitors.

BRISTOL—PARTNERSHIP WITH VERY good scope. Panel 2,200. £2,125 last year. Half share at £1,000. Good house rent.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22689), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

EAST ANGLIA PARTNERSHIP THIRD OR HALF SHARE in good middle-class practice in country town, averaging £4,000, panel 3,000. Hospital 60 Beds, surgery essential. Premium 2½ years' purchase, house available to rent.—Address, No. 1605, B.M.A. House, Tavistock Square, W.C.1.

PARTNER REQUIRED, COUNTRY TOWN Practice in East Anglia averaging £6,700 p.a. One-seventh share for sale to well-qualified man; 4 later. House available.—Address, No. 2602, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED IN WOMAN'S Practice after short preliminary Assistantship. Growing Practice, Home Counties. State essential particulars when first applying.—Address, No. 2821, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR DESIRES PARTNERSHIP with either man or woman, in or near London. Experienced in General Practice and Anaesthetics.—Address, No. 2830, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED BY M.B. Ch.B., CANTAB., PRACTICE OR PARTNERSHIP producing between £1,000 and £2,000 p.a. Country or country town, preferably Suffolk or Norfolk. Capital available up to £5,000.—Address, 3401, PRINCIPAL TURNER, LTD., 4, Adam Street, London, W.C.2.

WANTED, SOUTH MANCHESTER.—PRACTICE OR PARTNERSHIP with view to succession in growing residential district (small panel). About £1,000 p.a. Capital available.—Address, No. 2801, B.M.A. House, Tavistock Square, W.C.1.

WANTED, BY PRACTITIONER ON B.M.A. Ophthalmic List, GENERAL PRACTICE OR PARTNERSHIP, with opportunity for Ophthalmology.—Address, No. 2504, B.M.A. House, Tavistock Square, W.C.1.

WANTED, BY YOUNG WELL-QUALIFIED Physician with wide experience, PRACTICE OR PARTNERSHIP, Southern England. Income about £1,000. Strictly confidential.—Address, No. 2822, B.M.A. House, Tavistock Square, W.C.1.

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WANTED.—FEBRUARY 1st, 1938, INDOOR, married, male ASSISTANT, with view, near Manchester. British, Protestant, salary £350 p.a., plus board and lodging, car allowance £50.—Address, No. 2829, B.M.A. House, Tavistock Square, W.C.1.

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DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretaries, Dispensers or Chemist-Dispensers, are invited to write, wire, or 'phone Temple Bar 5544, THE DISPENSER'S BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

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DAGENHAM URBAN DISTRICT COUNCIL.**ASSISTANT MEDICAL OFFICER OF HEALTH (Male).**

Applications are invited from duly qualified medical men, having at least two years' experience in a comparable position, for the post of Assistant Medical Officer of Health. Preference will be given to candidates possessing the Diploma in Public Health, or an equivalent qualification. Commencing salary £500 per annum, rising by annual increments of £25 to £700, subject to Superannuation deductions.

The person appointed will be required to devote the whole of his time to the duties of the office, which consists mainly of work in the Maternity and Child Welfare Department, but may also include duty in any section of the health services of the district.

Experience in ante-natal and maternity and child welfare work is essential.

Opportunities will be available for acquiring experience in Public Health administration. Applications, on forms obtainable from the Medical Officer of Health at the undermentioned address, should be returned to the undersigned on or before January 15th, 1938.

Canvassing disqualifies.

F. W. ALLEN,
Civic Centre, Dagenham, Essex
January 4th, 1938. Clerk of the Council.

VICTORIA HOSPITAL FOR CHILDREN.
Tite Street, Chelsea, S.W.3. (138 Beds.)

The Committee of Management invite applications for the posts of

(a) HOUSE PHYSICIAN.**(b) HOUSE SURGEON.**

Both vacant February 1st, 1938. The appointments are for six months. Salaries at the rate of £100 per annum, with board, lodging, and washing.

(c) OUT-PATIENT ANAESTHETIST.

To attend on three half-days a week. A payment of 10s. 6d. per attendance will be made.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than first post on Tuesday, January 11th, 1938.

D. ST. JOHN BAMFORD,

Secretary.

VICTORIA HOSPITAL FOR CHILDREN.
Tite Street, Chelsea, S.W.3.

Applications are invited for the post of **OPHTHALMIC SURGEON**. Candidates must be Fellows of the Royal College of Surgeons of England, and are expected to call on members of the Medical Staff.

Applications, with copies of testimonials, are to be sent to the Secretary at the Hospital on or before Saturday January 15th, 1938.

D. ST. JOHN BAMFORD,

Secretary.

METROPOLITAN HOSPITAL.
London, E.S.

Applications (male) are invited to fill a vacancy on the **HONORARY ANAESTHETISTS STAFF**. The duties will be to attend the hospital each Wednesday morning for an Ear, Nose and Throat Section. There is an honorarium of £25 per annum attached to the post.

Applicants should apply to the undersigned by January 19th next, giving such evidence of their fitness for the post as they care to submit.

FRANK JENNINGS,

House Governor and Secretary.

OLDHAM ROYAL INFIRMARY.

HOUSE SURGEON required for a period of six months.

Salary at the rate of £175 per annum, with board, residence, and laundry.

Applications, stating age, experience, and qualifications, together with copies of three recent testimonials, must be forwarded to the undersigned not later than January 13th, 1938.

H. J. CLOUT,

General Superintendent

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Wanted, **ASSISTANT PHYSICIAN** (male, unmarried) to commence duty immediately. Salary £250, with board, residence and laundry. Experience in pneumothorax work, etc., essential. Apply to Medical Superintendent, stating age and experience, and enclosing testimonials.

THE KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL.

JUNIOR HOUSE SURGEON (male) required. Salary £100 per annum, with residence, board and laundry. Applications, with not more than three testimonials, to be sent to the Secretary, Miss Susan Smith, South Cliff, Kidderminster.

WEST END HOSPITAL FOR NERVOUS DISEASES.

In-Patient Department: Gloucester Gate, Regent's Park, N.W.1.

Out-Patient Department: 73, Welbeck Street, W.1.

The Committee of Management invites applications for the following vacancies:—

REGISTRAR, Out-Patient Department.—British Male Candidates. Remuneration £200 per annum. Duties include afternoon attendance at the Out-Patient Department five days a week. Candidates must have neurological experience.

Two RESIDENT HOUSE PHYSICIANS (Male). Duties to commence March 1st, 1938. Salary at the rate of £125 per annum, with board, residence and laundry.

Preference will be given to candidates who have held a resident appointment in a General Hospital. **HONORARY MEDICAL PSYCHOLOGISTS.**—Candidates (Male and Female) having previous experience are required for appointment in the Child Guidance Department (Out-Patient Department).

Further information in regard to any of the above appointments can be obtained from the undersigned at the address below, to whom applications stating experience, together with copies of three recent testimonials, must be sent not later than Wednesday, January 13th, 1938. Candidates for the Registrarship are requested to send twelve copies of their application and testimonials.

J. P. WETENHALL,

Secretary and House Governor

73, Welbeck Street, W.1.

THE ROYAL CANCER HOSPITAL (FREE)
(Incorporated under Royal Charter)
Fulham Road, London, S.W.3.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**, to commence duties on February 1st, 1938.

The appointment is for twelve months at a salary of £200 per annum, together with board, residence, and laundry. At the end of this period reappointment for a further twelve months may be applied for.

Applications, to be made on a form which will be supplied by the Secretary, with copies of not more than three recent testimonials, to be sent to the Secretary not later than the first post on January 13th, 1938.

CLEMENT COBBOLD,

Secretary.

THE BELGRAVE HOSPITAL FOR CHILDREN.
Clapham Road, S.W.9.

The Committee of Management invite applications for the post of **ASSISTANT PHYSICIAN**. Candidates must be graduates in medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of 20 guineas per annum attached to the post.

Applications, with copies of testimonials, must be delivered to the undersigned by Tuesday, February 1st, from whom further information may be obtained. By order.

THOMAS CLAPHAM,

Secretary.

THE HOSPITAL FOR SICK CHILDREN.
Great Ormond Street, London, W.C.1.

Applications are invited from registered medical practitioners for the post of **CASCALTY MEDICAL OFFICER**. Salary £175 per annum. Duties to commence on February 7th, 1938.

The appointment is a half-time one and non-resident, tenable in the first instance for six months. Applications must be received by noon on Monday, January 31st, 1938, and candidates must be prepared to attend for interview at the Hospital on Wednesday, February 2nd, 1938, at 4.45 p.m.

Full details of the appointment and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,

January, 1938.

Secretary.

THE INFANTS HOSPITAL.
Vincent Square, Westminster

The Committee of Management invite applications for the post of **RESIDENT MEDICAL OFFICER**.

Candidates must have held previous resident hospital appointments for not less than six months, and must have had Paediatric experience. The appointment is for one year from March 1st, with eligibility for reappointment. Salary £200 per annum, with board, lodging, and laundry.

Candidates are expected to call upon, and send a copy of application and testimonials to, each member of the Honorary Medical and Surgical staff. Applications with copies of testimonials should be sent not later than January 20th to the undersigned, from whom copies of the rules may be obtained.

ALFRED J. SMALL,

Secretary.

THE NATIONAL TEMPERANCE HOSPITAL.
Hampstead Road, London, N.W.1

Applications are invited for the post of **HONORARY ANAESTHETIST**. The successful candidate will be required to attend on Thursday mornings and in cases of emergency.

Thirty copies of application, giving full particulars, together with copies of not more than three recent testimonials, should be sent to the Secretary by January 19th.

Candidates will be required to call upon members of the Honorary Staff.

THE NATIONAL TEMPERANCE HOSPITAL.
Hampstead Road, London, N.W.1

Applications are invited for the post of **MEDICAL REGISTRAR**, which will become vacant on February 1st, 1938. Candidates must be Graduates in Medicine of a University of the United Kingdom, or a Member of the Royal College of Physicians of London. Honorarium 40 gns.

Applications, accompanied by not more than three testimonials, to be addressed to the Secretary by January 19th.

SOUTHEAST-ON-SEA GENERAL HOSPITAL.
235 Beds. 8 Residents.

Hon. Specialist Staff of 19 members.

Applications are invited for the post of **FIRST HOUSE SURGEON**. Duties to commence on February 1st, 1938. The appointment is for six months, salary at the rate of £100 p.a., with board, residence and laundry. Candidates must be registered (male) practitioners. The hospital is recognized by the Royal College of Surgeons in respect of this post.

Applications, together with copies of two recent testimonials, should be sent to the undersigned not later than January 17th.

P. H. CONSTABLE,

Secretary.

ST. ANNE'S HOME, ALTRINCHAM,
Cheshire.

Wanted, a **RESIDENT SURGICAL OFFICER** for the above Hospital (2 beds). Must be registered. Salary £200 per annum, with board, apartments, etc. This Hospital is the Ear, Nose and Throat Department of the Manchester Hospital for Consumption and Diseases of the Ear, Nose, Throat and Chest, and duties include attendance on two mornings a week at the Out-Patient Dept., Manchester.

Applications, with copies of testimonials, to be sent not later than January 22nd to W. Hunt, Secretary, 45, Hardman Street, Manchester 3.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the post of **HOUSE SURGEON** (Two, male, unmarried) at this hospital's Country Branch at Brockley Hill, Stanmore, Middlesex. 278 beds (160 cases of surgical tuberculosis).

Salary £150 per annum, with board, quarters and laundry. The appointments are for six months. Duties to commence, one on February 1st and one on March 1st.

Applications, with copies of testimonials, should be sent to the Secretary, 234, Great Portland Street, London, W.1, not later than January 17th.

ROYAL MASONIC HOSPITAL.
Ravenscourt Park, W.6.

A post of **RESIDENT SURGICAL OFFICER** (male), one of three Residents, will be vacant on March 1st, 1938. Salary at the rate of £250 per annum, with board, residence and laundry. The appointment is for six months. Candidates must be registered, and must have held resident appointments at a general hospital. The Institution (145 beds at present, but to be increased) is primarily for paying patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment.

Applicants, stating full particulars, to be sent on or before 24th inst., to the Honorary Secretaries, from whom further information may be obtained.

ROYAL EYE & EAR HOSPITAL, BRADFORD
(94 Beds.)

HOUSE SURGEON (beds) required. Salary £150, with board, residence and laundry. Applicants, stating qualifications, age, etc., with copies of recent testimonials, should be sent to the undersigned on or before January 12th.

F. BRIGGS,

Secretary-Superintendent.

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condition and marking essential.—Price and
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Dundee.

IMPORTANT NOTICE to MEMBERS of the MEDICAL PROFESSION

CLOTHES OF DISTINCTION for GENTLEMEN
of DISCRIMINATING TASTE. Specially Cut,
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Best Possible Style, cost no more than mass
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Lined best quality Art Satin, Art Silk or Alpaca.
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F. P. CARROLL,
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HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF HOUSE SURGEON.

Applications are invited from unmarried medical men for the resident appointment of House Surgeon for six months vacant on February 1st next. Salary £100 per annum. Applications, to be made on the prescribed form, together with copies of not more than three testimonials, should be returned to the Secretary by January 18th next.

KING'S COLLEGE HOSPITAL.

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN.

Applications, with copies of three testimonials, should be sent before January 22nd, 1938, to the House Governor, King's College Hospital, Denmark Hill, S.E.5, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

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Applications are invited for the post of MEDICAL FIRST ASSISTANT and REGISTRAR. The appointment is for one year, but is renewable annually on application for two further periods of one year. Salary £300 per annum, payable by the Hospital and Medical College jointly.

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ARTHUR G. ELLIOTT,
House Governor.

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There is a vacancy for the post of FIRST ASSISTANT to the Department of Thoracic Surgery. Candidates must be Fellows of the Royal College of Surgeons (England).

The appointment is half-time and for one year. Salary £150 per annum.

Applications should be made to the House Governor, and should arrive not later than Saturday, February 12th.

ARTHUR G. ELLIOTT,
House Governor.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the post of HONORARY OPHTHALMIC SURGEON. Candidates should be Fellows of the Royal College of Surgeons of England, or Masters in Surgery of the University of London. Thirty copies of application, giving full particulars, with copies of three recent testimonials, should be sent to the Secretary by Thursday, January 20th, 1938. Candidates will be required to attend the meeting of the Medical Committee held on Tuesday, January 25th, at 9 p.m.

POPLAR HOSPITAL FOR ACCIDENTS East India Dock Road, Poplar, E.14.

The Committee invite applications for the appointment of SECOND RESIDENT OFFICER (male) at a salary at the rate of £175 per annum, all found. Candidates must have held appointments as House Surgeon at a Hospital.

Applications must be accompanied by a statement of the candidate's qualifications and forwarded to the Secretary, with three recent testimonials, not later than Tuesday, January 18th, 1938. The appointment is for a period of six months.

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27 MIDLANDS.—Easily worked PRACTICE in very attractive village about 70 miles from London. Cash receipts, 1937 (to November 25th), £696. Panel 500. Detached modern house (4 bed and dressing-rooms), gas, electricity and main drainage, garden over an acre. Price freehold, £1,600. Premium one and three-quarter years' purchase to include stock of drugs.

28 AUSTRALIA.—PRACTICE in small township in Victoria. Receipts last year, £880. Specially built house to rent at £80 p.a. Good climate. All kinds of sport. Premium £509 English currency, including drugs and dispensary fittings.

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31 LONDON, E.—Middle-class PRACTICE over £2,400 p.a., in outlying district. Panel 2,870. House (4 bedrooms), in excellent repair, with garage and garden, for sale. Premium two and a-quarter years' purchase.

32 S. COAST.—PARTNERSHIP in Ophthalmic Practice, about £1,700 p.a. One-half share would be sold to suitable man (who must possess the D.O.M.S.) at two years' purchase. Good scope.

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39 SEASIDE TOWN, under an hour from London. —PARTNERSHIP (one-half share) in chiefly middle-class Practice, over £4,000 p.a. Panel 650. Corner house (5 bed and dressing-rooms), on main road, for sale. Scope for increase. Premium two years' purchase.

40 E. MIDLANDS.—Country PRACTICE, averaging nearly £650 p.a., in pleasant village. Panel 500. Charming stone-built house (6 bedrooms), central heating, electric light, power and main water, garage, and garden, about one and a-half acres, for sale. Scope. Premium two years' purchase.

41 LONDON, S.W.—Well-established Medical Woman's PRACTICE in outlying suburban district. Receipts average £960 p.a. No panel. Purchaser could have use of surgery premises, living accommodation and services by arrangement. Premium one and three-quarter years' purchase.

42 EASTERN COUNTIES.—PARTNERSHIP in good middle-class Practice, £2,450 p.a., in county town. Panel 1,200. Good house (5 bedrooms), in perfect condition, to rent. Premium one-half share two years' purchase.

43 N.E. COAST.—PARTNERSHIP in Practice, between £2,000/£2,200 p.a., in fashionable watering place. Panel 1,700. Applicant should be English or Scottish, aged about 30, and experienced in general practice and surgery. Two-fifths share at two years' purchase after about ten months' Assistantship.

44 N. WALES BORDER.—PARTNERSHIP (with early succession) in old-established County Practice, about £2,500 p.a., in important town. No panel. Surgery premises could be purchased or rented. The private residence is available if required. A share up to one-half would be sold at first with early succession. Premium two years' purchase.

45 S.W. OF ENGLAND.—PARTNERSHIP in steadily increasing Practice, averaging over £1,800, in beautiful country district near coast. Panel 1,050. Nice house (7/8 bedrooms), garage and garden. Rent £120 inclusive. Good sport. Premium one-half share two years' purchase.

46 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICE, run by two men in partnership. Receipts about £1,300 and £700 respectively. Premium two years' and one and a-half years' purchase respectively. Or either would be sold separately.

47 ISLE OF WIGHT.—Well-established PRACTICE about £1,200 in seaside resort. Panel over 725. Good corner house (5 bedrooms) with central heating, garage and small garden for sale or rent. Good scope. Premium £2,000.

48 WEST INDIES TOURIST RESORT.—PARTNERSHIP in steadily increasing Practice doing £2,500 a year. Partner must be experienced in surgery and possess M.C.O.G. Share of £1,000 at first at two years' purchase.

Telephone:
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B. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,300.

C. NORTHUMBERLAND.—County Town. —Middle working-class non-dispensing PRACTICE, averaging £700 per annum. Panel 640. Suitable house, garden and garage. Low premium will be accepted for practice for early purchase. Lease of house will be arranged.

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Full Particulars sent free.

- 1 **DEATH VACANCY.—SOMERSET.**—Old-established PRACTICE in village situate at foot of the Mendips. Cash receipts, 1937, £345, including £30 from clubs, etc., and panel of 318. Newly built detached house in acre of ground, with 4 bedrooms, etc. Large garage. Central heating. Electricity. Rent £75 p.a.
- 2 **S. MIDLANDS.**—Country town PRACTICE of over £1,100 p.a. Small club and panel, 775. Visits 4/- to 10/6, medicine extra. House with main water, gas and electricity, 4 bedrooms, garage and garden. £40 p.a. on lease. Premium one and three-quarter years' purchase.
- 3 **EASTERN COUNTIES.**—Very old-established PRACTICE, averaging £2,600/£2,700 p.a., in market town in agricultural district. Panel over 2,350. Large well-built modern residence with garage and good garden, to let. Premium two and a-quarter years' purchase.
- 4 **DEATH VACANCY.—LEYTONSTONE.**—Old-established mostly working-class PRACTICE, doing about £600, in populous district. No panel, but ample scope in this direction. Nine-roomed house for sale.
- 5 **BRITISH WEST INDIES.**—Increasing PRACTICE in first-rate town. Receipts last year, £1,750. Good house with ample accommodation, garage and good garden, for sale or rent. Ideal climate. Good society and sport. Scope for surgery or V.D. Premium £1,500, to include drugs, etc.
- 6 **LONDON, S.W.**—Medical Woman's PRACTICE in outlying suburban district. Receipts past year, £200. Capable of increase by one residing on premises. Panel 110. Rent of consulting and waiting rooms, £30 p.a.
- 7 **DEATH VACANCY.—WEST OF ENGLAND.**—Old-established PRACTICE in delightful market town. Receipts last two years average £2,520. Good panel. Excellent house, half-acre garden, including tennis lawn, for sale.
- 8 **YORKS (N. RIDING).**—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.
- 9 **E. MIDLANDS.**—Non-dispensing PRACTICE, averaging £1,550 p.a., in good town. Small panel. Visits 6/- to 10/6. Convenient house with garage and small garden, to rent. Premium one and a-half years' purchase.
- 10 **S. WALES.**—Old-established PRACTICE, £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Prem. one and a-half years' purchase.
- 11 **S.E. LONDON.**—Old-established middle and working-class non-panel PRACTICE, averaging £1,730 p.a., including appointments worth about £100. Good house (5 bedrooms), garage and fair-sized garden, to rent. Scope. Premium one and a-half years' purchase.
- 12 **INDUSTRIAL TOWN in the WEST OF ENGLAND.**—Old-established and steadily increasing PRACTICE, averaging over £1,800 p.a. Panel about 560. House to rent. Premium £1,600.
- 13 **LONDON, S.E.**—Medical Woman's PRACTICE doing about £300 p.a., in suburban district. No panel. Plenty of scope. Semi-detached corner house. Price £750 or might

- be let. Could be increased by one giving more time to practice. Premium one and a-half years' purchase.
- 14 **S.W. OF ENGLAND.**—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.). Large house (3 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting, golf, etc. Premium one and three-quarter years' purchase.
- 15 **W. OF ENGLAND.**—Old-established middle-class PRACTICE, about £1,400 p.a., in good town. Selected panel about 300. Visits 5/- to £1 1s., medicine extra. Very convenient and well-situated detached non-basement house (7 bedrooms), with nice garden and large garage, to rent. Premium one and a-half years' purchase.
- 16 **WESTERN AUSTRALIA.**—Non-dispensing PRACTICE in chiefly dairy farming district. Receipts average £1,815 p.a. House containing 6 main rooms, etc., and about four acres of grounds. Price £1,000 cash, or rent £100 p.a. Excellent climate. District rapidly progressing. Local hospital. Premium £1,250.
- 17 **S. OF ENGLAND, Important Town.**—PRACTICE averaging £1,000 p.a., exclusively physio-therapy. Fees 10/6 to £1 1s. Scope for X-ray work. Prospect of appointment on hospital staff. Premium to include certain equipment, £1,250.
- 18 **EASTERN COUNTIES.**—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 2½ acres) with 7 bedrooms, etc. garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.
- 19 **LANCS.**—Well-established non-panel PRACTICE, averaging over £4,000 p.a., in manufacturing town. House with 5 bedrooms and surgery premises with separate entrance, large garage and good garden, for sale. Price £2,500 freehold. Premium £6,000 or near offer.
- 20 **S. COAST.**—PARTNERSHIP in mixed PRACTICE, averaging £2,800 p.a., in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one-half share two years' purchase.
- 21 **W. OF ENGLAND Inland Watering Place.**—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.
- 22 **LONDON, E.1.**—Old-established PRACTICE of about £800 p.a., including appointments about £150 p.a. and panel 1,300. Good house (6 bedrooms, etc.), to rent or purchase. Very good scope for increase. Premium £1,500, to include contents of surgery and waiting room, etc.
- 23 **NORTHERN IRELAND.**—Middle and working-class PRACTICE in suburb of important seaport. Receipts past year, £963. Panel nearly 1,200. Well-situated house (5 bedrooms), garage, etc., to rent. Practice capable of expansion. Premium £1,400.
- 24 **HOME COUNTY.**—PARTNERSHIP in country town PRACTICE, averaging over £4,000 p.a. (increasing), within 25 miles of London. Good appointments and panel about 2,000. Suitable house obtainable. Incoming partner should be aged about 30, must possess F.R.C.S. and have had one year's P.G. work. Good hospital. One-fourth share at £100 at two years' purchase.

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Chairman and Managing Director, Dr. J. FIELD HALL.

The maximum commission payable on the sale of any Practice or Partnership in Great Britain placed exclusively in the hands of this Agency is £50 (fifty pounds), which sum covers goodwill, drugs, surgery fittings, fixtures and furniture, instruments and book debts, but not house property. Schedule of Terms will be forwarded on application.

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No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. **SOUTH COAST SEAPORT**.—Old-established mixed-class PRACTICE producing for past 12 months over £3,000. Panel of about 1,600. Various appointments. Well situated good modern house with 3 reception and 5 bedrooms. Central surgery rented at £50 p.a., part sub-let. Premium 2 years' purchase. Up-to-date hospital and vendor on staff.
2. **DORSET COAST—PARTNERSHIP**.—A ONE-THIRD SHARE with increase later in a well-established Practice averaging about £3,000 p.a. Panel of over 2,700 and P.M.S. about 1,000. Various appointments producing £250-300 p.a. Low expenses. Suitable house with 5 bedrooms, etc., can be purchased or rented. Premium 2 years' purchase.
3. **RIVERSIDE TOWN**.—PRACTICE has been established about 60 years. Receipts approximately £1,500 including 450 panel patients. House contains 2 reception and 5 bedrooms, etc. Leasehold for sale or might be rented. Premium 2 years' purchase or near offer.
4. **SOUTH-COAST**.—Favor over £1,700 p.a., including approximately £300 p.a. ment. Low expenses. House containing 2 reception, 6 bedrooms, 2 bath-rooms, with garden and garage, obtainable at £1,500. Includes middle and working-class patients, with prospects of increase. Suitable accommodation available on rental. Any reasonable offer accepted for a quick sale, as vendor wishes to take up an appointment.
5. **LEICESTER—COUNTRY PRACTICE**.—Old-established for disposal as Vendor is retiring. Receipts approximate about £450 last year, including Panel of 280 patients. Expenses low. House on rental. Premium 1½ years' purchase.
7. **NORTH LONDON SUBURB**.—Recently established PRACTICE in fast developing area. Receipts last year about £720, including Panel of about 200 patients. Architect-built modern house with ample accommodation. Freehold for sale. Premium £850 or near offer.
8. **GLOS.**—Sound old-established PRACTICE in beautiful country district, averaging for the past four years about £1,300 p.a. Panel of over 1,100 and appointments worth about £50. Very nice house, in its own grounds, containing 2 reception, 5 bedrooms, etc. Freehold for sale. Premium 2 years' purchase.
9. **SOUTH-EASTERN SUBURB**.—Well-established PRACTICE producing for last twelve months over £1,650, including Panel of 1,050. Low expense. Convenient house with 2 sitting, 3 bedrooms, etc., garden and garage. Price £1,250. Premium £300.
10. **LONDON, EAST**.—Exceptionally sound old-established PRACTICE in populous area averaging for past 3 years over £2,240 p.a. Panel of approximately 3,500. Suitable house with excellent professional accommodation can be rented at £75 p.a.
11. **FAVOURITE RESIDENTIAL TOWN WITHIN 7 MILES OF LONDON**.—Old-established better-class non-panel PRACTICE producing for last 12 months over £1,000 p.a. certain amount of electrical work undertaken. Fees 5/- to 21/-. House can be rented at £180 p.a. Premium £6,000.
12. **OUTLYING NORTHERN SUBURB**.—Well-established PRACTICE producing about £1,000 p.a., including panel of 525 and P.M.S. £185 p.a. Suitable house available.
13. **LANCS.—SEASIDE RESIDENTIAL TOWN**.—Easily worked, mostly non-dispensing PRACTICE producing about £1,000 p.a., including panel of about 325. Low expenses. Suitable house available with consulting and waiting rooms, 2 reception, 3 bedrooms, maid's room, etc. Large garden. Garage. For sale or can be rented. Premium 1½ years' purchase. Good scope.
14. **LEEDS—PARTNERSHIP** with succession in 6 or 12 months. A 2/3rds share of old-established Practice which has been held by the vendor, who is now specialising, for the past 2 years. Receipts for last year amounted to £1,176, including £492 from a Panel of about 1,150 patients. Suitable house available, freehold £900. Premium 1½ years' purchase.
15. **LANCS.**—Old-established PRACTICE available owing to ill-health of vendor. Receipts for last year £662, including Panel of about 620 patients. Freehold house with 2 reception, 3 bedrooms and 2 apts. There is stated to be good scope for increase as the receipts were formerly £1,200 p.a. Price for Practice and house £2,100.
16. **WEST OF ENGLAND**.—Good-class residential town.—A ONE-THIRD SHARE with increase up to one-half is offered in a better middle-class Practice at present averaging £1,200 p.a. Appointments worth about £350. Panel of 300 patients. Fees 5/- to 21/-. Flat available in vendor's house for single man. Rent £40 p.a., inclusive of rates.
17. **NORTH WALES**.—Good-class long-established PRACTICE in very attractive residential and seaside resort. Cash receipts for last 16 years over £1,200 every year. Panel 425. Good house with 2 small gardens to rent or purchase, freehold. Socially very pleasant. Premium £1,800. Vendor going abroad.
18. **HERTS**.—Country town on outskirts of London.—Very old-established PRACTICE held by vendor for 30 years. Gross cash receipts about £1,000 p.a., including Panel of 600 patients. Nice house with 2 reception, 4 bedrooms, good garden on rental. Premium 2 years' purchase.
19. **LEV. ANGLIA**.—Within reach of two good towns. Old-established unopposed PRACTICE averaging over £1,000 p.a., including Panel producing over £450 p.a. Low expenses. Detached house with 2 sitting and 5 bedrooms, etc. Rent £70 p.a. Premium £1,750.
20. **NORTH CORNWALL**.—Country PRACTICE in picturesque district near coast and within easy reach of two good towns. Stated to produce nearly £1,000 p.a., including Panel of £320.
21. **HANTS**.—Recently established PRACTICE in pleasant locality. Earnings for the first year about £230, with Panel of 80 and increasing. Stated to offer considerable scope for development. Very nice small house can be rented. Moderate premium for quick sale, as vendor wishes to take up another appointment.
22. **WITHIN 25 MILES OF LONDON—PARTNERSHIP**, with surgical scope. A one-fourth share, with increase later, is for disposal in an old-established Practice, producing about £4,800 p.a. Fees 3/6 to 21/-. A suitable house can be secured. Incoming partner must have a Fellowship, be experienced and not over 35 years of age. A prelim. assistantship is offered.
23. **LONDON, SOUTH-EAST—STEADILY INCREASING OUTLYING DISTRICT**.—Recently established PRACTICE rapidly growing and producing for last 12 months £1,387. Selected Panel of 350. Suitable house with 2 reception, 3 bedrooms, etc., garden, garage. Can be rented on lease. Premium £2,000.
24. **COAST TOWN**.—Old-established PRACTICE held by vendor for 3½ years, who now wishes to specialise. Gross receipts for last year approximately £2,183, including panel of 770 and appointments producing about £100 p.a. Visits from 5/-. Good house available, containing 2 reception, 7 bedrooms, Professional accommodation, etc. Freehold £1,100. Premium 2 years' purchase or near offer.
25. **MONMOUTHSHIRE**.—Middle-class PRACTICE, established over 20 years, producing for last twelve months £1,430, including panel of 300. Fees 3/6 to 21/-. Good house with 2 reception, 6 bedrooms, etc. Separate Professional rooms, garden and garage. Rent £125 p.a. Premium 1½ years' purchase.
26. **WEST COAST**.—Well-established PRACTICE, producing about £1,500 p.a., including panel of 1,450. Suitable house on rental at £50 p.a. Premium 1½ years' purchase.
27. **EASTERN COUNTIES**.—Mixed-class PRACTICE in pleasant agricultural district producing for last twelve months over £1,300 p.a. Fees 3/6 to 21/-. Nice house in good position with 2 reception, 4 bedrooms, dressing room, etc. Separate professional accommodation. Modern conveniences. Garden, garage. Price, freehold £1,300. Sport of all kinds and schools within reach. Prem £1,685.
28. **CROYDON AREA**.—Recently established PRACTICE. Receipts for last 12 months over £650, including panel of 350. House with 3 bedrooms, etc., garden and garage can be rented at £85 p.a. Reasonable premium for quick sale, owing to ill-health.
29. **EASTERN COUNTY MARKET TOWN—HALF-SHARE PARTNERSHIP** in Practice established about 100 years, producing for last 12 months Gross cash receipts £1,200 p.a., including panel of 1,000 patients. Panel and P.A.C. are young and have had hospital experience. Premium 2 years' purchase.
30. **SURGICAL PARTNERSHIP** in delightful district within easy reach of London. A fifth partner is required in an old-established Practice. There is little sitting done under 10/6, although the patients come from all classes. Incoming partner, who must hold the English Fellowship, would do all the surgery for the firm, but must be prepared to do general practice as well. Choice of houses.
31. **CROYDON AREA**.—Rapidly increasing PRACTICE producing about £1,800 p.a. Panel of about 1,100. Fees 1/6 to 3/-, with visits from 2/6 to 5/-. Practically all cash. Vendor specialising in midwifery. Suitable house available on rental. Premium £3,200.
32. **SUSSEX COUNTRY**.—Good NUCLEUS with scope for further increase. Receipts: 1935, £467; 1936, £625; 1937 for 7 months, £452. Panel produces about £267 included in above. Good house on rental.
33. **NORTH LONDON**.—Middle and better-class PRACTICE suitable for medical man with qualified wife or for working with a lady assistant. Gross cash receipts for last 12 months £1,681. Panel of 320, appointments worth about £70 p.a. Visits 5/- to 7/6. Good house with reception, 5 bedrooms, etc. Professional rooms, small garden, garage. Freehold for sale or might be rented. Premium 2 years' purchase or near offer.
34. **PARTNERSHIP—LONDON, EAST—A HALF-SHARE** of middle and working-class Practice, producing for immediate past 12 months £4,567 p.a. Panel of over 5,000. Suitable house can be obtained.
35. **NORTH-EAST COAST**.—Old-established PRACTICE, producing about £900 p.a., but stated to be capable of considerable increase. Choice of suitable houses. Partnership introduction will be given. Vendor retiring.
36. **WEST MIDLANDS—PLEASANT RESIDENTIAL TOWN—PRACTICE** producing about £1,600 p.a., including a selected Panel of about 560 patients. Mostly better-class and non-dispensing. Consultations 3/6 to 10/6. Visits 5/- to 1 guinea. Freehold house for disposal, contains 3 reception, 3 large and 3 smaller bedrooms with separate servants' quarters. Excellent consulting rooms, garage, etc. Premium £1,500.
37. **DEVON, SOUTH COAST**.—A well-established good-class entirely private PRACTICE producing for the past 12 months about £1,000. Panel could be had if desired. Fees 2/6, 3/6, 5/- and 7/6, with a few visits up to 21/-. Non-dispensing. Suitable house containing consulting room, 2 reception rooms, 6 bedrooms, for sale. Freehold £1,400. Partnership introduction. Would be suitable for ex-L.M.S. or similar.
38. **LONDON, E.C.2—LOCKUP PRACTICE** established 80 years for disposal. Income about £800-£900 p.a. with Panel of about 1,150 patients. Fees 2/6 and 3/6. Visits from 3/6. Suitable accommodation available consisting of consulting room, dispensary, waiting room, the remainder being sub-let for £280 p.a. Rent and rates £230 p.a. Premium 2 years' purchase to include about £50 fittings, fixtures, drugs, etc.
39. **COAST PRACTICE**.—Lock-up, 6 hours 10-1 and 5.30-6.30, producing about £1,000 p.a., including £200 from Panel and appointments. Suitable accommodation available.

ASSISTANTS REQUIRED.—1.—WEST OF ENGLAND. Large town. Outdoor with view to partnership. £300 p.a. all round. 2.—SOUTH-WEST COAST. Indoor, £300 p.a., with car allowance. 3.—NORTH LONDON. Indoor or outdoor, £350 p.a. all found. 4.—SOUTH-EAST. Indoor, £350 p.a. all found. 5.—SOUTHAMPTON. Outdoor, £300 p.a. all found. 6.—SURREY. Outdoor, £450. House or rooms available. 9.—HERTS. Indoor, £300 p.a. View to partnership.

The Agency has made arrangements for special facilities, on very favourable terms, to be afforded to approved purchasers for the advance of part of the premium for any suitable practice or partnership. Full details on application.

BRITISH MEDICAL BUREAU

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WESTMORLAND.—Old-established PRACTICE in beautiful Country town. Cash receipts last year £1,169. Panel 293. Excellent house, 2 reception, 6 bedrooms, nice garden, and two garages. Separate professional quarters, electric light, gas, main water, etc. Premium—2 years' purchase. Vendor retiring.—No. 1040.

LINCOLNSHIRE.—PARTNERSHIP in good mixed Practice in pleasant town. Average cash receipts £2,450 p.a. Panel 1,200. Appointments £190 p.a. Scope. Nice house in good condition, 2 reception, 5 bedrooms, garden. Rent £68 p.a. Premium—half-share—2 years' purchase.—No. 1013.

MANCHESTER.—Well-established mixed Panel and Private PRACTICE, offering scope for increase. Cash receipts last year £1,222. Panel 800. Good house, 2 reception, 5 bedrooms, 2 Professional rooms. Premium—1½ years' purchase.—No. 1009.

LANCS TOWN.—PARTNERSHIP in middle and working-class Practice in clean town, close to country. Cash receipts last year £2,481. Panel 2,115. Nice detached house, 2 reception, 4 bedrooms, garage and garden. Premium—one-half share—2 years' purchase, or near offer.—No. 1015.

SHEFFIELD.—Well-established mixed Panel and Private PRACTICE. Average cash receipts about £1,100 p.a. Panel 1,323. Good house, 2 reception, 6 bedrooms and nice garden. To rent or purchase. Premium—best offer.—No. 1051.

LANCS SEMI-COUNTRY DISTRICT.—DEATH VACANCY.—Average cash receipts £1,258 p.a. Panel approximately 1,200. Surgery premises and suitable residence with ample accommodation, garage and large garden. Premium—1½ years' purchase.—No. 1052.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a. Panel 970 and transferable appointments £200 p.a. Scope. Nice detached house, 2 reception, 6/7 bedrooms, garage and large garden. Freehold. Premium—1½ years' purchase.—No. 991.

LANCS TOWN.—PARTNERSHIP in mixed Panel and Private PRACTICE, to replace senior partner on equal share basis. Average cash receipts £5,680 p.a. Panel 2,900. Good house available, 2 reception, 4 bedrooms, etc. Rent £56 p.a. Must be experienced and of good personality. Premium—one-third share (approximately £1,890 p.a.)—2 years' purchase (to include share of drugs, book debts, etc.).—No. 1050.

NORTH WALES.—Good-class long-established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with two small gardens, to rent or purchase, freehold. Socially very pleasant. Premium—£1,800.—Vendor retiring.—No. 929.

LEEDS.—Well-established mixed Panel and Private PRACTICE. Cash receipts £900 p.a. Panel 1,000. Good house, with ample accommodation, and garage, for sale, or rent on lease. Premium—1½ years' purchase.—No. 1039.

NORTH WALES.—Old-established PRACTICE near Sea and Country, capable of great increase. Cash receipts last year, £1,026. Panel 800. Nice surgery premises. Premium, best offer.—No. 905.

YORKS COAST.—Well-established mixed Panel and Private PRACTICE in Seaside town. Cash receipts last year £884. Panel 755. Scope, as district developing. Excellent house, with modern conveniences, 2 reception, 4 bedrooms, 2 Professional rooms, garage and small garden. Rent on lease. Premium—1½ years' purchase.—No. 1054.

LEICESTERSHIRE.—PARTNERSHIP (after Preliminary Assistantship). Suitable for F.R.C.S. Local Hospital. Cash receipts £5,000 p.a. Panel 4,000, and good appointments. House available, with garden. Premium—one-fifth share (with increase later)—2 years' purchase.—No. A1.

LANCS TOWN.—Old-established mixed-class PRACTICE in large town. Cash receipts approximately £1,200 p.a. Panel 745. Scope. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and garden. Premium—£1,350.—No. 1010.

SCOTTISH BORDER.—Well-established PRACTICE in pleasant country and seaside town. Cash receipts £700 p.a. Panel 640. Good house, nine rooms, nice garden, etc. Premium—1½ years' purchase.—No. 1041.

NORTH-EAST COAST.—Easily worked middle-class PRACTICE; in present hands 35 years. Cash receipts £1,159 p.a. No Panel. Great scope as district developing. Rent of Surgery premises £26 p.a. Premium—£1,000 (to include Surgery fittings, etc., and small X-ray plant).—No. 1028.

LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE: in present hands 35 years. Cash receipts last year £916. Panel 1,223. Scope.

Excellent detached house, 2 reception, 5 bedrooms, garage and small garden. For sale, or would rent on lease. Premium—1½ years' purchase. Vendor retiring.—No. 1004.

YORKSHIRE (W.R.).—PARTNERSHIP in good mixed Practice in pleasant town. Visits 3s. 6d. per hour. Cash receipts last year £1,225. Panel 760. Scope. Nice detached house, 5 bedrooms, 3 reception rooms, garage and large garden. Premium—best offer.—No. 968.

MANCHESTER.—Well-established middle-class PRACTICE in pleasant suburb. Cash receipts last year £1,225. Panel 760. Scope. Nice detached house, 5 bedrooms, 3 reception rooms, garage and large garden. Premium—best offer.—No. 968.

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SATURDAY JANUARY 15 1938

PRINCIPAL CONTENTS

Lower Abdominal Pains of Cervical Origin p. 105	Leading Articles p. 126
Cultural Methods in Diagnosis of Tuberculosis 111	Correspondence 141
Intrapleural Sulphanilamide for Empyema 115	Surgery in General Practice: Treatment of Wounds.. .. 132
Simultaneous Carcinomas of Stomach and Sigmoid Colon .. 118	Reviews 122
Epidemic Dropsy 119	Reports of Societies 139
Schick Relapse after Diphtheria 120	Weekly Table of Infectious Diseases 154
	Croydon Epidemic Inquiry .. 135

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JANUARY 15 1938

TABLE OF CONTENTS

ADDRESSES AND PAPERS

Lower Abdominal Pains of Cervical Origin. JAMES YOUNG, M.D., F.R.C.S. (Illustrated).....	105
Cultural Methods in Bacteriological Diagnosis of Tuberculosis. C. A. GREEN, M.B., D.P.H.....	111
Treatment of Streptococcal Empyema with Intrapleural Sulphanilamide. W. F. NICHOLSON, F.R.C.S.....	115
Primary Carcinomas of the Stomach and Sigmoid Colon Occurring Simultaneously. RODNEY MAINGOT, F.R.C.S.....	118
A Note on Epidemic Dropsy. J. V. LANDOR, M.D., and C. D. WILLIAMS, D.M.....	119
Schick Relapse After Diphtheria. F. PYGOTT, M.B., D.P.H.....	120

SURGICAL SERIES

Treatment of Wounds—L. W. H. OGILVIE, F.R.C.S.....	132
--	-----

CLINICAL MEMORANDA

"Mixed Tumour" of the Lip: Report of Two Cases. K. T. LOKE, M.B., B.S.....	121
A Case of "Mixed Tumour" of the Upper Lip. Major F. M. COLLINS, M.B., F.R.C.S.....	121

REVIEWS

Appendicitis.....	122
Neurological Diagnosis.....	122
Textbook of Radiology.....	123
Mental Hospital Administration.....	123
Regional Anatomy in Brief.....	124
Bacteriological Diagnosis of Tuberculosis.....	124
Notes on Books.....	124

GENERAL ARTICLES AND NEWS

Croydon Typhoid Inquiry: Report continued.....	135
Education and Health.....	137
INTERNATIONAL ORGANIZATION AGAINST TRACHOMA.....	138
PREPARATIONS AND APPLIANCES.....	125
UNIVERSITIES AND COLLEGES.....	153
MEDICAL NEWS.....	155

MEDICO-LEGAL

A Doctor's Damages for Libel.....	151
-----------------------------------	-----

LEADING ARTICLES

Bacteriological Diagnosis of Tuberculosis.....	126
Modern Views on Pellagra.....	127

ANNOTATIONS

All the World a Laboratory.....	129
Prophylaxis of Measles.....	129
Scholarships and Grants.....	130
Effects of Temporary Coronary Occlusion.....	130
Lead Encephalitis in Children.....	130
The Journal of Neurology and Psychiatry.....	131
Compensation for Silicosis.....	131
The Half-yearly Indexes.....	131

SUPPLEMENT

The PEP Report on British Health Services

Insurance Acts Committee of the B.M.A.

OPHTHALMIC MEDICAL PRACTITIONERS: Proposals for Reorganization

INSURANCE MEDICAL SERVICE WEEK BY WEEK

CORRESPONDENCE

POSTGRADUATE NEWS

DIARY OF SOCIETIES AND LECTURES

MEETINGS OF BRANCHES AND DIVISIONS

Association Notices; Vacancies; Diary

LOCAL NEWS

SCOTLAND—	
Glasgow Royal Infirmary.....	140
Maternity Work in Glasgow.....	140
Finance of the Edinburgh Royal Infirmary.....	140
Edinburgh Dental School.....	140
ENGLAND AND WALES—	
Prevention of Blindness.....	141
St. Mary's Hospitals, Manchester.....	141

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS.....	154
EPIDEMIOLOGICAL NOTES.....	155

CORRESPONDENCE

Use and Abuse of Antiseptics. ALEXANDER FLEMING, F.R.C.S.; A. R. FRIEL, F.R.C.S.....	141
Prevention of Puerperal Fever. LEONARD COLEBROOK, M.B.....	142
Insulin for Local Sepsis. R. D. LAWRENCE, M.D.....	143
Names for New Drugs. J. M. HENDERSON, M.B.....	143
Bacillary Dysentery. H. M. STANLEY TURNER, M.D.; PEARSE WILLIAMS, M.D.....	143
Haematocolpos. V. B. GREEN-ARMYtage, M.D.....	144
Treatment of Psychoneuroses. T. A. ROSS, M.D.....	144
Early Diagnosis of Pulmonary Tuberculosis. H. S. BURNELL-JONES, D.P.H.....	145
Sulphonamide-P in <i>Brucella abortus</i> Infection. J. H. LLOYD, M.D.....	145
Treatment of the Common Cold. MICHAEL ELYAN, L.R.C.P.L.....	146
The Problem of the Final M.B. B.S.Lond. A. M. H. GRAY, M.D.; C. A. H. FRANKLYN, M.D.....	146
West London Hospital Medical School. MAURICE E. SHAW, M.D.....	147
Applying for Hospital Posts. VINCENT NORMAN, M.D.....	148
Pasteurization of Milk. NORMAN MACFADYEN, M.B.....	148
Correct Footwear. W. W. SHRUBSHALL, D.P.H.....	149
Work of the R.M.B.F. Sir THOMAS BARLOW, M.D.....	149

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE: Cardiac Complications in Major Abdominal Surgery.....	139
--	-----

OBITUARY

Robert Dundas Helm, M.D.....	149
Edward Magennis, M.D.....	150
T. K. Wheeler, M.D., M.Ch.....	150
Florence Robinson, M.B.....	150
J. Cowan Wilson, M.B. C.M.....	150
William Watson Griffin, F.R.C.S.....	151
A. Cowan Guthrie, M.B.....	151
Frederick Vaudrey Cant, L.R.C.P.....	151

THE SERVICES

Deaths in the Services.....	152
-----------------------------	-----

LETTERS AND ANSWERS

Frustrum.....	156
Herpes and Varicella.....	156
Income Tax.....	156
Hire and Supply of Gas Apparatus.....	156
The Bicentenary of Parmentier.....	156
Vaccines and Sera.....	156

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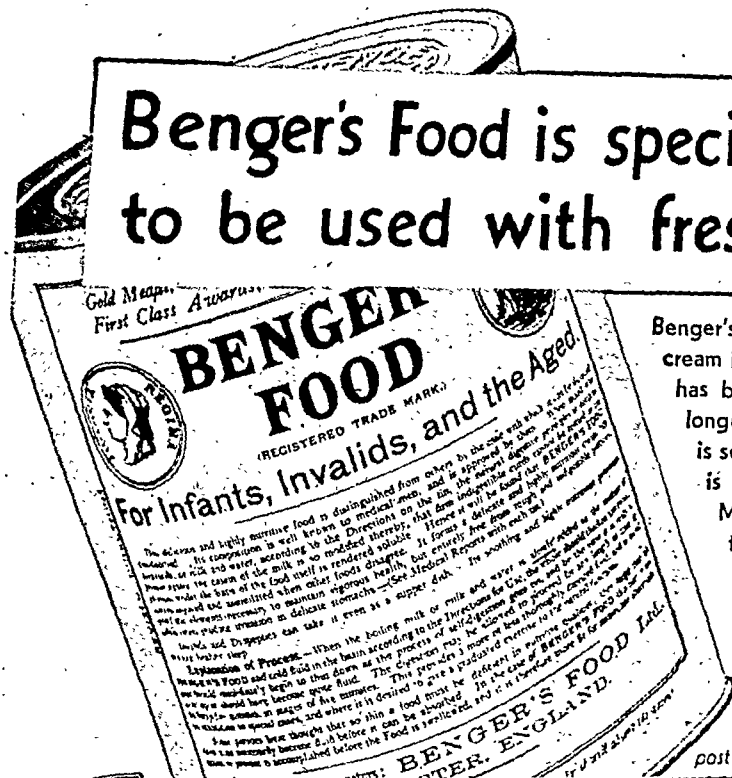
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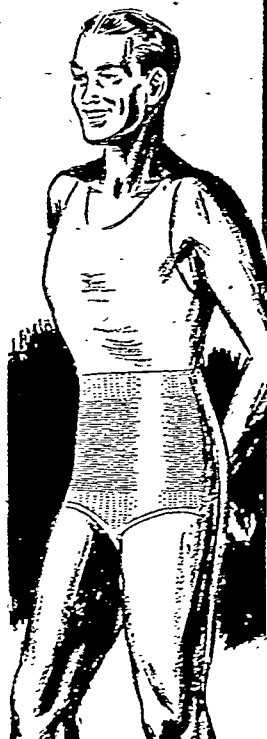
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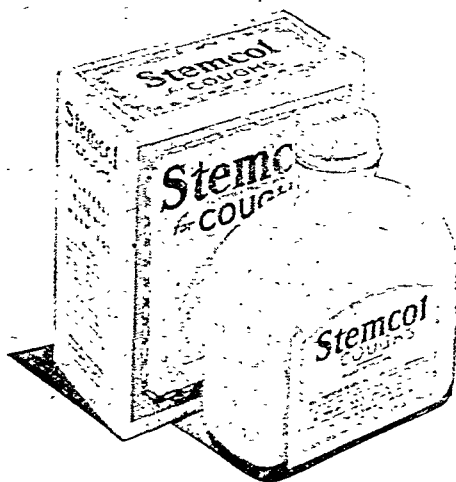
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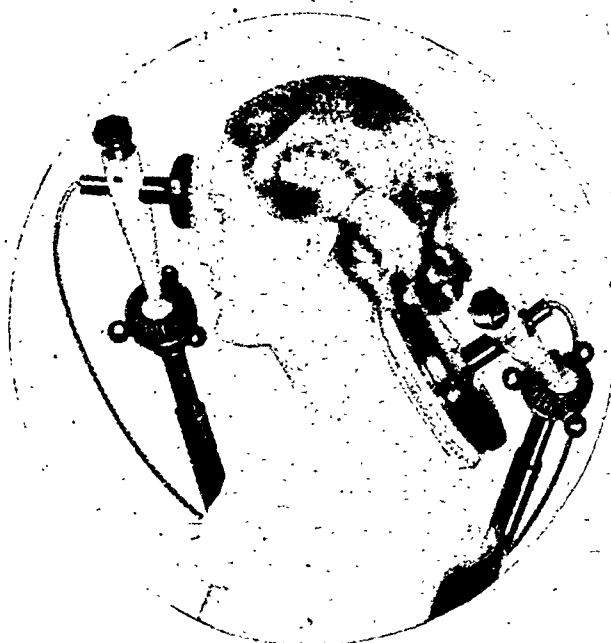
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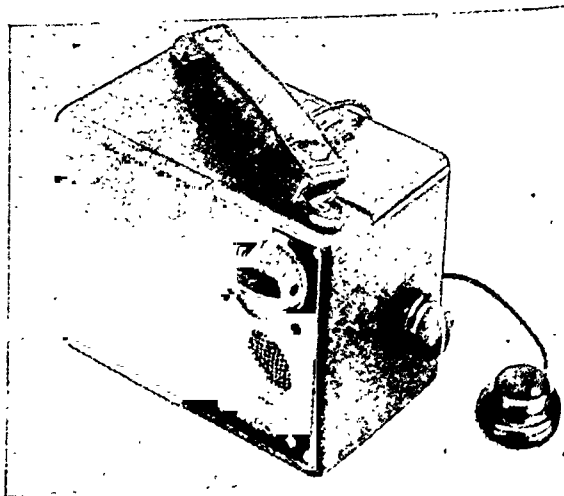
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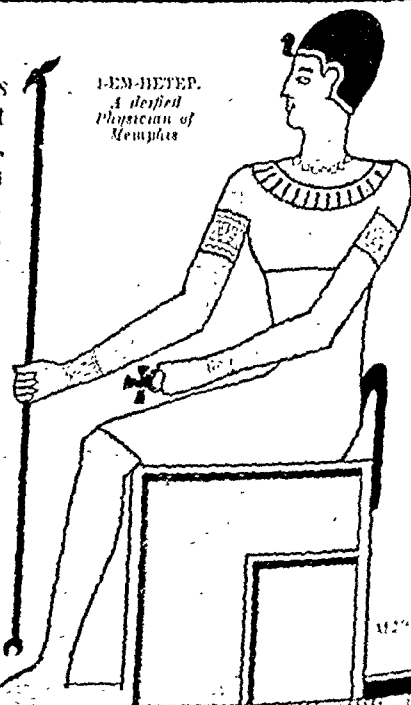
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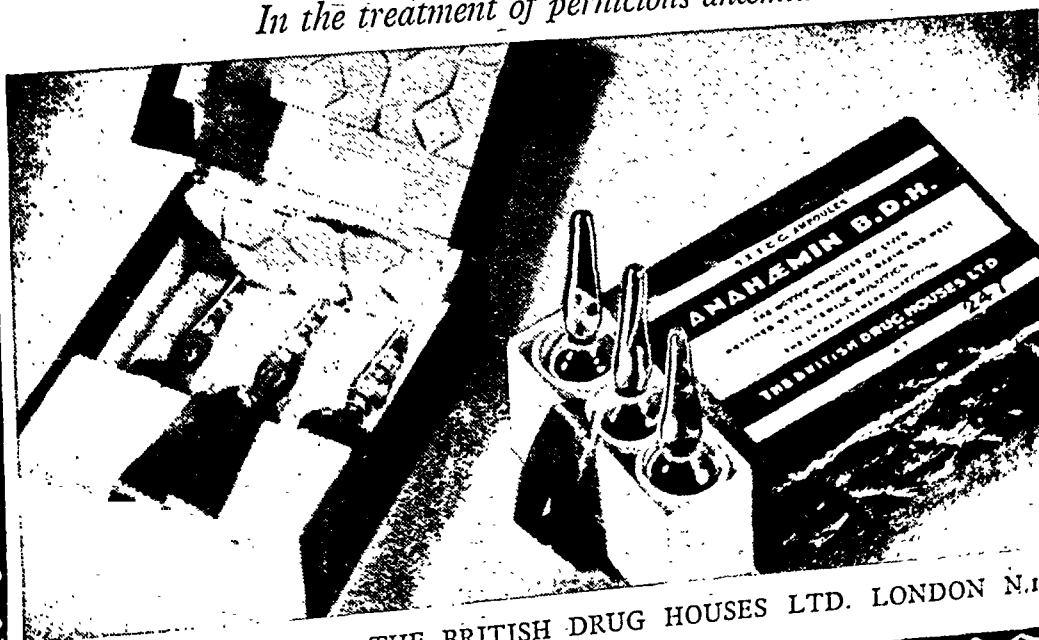
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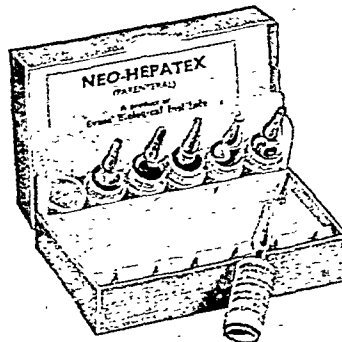
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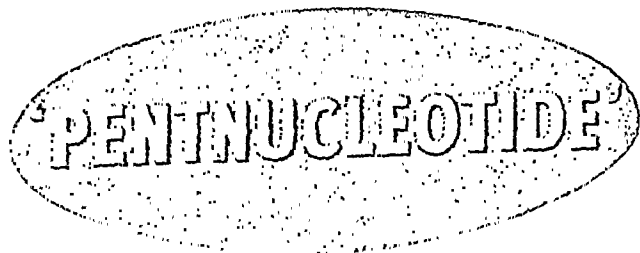
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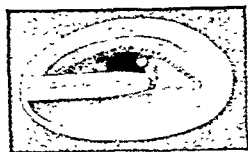
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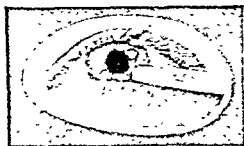
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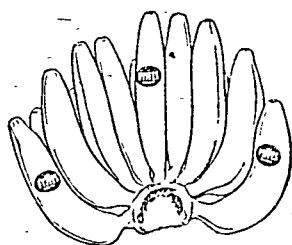
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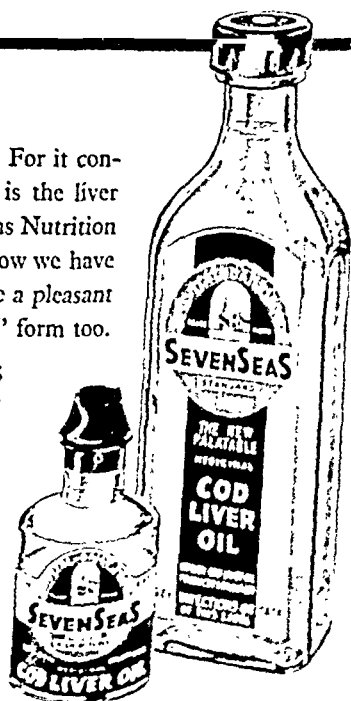
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LOWER ABDOMINAL PAINS OF CERVICAL ORIGIN THEIR GENESIS AND TREATMENT*

BY

JAMES YOUNG, D.S.O., M.D., F.R.C.S., F.C.O.G.

Professor of Obstetrics and Gynaecology, University of London; Director of Department of Obstetrics and Gynaecology, British Postgraduate Medical School, Hammersmith Hospital, London; Consulting Obstetrician, Edinburgh Royal Maternity and Simpson Memorial Hospital; Consulting Gynaecologist, Royal Infirmary, Edinburgh

The Cervical Syndrome

The cervix in its short length of one inch is unique in that, while it is freely exposed below to external injury and infection, above it is in immediate relation to the abdominal cavity and its sensitive peritoneal lining. Further, it is significant that the cervix is the sole region in the body in which a relatively simple damage is prone to persist as a permanent sore. The general pathological features of this common lesion are well known and need not be discussed here.

Alike in its frequency and in the suffering with which it is associated, the cervical syndrome constitutes one of the most important entities in gynaecology. In its typical form it possesses certain characteristic features which I first described in 1930 (Young, 1930) and which may be stated shortly as follows:

Characteristic Features

1. It is predominantly a condition found in parous women, and in a large majority it can be traced historically to the last birth or abortion. In a more or less consecutive series of 349 such patients admitted to hospital under my care, 304, or 87 per cent., were parous, and the puerperal correlation was evident in nearly 90 per cent. of these.

2. The main symptom is chronic distress and pain situated in the lower abdomen and, less commonly, in the lumbosacral area of the back. Dyspareunia is almost invariably present: the condition is the most important cause of dyspareunia in parous women.

3. Leucorrhoea coinciding chronologically with the pain, or not infrequently preceding it, is a common feature.

4. There is an absence of gross pelvic pathology, and this, combined with the marked local and general symptomatology, is a common cause of confusion in diagnosis and of error in treatment. The lesion underlying the syndrome is generally caused by the trauma of labour, on which a chronic inflammation of the cervix is implanted. The existence of a similar lesion without pre-existing trauma explains the relatively rare cases found in nulliparae.

5. While chronic ill-health is a common end-result, the abdominal distress may often extend over a long period without producing any corresponding deterioration in the general state of the patient. At the same time, from an early

stage there may be profound systemic disturbance in the shape of general weakness, dyspepsia, marked nervous reactions, "rheumatism," etc., while local functional disorders may also develop early—for example, irritability of the bladder and lower bowel.

6. In a large proportion of cases treatment of a simple nature directed to the underlying lesion is strikingly successful.

The history in many instances is characteristic. Beginning with some such expression as "ever since the birth of my baby," it tells of years drawn out with an agony both of spirit and of body. As it unfolds one can recognize the young, healthy, and buoyant bride becoming gradually transformed into the ailing matron, plaintive, peevish, sleepless, and dyspeptic, who, as in Jane Austen's Mary Musgrove, has formed a theme for easy sarcasm throughout the ages. The branks and the ducking-stool were the treatment meted out to such "scolding wives" in former days. We have tempered the harshness of those more inhumane times, but it is doubtful if we have in any great measure relieved the misery of this large population in our midst. The present inquiry had its origin many years ago in the gradual recognition, among the chronic sufferers in a busy gynaecological clinic, of a large group with an essentially similar complex, for whom, in the absence of any clear underlying pathology, no adequate treatment was possible. Many, indeed, belonged to a considerable and a peculiarly distressing class in that they had suffered frequent and varied operative treatment, both minor and major, without benefit. The scarred abdomen often witnessed to multiple operations during which in succession, it might be, the appendix and the ovaries had been removed, the womb had been fixed, and, finally, in a last desperate effort, the pelvis had been swept clean. Some of us have seen many examples of such shattered lives. It is not surprising that in a large number the mental state should have given rise to anxiety for which, as revealed in the history, the psychiatric specialist had been summoned. Recently I saw one such woman who for twenty-three years had suffered from more or less constant abdominal distress and whose organs had been removed at successive operations. The diseased cervix alone had escaped! Within a few days of treatment directed to this lesion the abdominal pain had gone, and six months later her life and health had been completely revolutionized.

* Based upon the Honorary Presidential Address to the Glasgow University Medico-Chirurgical Society, October 28, 1937, and the Annual Address to the Oxford Medical Society, November 12, 1937.

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restriction to one iliac fossa exhibit a preponderance on the left side in the proportion of about four to one.

Mesial Visceral Pain

Although this does not ordinarily constitute the main pain symptom, I will discuss it first because it would seem in its genesis to possess the features which are generally ascribed to a visceral pain. It is expressed in two clinical forms: (a) As a *spontaneous* discomfort or actual pain vaguely located to the retropubic area and lower mesial abdomen (Fig. 1). It is rarely present alone,

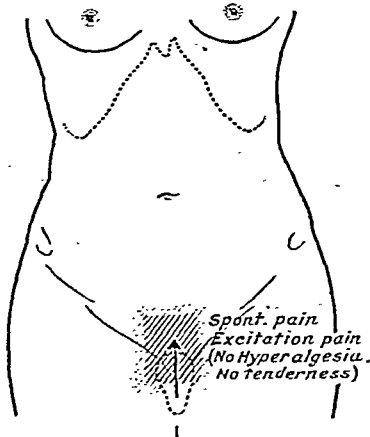


FIG. 1.—Mesial visceral pain. Typically this is low in situation and it is poorly localized. It is present as (a) spontaneous and (b) excitation pain.

and it is not associated with hyperalgesia, muscular rigidity, and local tenderness on pressure. Its main and almost invariable clinical manifestation is (b) as a pain felt immediately when the finger placed in the vagina exerts pressure against the cervix. Under these conditions the sensation may be acute, and in severe cases may cause the patient to cry out because of its intensity. Typically the patient has difficulty in locating it; she may state that it is felt deeply in the pelvis or she may place her hand somewhat vaguely over the pubes and lower abdomen. In the indefiniteness of its mesial localization it at once suggests the true visceral pain of other diseased states. To the pain excited by pressure on the cervix in this manner I have applied the term *visceral excitation pain*.

To appreciate the significance of this excitation pain we have to remember that in health the cervix may be moved in any direction through a considerable range without pain being elicited. The fact that in a typical case pain can be induced by even the slightest pressure endows it therefore with a considerable clinical significance. In passing it may be remarked that fixation of the cervix by contracture in traumatic or inflammatory tissue is a common finding in cases exhibiting this sign. Displacement of the organ is also not infrequent, either laterally or posteriorly, although, as I have elsewhere shown, this displacement may in some cases be due to muscle spasm, which disappears under anaesthesia and after treatment. Further, although a lesion of the kind which we have previously described constitutes the essential causal factor, in many instances, and so long as the inflammatory condition is limited to the lower vaginal cone of the cervix, both the spontaneous and the excitation pains may be absent. Moreover, it is notorious that even when the external and visible signs of infection have resolved after treatment the pains may persist, either

because of a remaining more deep-seated inflammatory change or because of the sensitiveness of the residual scars. The complex sometimes follows trauma that results in scarring without the supervision of any external evidence of infection. It is clinically important to observe that in cases exhibiting excitation pain *dyspareunia* is both a characteristic and a distressing symptom. The condition indeed is the most common cause of dyspareunia in the parous woman.

A further point of considerable importance to note is that the cervix itself in these cases often acquires a true inherent sensitiveness. In the healthy woman the cervix, like other hollow abdominal viscera, can be subjected to ordinary trauma without the creation of pain. It can, for example, be seized between the blades of a vulsellum forceps without suffering being caused. In the condition under discussion this insensitiveness is often abolished. The cervical lips are no longer immune to even such mild trauma, and in exceptional cases, indeed, I have found that the gentle pressure of a probe against the cervical surface may elicit a severe pain reaction. These pains all possess the vagueness of localization, characterizing the ordinary excitation pain.

Iliac Fossa*Referred Pain

This, the dominating symptom in a typical case, may be present in both sides of the lower abdomen. Characteristically, however, it is restricted to one side, more commonly the left. The pain distributed in this way exhibits itself: (a) as spontaneous pain, (b) as local tenderness, and (c) as well-localized excitation pain. The *spontaneous pain* may consist of an aching, ever present during the waking hours, or, more commonly, of a pain which comes and goes, being prone to aggravation before

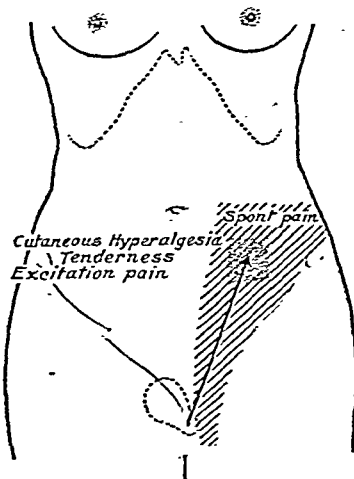


FIG. 2.—Referred pain. Typically this is situated in one or both sides of the lower abdomen. Where unilateral it is more often on the left side. It is present as (a) spontaneous pain, (b) cutaneous hyperalgesia and deep tenderness, and (c) excitation pain. Deviation of the cervix to side of pain is common.

menstruation and during exertion. It may be widely spread over the lower lateral quadrant or it may be more localized. It is associated with *local tenderness*, often over a smaller area, which is usually easy to delimit. In many instances it is restricted to a segment about two inches square lying below and external to the umbilicus. There is generally an associated hyperalgesia of the skin, but muscular rigidity is typically absent. A further observation almost invariably made is that where this referred

The Pain Element

In this place we are specially concerned with the pain element in the cervical syndrome; later pages will be devoted to a study of its genesis and treatment. The relatively scant attention which in the past has been given to the diseased cervix as a source of chronic abdomino-pelvic pain is due to three considerations: (1) the common clinical observation that cervical trauma and infection may be painless; (2) the well-known fact that, like other hollow viscera, the healthy cervix is insensitive to stimuli which provoke pain on surface tissues; (3) the frequent persistence of pain in women whose uterus has been completely removed for severe cervical infection. At first sight this triple argument would seem to have much force behind it. At the same time, as we shall attempt to show further on, each item is relevant only in so far as it fails to take into account all the available data. Thus in regard to (1) and (2) it is easy to demonstrate that in certain conditions the diseased cervix, so far from being insensitive, may acquire a most acute sensitiveness to stimuli which ordinarily are completely painless. In respect of (3) the conditions after removal of the cervix often resemble those found in a painful scar left after an operation in a sensitive area.

Visceral Pains

Before we pass on to consider the nature and the genesis of the pain phenomena of our syndrome a brief reference must be made to the present position of our knowledge on the causation of visceral pain in general. It is a common observation in abdominal symptomatology that the hollow intraperitoneal viscera, which are mesially situated in regard to their embryonic development, may in disease be concerned in the production of two completely different types of pain: (a) true visceral pain, and (b) referred or reflex pain. The viscera themselves are insensitive to the stimuli that ordinarily provoke pain on the body surfaces—for example, cutting, burning, etc.—but it is now generally agreed that pain is appreciated by a viscus when it is exposed to those intrinsic influences which are prone to disturb its function. Such visceral sensations have certain characteristic and well-defined features. In the first place, they are typically, if not always, *mesial in situation*—the epigastrium in the case of the stomach, above and around the umbilicus in the case of the small bowel and appendix, and below the umbilicus in the case of the large bowel; in the second place, such true visceral pains are usually only *imperfectly localized* by the patient; and, thirdly, they are *unassociated with hyperalgesia of the corresponding area and muscular rigidity of the corresponding part of the abdominal wall*. A common example of such mesial visceral pain in a lateral organ is the initial umbilical pain occurring in obstructive appendicitis. Referred or reflex pain is felt on the body surface at a site which in general is determined by the location of the organ, though it may be projected on to a distant area of the abdominal wall or other somatic surface. Such referred pains are typically *associated with hyperalgesia and muscular rigidity*, and they are therefore *well localized*.

It is now generally agreed that while true visceral pain is felt directly in the organ through the medium of the splanchnic nerves, its site is determined by the spinal segment corresponding to the primitive development of the organ. Referred or reflex pain, on the other hand, has been the topic of much controversy. Until recently the explanation generally accepted was that of Mackenzie (1920), who postulated that the stimuli originated in the

diseased viscus and were referred via the sympathetic nerves to the cord, where they created an "irritable focus." In this view a simple surface stimulus which is innocuous under healthy conditions is, by its passage through this irritable focus in the corresponding spinal segment, now appreciated as pain by the higher centres. This was Mackenzie's viscerosensory reflex, the muscular rigidity in the same surface area arising from a visceromotor reflex based on a similar segmental arc. The work of Morley (1931) and others has cast serious doubt on the validity of these conceptions, and there is now evidence that referred pain, with its associated hyperalgesia, muscular rigidity, and tenderness, is dependent not upon visceral impulses but upon impulses derived from a secondary irritation of the adjacent peritoneum—the so-called peritoneo-cutaneous and the peritoneo-muscular reflexes of Morley. Thus the site of the referred pain depends upon the site of the peritoneal irritation. The pain in the iliac fossa in a typical case of appendicitis, for example, is referred segmentally to the abdominal wall not from the appendix itself but from the inflamed parietal peritoneum. In support of this view Morley quotes the observation that the site of surface tenderness in gastric ulcer varies with the position of the stomach within the abdomen. A further common example pointing a similar lesson is found in ectopic pregnancy. The referred pain in this condition is localized to the iliac fossa when the extravasated blood is located in the pelvis and lower abdomen, but when, as often happens, the fluid blood flows upwards to the under surface of the diaphragm provokes the shoulder pain of phrenic stimulation.

The intrinsic mechanism underlying the actual sensation at the referred site has given rise to much speculation. That the skin and other structures of the abdominal wall are directly concerned is proved by the observations of Lemaire (1926) and Morley (1931), who abolished the spontaneous pain by means of a local anaesthetic applied to the corresponding skin area. Morley (1931) found that this procedure did not necessarily abolish deep tenderness. That the referred sensation is dependent not on an alteration in the "sensitiveness" of the higher nerve levels, such as Mackenzie and others have postulated, but on some local change induced at the nerve terminals in the skin, has been put forward by some writers. Verge (1927), for example, has suggested that the original stimulus in the abdomen induces reflex vasomotor changes in the corresponding segmental skin, while Spamer and Lunedei (1927) suggest that centrifugal impulses passing to the skin result in local biochemical changes. Recently Lewis (1937) has adduced striking evidence for the view that the spreading hyperalgesia round a focus of damaged skin is dependent upon stimuli which radiate along a specialized type of nerve—named by him the "nociceptive nerves"—to the distant areas and there induce biochemical changes. In this way the threshold for pain of the ordinary sensory nerves in the corresponding area is lowered. Lewis's work so far has concerned itself with the demonstration of the peripheral manifestations of this phenomenon.

The Lesion and its Pains

I have already indicated that the dominating symptom in the complex which is the subject of this discussion is abdominal pain. In some cases the area of pain and tenderness may be widespread over the abdomen, but in the large majority it is restricted to the lower abdomen. In a typical case the chief emphasis is found in the iliac fossae, and especially the left iliac fossa. Cases have

That the visceral and referred pains have such a separate and distinct anatomical basis is supported by two further observations: (i) one pain may exist without the other, and (ii) the procedures directed to nerve blockage may on occasion exert a differential selection in

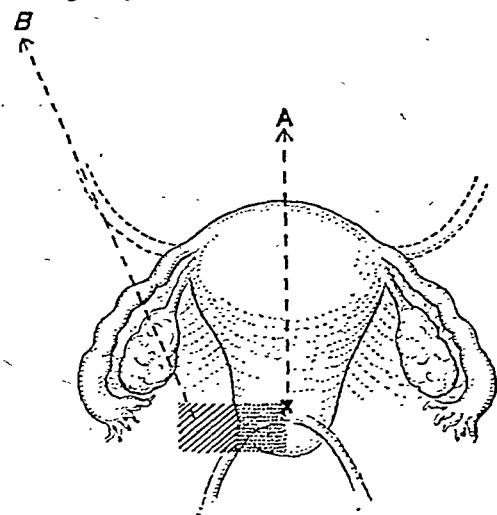


FIG. 3.—Speculative origin of (A) visceral and (B) referred pains.

respect of the two pain phenomena. Thus it sometimes happens that complete relief in one set of pain phenomena is obtained without the other being affected: infiltration of one side with procaine may abolish the referred pain in the corresponding iliac fossa and leave the visceral pain unaffected till similar blockage of the opposite side is carried out.

Low Back Pain

Pain in the lumbo-sacral area is commonly present in women who exhibit the abdominal pain syndrome. Where the symptoms show the puerperal correlation the backache may either date from the latter months of pregnancy or, more commonly, it may only appear after—sometimes some weeks or months after—childbirth. The factors responsible for the common backache of parous women are still obscure, and the wider issues of the subject are not germane to the present discussion. Suffice it to say that from a somewhat confusing symptomatology we can assemble with a degree of precision three more or less definite and distinct clinical conditions: (a) backache directly due to genital prolapse and major pelvic disease, which in each case responds to the appropriate treatment; (b) backache which is orthopaedic in origin and due to involvement of the sacro-iliac or lumbo-sacral joints (cases with a puerperal correlation are often immediately relieved by manipulation—forcible flexion and extension of the spine and rotation at the sacro-iliac joints); and (c) cases that are associated on the one hand with no evidence of joint pathology, and on the other with no pelvic disease except the lesion which has been discussed on the preceding pages. Here excitation pain, poorly localized and referred to the corresponding area in the back, is typically found, and dyspareunia is usually a prominent clinical feature. In such cases blockage of the pelvic nerves is generally successful.

Cases Illustrating the Effects of Nerve Blockage

In the following short clinical records the method which we have latterly introduced for the routine treat-

ment of our cases is made clearer than is possible in the text. The employment of procaine as a routine procedure enables one to determine the extent to which relief may be expected in any individual case by the placing of the procaine. It provides at the same time a valuable method of studying the nature and response of the various elements in the pain complex.

CASE I

A 3-para, aged 29, whose last pregnancy ended in miscarriage five years ago.

Complaint.—Leucorrhoea, five years; pain in the left iliac fossa, aggravated pre-menstrually, five years; dyspareunia, five years; frequency of micturition, diurnal and nocturnal.

Examination and Treatment.—October 26, 1937, 10 a.m.: There was no tenderness in the abdomen. The cervix was infected and was mobile; excitation pain was present in the low mesial abdomen, poorly localized. 10.17 a.m.: 10 c.cm. 1 per cent. procaine, left side. 10.20 a.m.: 10 c.cm. 1 per cent. procaine, right side. 10.27 a.m.: Excitation pain gone. 10.40 a.m.: 10 c.cm. proctocaine, both sides. 10.43 a.m.: cauterization of cervix and puncture of Nabothian follicles. November 1, 10.30 a.m.: Excitation pain gone; discharged from hospital. December 23: No spontaneous or excitation pain; dyspareunia, frequency, and leucorrhoea completely relieved.

CASE II

A 2-para, aged 55; last pregnancy eighteen years ago; menopause four years ago.

Complaint.—Leucorrhoea, thick and yellow, one year; pain in left iliac fossa, constant and marked, one year; pain in low back, three months; dysuria and urgency; severe constipation with marked dyspeptic symptoms, pain on movement of bowels; health depreciating, loss of weight, fainting attacks.

December 17, 1936: X-ray investigation to exclude bowel neoplasm—negative; no x-ray evidence of abnormality in spine or pelvic joints. December 24: Physician diagnosed "spastic constipation." January 2, 1937: Surgeon found no trouble in sacro-iliac or lumbo-sacral joints: "Redundancy in rectal mucosa three inches from anus. Area acutely tender. In view of the negative x-ray and laboratory findings I think this is part of an abdominal hypersensitiveness associated with her enteroptotic condition. Her caecum and ascending colon to-day are hyperresonant and the liver dullness is reduced."

Examination and Treatment.—January 10, 1937, 10 a.m.: Spontaneous pain, diffuse over lower abdomen, marked in left iliac fossa; tenderness and superficial hyperalgesia in iliac fossae—marked in left; excitation pain very marked in left iliac fossa. 10.15 a.m.: Endocervical polypus removed; 10 c.cm. 85 per cent. alcohol on each side. January 11: No spontaneous pain, no local tenderness, no excitation pain, no pain on movement of bowels; discharged from hospital.

January 20: As above; general condition very much improved. February 2 to 9: Readmitted because of swelling of left ankle: abdominal condition satisfactory. March 24: Pain in right and left iliac fossae; tenderness and excitation pain have recurred. June 2: Diffuse lower abdominal spontaneous pain, especially in left iliac fossa and extending downwards on inner aspect of left thigh; marked cutaneous hyperalgesia and tenderness in both iliac fossae, especially left; excitation pain in left iliac fossa. June 4: Cervix healthy; proctocaine, 10 c.cm. left side, 5 c.cm. right side. June 6: Spontaneous pain, tenderness, and excitation pain gone. September 15: Feels well; putting on weight; constipation still severe; slight pain in lower abdomen. October 6: Pains and aches, have recurred as bad as ever. October 16, 9 a.m.: Spontaneous pain diffuse lower abdomen; cutaneous hyperalgesia and tenderness in both iliac fossae, especially left; excitation pain in left iliac fossa. 9.15 a.m.: 10 c.cm. 1 per cent. procaine, left side. 9.25 a.m.: Tenderness and excitation pain unrelieved; 10 c.cm. 1 per cent. procaine, right side. 9.28 a.m.: Tenderness right side gone, tenderness left side unrelieved; excitation pain unrelieved. 9.35 a.m.: 6 c.cm.

segment of spontaneous pain and local tenderness exists pressure on the cervix at once excites pain in an acute and well-localized form in the same area. To this phenomenon I have applied the term *referred excitation pain* (Fig. 2). Excitation pain of this kind is more frequently encountered than the visceral type already described, and it constitutes the main manifestation of the dyspareunia complained of by the majority of such women.

Data Obtained from the Effects of Treatment

Local Treatment.—Before proceeding to a further discussion of this problem it is necessary to interpolate some data derived from the results of treatment directed to the cervical lesion. In a previous communication (Young, 1930) I reported a follow-up of sixty-seven cases over a period varying from two to twelve months subsequent to the routine treatment which we adopt in such cases—namely, dilatation of the cervix, radial incision of the infected area with the electric cautery, and deep puncture of the tissues, including evacuation of the gland cysts which are found in a large proportion of the cases. In thirty-three, or 49 per cent., there was complete relief of pain, whilst in twenty-one, or 31 per cent., there was partial relief. Including a further series of 116 cases we now have records of 183 cases unassociated with any other recognizable lesion, showing after this simple procedure a cure of pain in eighty-five, or 46.4 per cent., and cure or partial relief of varying degree in a total of about 80 per cent. In a number of the partial or complete failures a repeat operation effects entire clinical recovery.

Blockage of Pelvic Nerves.—Despite the good results of these measures, a considerable proportion obtain little or no relief, and in 1932 (Young, 1933) I introduced for this class of case a method aiming at blockage of Frankenhäuser's plexus by an injection into the base of the broad ligament along the side of the cervix of 5 to 10 c.cm. of 85 per cent. alcohol, after the procedure adopted successfully for the treatment of trigeminal neuralgia. In the preliminary communication published in 1933 I recorded eight cases so treated, with relief in seven. Since then I have employed this method in forty-eight cases, with complete immediate relief in forty-one—that is, with a percentage success over both series of 85.7. In my preliminary paper I noted—and this has been borne out in the larger series—that the relief so obtained often only lasts for two or three months, and that for these cases repetition of the procedure is necessary. Recently, however, Sutherland (1937) has employed procaine (benzyl alcohol 5 per cent., butyl-p-aminobenzoate 6 per cent., olive oil to 100 per cent.) as a substitute for alcohol, and claims complete relief maintained over the period studied (three to twenty months) in twenty-six out of fifty cases, or 52 per cent., and partial benefit and cure in 42, or 84 per cent. For the last six months this procedure has been adopted in my clinic, and although the period is too short to allow of a conclusive statement I have gathered the impression that the method is an improvement on that in which alcohol is used. In parenthesis I would here state that in order to give the patient reporting for the first time the maximum chance of relief it is now my custom to employ a regime in which the treatment directed to cervical drainage is combined with nerve blockage.

The relief conferred by the procedures just mentioned is not restricted to the alleviation of the pains which we have described as characterizing the majority of the cases.

Apart from the improvement in the general health and well-being of the patients, which is often rapid and striking, there is in an otherwise successful case usually an immediate relief in the *bladder irritability*, often a distressing element in the syndrome. In the majority of instances this is unassociated with any abnormal constituents in the urine or any evidence of organic lesion in the urinary tract. Within a relatively few hours after the cervical drainage and the nerve blockage the urinary symptoms (diurnal and nocturnal frequency and occasionally dysuria) clear up. It would seem legitimate to assume that these functional disturbances are dependent upon nerve irritation. In some instances there is, in addition, pain related to the bowel and associated with defaecation; in such cases excitation pain may be referred to the back passage. Relief in these respects is also usual.

From what has been said it will have become apparent that there is a small group comprising those who fail to respond to any of the therapeutic measures which we have so far been able to devise, and there is a considerable group of patients in whom the response is only temporary. These groups at the moment are the subject of special study. In some instances relief may be obtained by hysterectomy, although this is by no means certain: out of five such cases the pain persisted in two. Presacral neurectomy, as practised by Cotte (1928) for intractable pelvic pain, fails to give relief in this condition (Young, 1933). Of course in the recalcitrant case a possible error in diagnosis must not be overlooked; this aspect of the subject I shall consider on a subsequent page.

Anatomical Basis of the Visceral and Referred Pains

Visceral Pain.—The mesial and low situation of this pain (corresponding to the twelfth dorsal and first lumbar nerves), its poor localization, and its freedom from any accompanying local tenderness, taken in conjunction with the method in which it is evoked by excitation, all strongly suggest that it arises in the cervix or immediately adjacent tissues. While its actual genesis cannot be established with certainty, the readiness with which it responds to procedures directed to blockage of the nerves at the side of the cervix is in keeping with the view that the nerve stimuli pass upwards along Frankenhäuser's plexus (the inferior hypogastric plexus), the rich bundle of sympathetic fibres which on each side form the downward extension of the superior hypogastric plexus of so-called presacral nerve. These plexuses reach the cervix on each side after encircling the ampulla of the rectum.

Referred Pain.—The relatively high situation of this pain (corresponding in a typical case to the tenth, eleventh and twelfth dorsal segments), its more or less precise localization in the side of the abdomen, and its associated hyperalgesia and local tenderness, all by analogy strongly suggest that it is not directly visceral in origin and that it should be classed among the referred pains, while at other sites are peritoneal in their genesis. In the absence of reliable data it is impossible to ascribe to this an accurate pelvic source, but the circumstances, including their easy excitation by cervical pressure are in keeping with the view that they arise from irritation extending beyond the confines of the cervix to the adjacent peritoneum of the pouch of Douglas or broad ligament. In Fig. 3 I have, in diagram, represented the supposed source of the (A) visceral and (B) referred pains. According to such a conception we must assume that the nerve blockage succeeds because it includes the fibres of both irritable foci—cervical and peritoneal.

remove a large—I believe the largest—group, which is easily recognized by its well-defined clinical features. It may be claimed with justice to have effected a veritable clearance in a lumber-room of diagnostic confusion. Most of us can recall the days when the chronic abdominal pains which are the subject of this study were ascribed to conditions as unsatisfying to the conscientious clinician as they were ill founded in pathology—for example, varicocele of the pampiniform plexus, sclerotic ovaries, ovaritis, prolapse of the ovary, constipation, adhesions, neurasthenia, etc.

The absence of gross pelvic and abdominal pathology and the puerperal correlation usually suffice at once to distinguish the syndrome from the major causes of lower abdominal pain—neoplasm, endometrioma, diverticulosis, appendicitis, etc. In subacute and chronic salpingitis there may be confusion, especially where the history dates from childbirth or abortion, but the presence of a tender, fixed, often bilateral mass in the posterior pelvis generally establishes the diagnosis. In some few cases the syndrome may be simulated by endometrioma; but here the puerperal correlation is usually absent, and whereas the former is very common in young women endometrioma is more frequent in later years. In endometrioma, moreover, the characteristic tender and fixed mass in the pouch of Douglas is often found. At the same time in women over 30 with a menstrual exacerbation of the pain endometrioma should always be considered. A chronic pelvic appendicitis may sometimes closely simulate the condition, though here again the characteristic puerperal dating is generally absent. It should be remembered that in such conditions as salpingitis, endometrioma, and pelvic appendicitis, where a tender swelling is present low in the pelvis, vaginal excitation pains are usually easily elicited, and therefore they cannot of themselves be regarded as of great value in the relatively rare cases which are in doubt. A common source of clinical confusion is in regard to recurrent appendicitis, and it is notorious that a large number of women with right iliac fossa pain have had their appendix removed before coming to our clinic. It is of the utmost importance that the surgeon should be more familiar with this common source of iliac fossa pain and its diagnosis. The easy establishment of referred excitation pain in the right side and its immediate removal by nerve blockade are the main diagnostic aids.

Finally, it is important to remember that in a large number of gynaecological conditions a serious error in diagnosis may arise from a failure to recognize that iliac fossa pain may spring not from the more apparent pathology, such as retroflexion, genital prolapse, etc., but from the frequently coincident cervical lesion. The institution of treatment appropriate to this lesion may eliminate the indication for more major treatment; where major measures are required the associated syndrome should be dealt with at the same time.

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CULTURAL METHODS IN BACTERIOLOGICAL DIAGNOSIS OF TUBERCULOSIS

BY

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Using the Jensen (1932) modification of the medium introduced by Löwenstein (1930), Holmes (1934) drew attention to the value of cultivation in the diagnosis of tuberculosis. Of the many observations of similar nature may be mentioned those of Hohn (1926), Sweany and Evanoff (1928), Bezaçon and Buc (1931), Herrold (1931), Corper (1932), Danbolt (1935), Cummins and Duggan (1934), and Mishulow and others (1934). Shrewsbury and Barson (1937) noted successful results following the introduction of cultivation as part of the routine investigation of selected specimens of sputa. In order to determine the practical value of the method the same procedure has been adopted in this laboratory with all specimens in which an examination for *B. tuberculosis* was requested, and the results obtained over a period of two years are here recorded. Sputa from recognized or clinically suspicious cases of human tuberculosis comprised the bulk of the material examined, which also included specimens of urine, pleural fluid, milk, and cerebrospinal fluid. The previous routine examination was adhered to and the results compared with those secured by the additional aid of cultivation.

Methods

Routine Examination.—The examination of sputa consisted in the usual microscopical examination of films stained by the Ziehl-Neelsen method. The finding of acid-fast and alcohol-fast bacilli morphologically identical with *B. tuberculosis* was reported as a "positive" result, the absence of such forms being reported as "tubercle bacilli not found." The same procedure, preceded if necessary by centrifugation, was adopted with all other specimens save in the case of milk. Guinea-pig inoculation was carried out in specimens other than milk only if special request was made, but in examining milks the animal test was invariably utilized.

Cultural Methods.—If the specimen received was likely to be free of organisms other than tubercle bacilli—for example, cerebrospinal fluid withdrawn at lumbar puncture—the centrifuged deposit of such specimens was directly inoculated on culture media without further treatment. In the presence of contaminating organisms the material was first centrifuged if necessary. The deposit was then suspended in 2 c.cm. of the supernatant fluid, acidified for thirty minutes by the addition of an equal volume of 6 per cent. hydrochloric acid, and neutralized by the addition of 4 per cent. sodium hydroxide. The centrifuged deposit was then inoculated by means of a sterile Pasteur pipette on culture media. In a previous examination of a large number of cerebrospinal fluids and specimens of pus for tubercle bacilli the preliminary acid treatment had been successfully used, and the same procedure was therefore adapted to the examination of sputum instead of the usual alkali method.

The culture media most frequently used were the Löwenstein-Jensen medium and a modification of the same in which the glycerin content was omitted. All specimens were cultured on both media in screw-cap bottles. Considerable economy in incubator space and the easy handling of large numbers of bottle cultures were secured by the use of a rack consisting of a wooden

more of procaine, left side. 9.40 a.m.: All pain and tenderness gone; 8 c.cm. procaine each side. October 17, 10 a.m.: No pain, slight tenderness left iliac fossa. December 2: No spontaneous pain, tenderness, or excitation pain; dysuria and frequency completely relieved; general condition much improved.

CASE III

This patient, aged 22, had her first child one year ago; spontaneous birth.

Complaint.—Leucorrhoea, copious and offensive, one year; pain over sacral area of back, nine months; dyspareunia, nine months; tired, loss of energy—formerly well and vigorous.

Examination.—Nothing abnormal was seen in the abdomen, and there was no local tenderness in the back. The cervix was infected, fixed, and markedly retroposed; severe pain was felt "deep down towards the back" on moving the cervix; poor localization.

Treatment.—October 29, 1937, 11.15 a.m.: Severe excitation pain deep in pelvis—badly localized; caused patient to cry out. 11.18 a.m.: Pain on grasping cervix with vulsellum. 11.24 a.m.: 8 c.cm. 1 per cent. procaine, left side. 11.25 a.m.: 8 c.cm. 1 per cent. procaine, right side. 11.32 a.m.: Excitation pain gone. 11.35 a.m.: 10 c.cm. procaine, right side. 11.37 a.m.: 10 c.cm. procaine, left side. 11.40 a.m.: Cauterization of the infected cervix. November 1: No spontaneous pain in back since operation; no excitation pain. December 23: No spontaneous pain, tenderness, or excitation pain; dyspareunia and leucorrhoea completely relieved.

REMARKS ON CASES I, II, AND III

Cases I and III are common examples in young women of the comparatively early and generally easily curable stage, in which drainage of the cervix is often alone sufficient to effect relief. The recognition of the condition at this early stage is important if the patient is to be protected against a long period of suffering, with the production of a far-reaching systemic upset. Case II is an example in an older woman of the more intractable condition in which treatment effects only a temporary relief. Here the problem is more difficult, for while treatment succeeds in curing the active cervical disease, it does not clear up the pain arising in the residual "scars" for more than three months. Major surgical procedures give no assurance of relief, and such cases in the past have tended to bring surgery into disrepute.

General Discussion

The above observations would seem to make it clear that within the ambit of the one syndrome there are two essentially different pain mechanisms. They differ, first, in regard to the site at which the pain is felt in relation to the body surface and, secondly, in regard to the inherent nature of the sensations experienced. The separateness of the two phenomena lends support to the argument of Morley that the visceral and referred pain mechanisms employ different kinds of nerve tracts. Morley has suggested that, while the splanchnic nerves subserve the visceral mechanism, the cerebrospinal nerves are concerned with that of referred pain and tenderness.

To the student of pain genesis these phenomena, as seen in their somewhat crude form by the clinician, open up intriguing lines of investigation. There are surely few fields in medical research in which the anatomist and physiologist can with more signal advantage be ranged alongside the clinician in pursuit of a common end. Among the many problems that await solution there are two which stand out because of their clinical bearing. The first concerns the study of the nervous arc by which the impulses originating directly or indirectly from visceral

disease are eventually registered on a somatic surface as pain. In this connexion the experimental work of Pollak and Davis (1935) has already suggested that the arc involved in the referred pain produced by irritation of the diaphragmatic terminals of the phrenic nerve is more complex than is generally believed. According to these observers the posterior roots, four segments of the cord, the efferent sympathetic fibres, the cervical sympathetic ganglia, and the sensory nerve endings and sensory nerves of the cerebrospinal system are all implicated.

The second problem relates to the intimate meaning of the various subjective reactions. Take for example the two clinical manifestations of the visceral pain—that which is spontaneous and that which is elicited by excitation. In so far as these are both conceived as arising in and being felt in the viscus, although registered at a site depending upon the spinal segment affected, they may be regarded simply as originating from one and the same local factor, which in the case of excitation is merely increased in intensity. In respect of the referred pain complex, on the other hand, the facts do not lend themselves to such an easy theoretical interpretation. Here the pain would seem to be more definitely felt at the site of registration, whether spontaneous or excited or in the form of tenderness. The interpretation of this, the feature which specially distinguishes the referred phenomena, is not affected by the choice we make between the two competing views of the essential mechanism involved—that whether we regard the reference to the distant somatic site as merely due to the creation of an irritable focus in the corresponding segment of the cord or whether we postulate a stimulus sent along the segmental arc to the somatic tissues with the production of biochemical changes at the sensory terminals. The existence of superficial hyperalgesia and local tenderness as an ingredient in the referred complex necessarily implies that the tissues at the site of registration enter into the scheme, though it is true that it cannot be argued from this that the spontaneous and excitation pains of necessity also depend upon the same superficial nerves for their appreciation. I have attempted to test this question by observing the effects of local anaesthesia applied to the abdominal wall. In general it is found that while local anaesthesia of the skin abolishes superficial hyperalgesia it does not affect the local tenderness or the excitation pain. Anaesthetization of the entire thickness of the abdominal wall from skin to peritoneum, which is necessary for a complete test, has not so far been employed. In any case there would seem to be a distinct difference between the mechanisms of tenderness and excitation, in that while the former implies a lowering of the threshold for pain in response to the pulses previously discharged from the primary lesion, it is difficult to explain excitation pain at the same distant site except on the basis of a new reflex stimulus which its appreciation is independent of the threshold mechanism as this is ordinarily understood. In other words, when stimulation of the sensory terminals at the surface is necessary for the eliciting of the tenderness, there is no evidence that such is necessary for the eliciting of excitation or, for that matter, of the spontaneous pain. That tenderness and spontaneous pain are dependent upon a continuous flow of stimuli from the primary source is proved by their immediate disappearance after block of this source with procaine.

Some Points in Differential Diagnosis

The establishment on a sound basis of the complex syndrome enables us, from the varied conditions responsible for chronic abdominal pain in women, at least

Accordingly a questionnaire was prepared and sent to clinicians in charge of those cases in which a negative direct film examination was followed by a positive cultural report. Of the fifty-five replies received the bacteriological findings were confirmed in fifty instances by clinical examination, x rays, or other means. In twenty-nine cases the clinician was reasonably certain of his diagnosis, but the cultural report served to place the matter beyond all doubt. Illustrative of this type of case are the following.

Case 1.—This man, aged 55, was suspected clinically of having pulmonary tuberculosis of the fibroid type, but repeated tests by direct film examination were invariably negative. The clinician observed that "the positive result in culture revealed an active condition which previously had only been suspected."

Case 2.—A woman aged 22, in whom the clinical diagnosis, supported by x-ray examination, indicated pulmonary tuberculosis involving principally the left upper lobe. Direct film examination was negative, but positive culture confirmed the diagnosis.

Case 3.—This patient, a woman aged 56, was diagnosed clinically as having chronic bronchitis. The clinician reported that "the physical signs were always those of chronic bronchitis and obscured any underlying tuberculous findings . . . the positive cultural result was followed by further investigations in hospital," and these confirmed the diagnosis.

Case 4.—In this patient, a man aged 22, an extensive pleural effusion developed on the left side eight months prior to examination of sputum. Repeated examinations of the fluid were negative, but coughing persisted. Direct film examinations of the sputum were negative, but on culture a few colonies of *B. tuberculosis* appeared.

In the next series of twenty cases the bacteriological findings were relatively of much greater importance in that the clinical suspicion of tuberculous infection was slight and the specimen was submitted more for the purpose of exclusion than in the hope of obtaining a positive result. The following are cited as examples of this type.

Case 5.—This patient, a man aged 60, had had a slight cough for years which ceased when cigarette-smoking was curtailed, and was thought to arise from that source. He had a bad family history of tuberculosis, but has always enjoyed fairly good general health. The positive cultural report led to x-ray examination, which revealed uniform marked opacity above the right apex with deposits in the left infraclavicular region from the first to the third rib. The only abnormality detected clinically in the chest was a diminution in breath sounds over the upper part of the left lung.

Case 6.—A man aged 39; he was considered to have entirely recovered from pulmonary tuberculosis, and had returned to work as a shop assistant. His doctor advised him to report periodically for examination, and a specimen of sputum taken at one of these visits was negative by direct examination but positive on culture. Physical examination revealed no signs of active infection.

Case 7.—A married woman aged 41. She complained of a feeling of weakness and loss of energy; physical examination was entirely negative. X-ray examination, following the receipt of a positive cultural report, revealed a right basal pleurisy and light fibrotic disease of right apex. Sanatorium treatment for six months, concluded with a further x-ray examination, which showed that the pleurisy had cleared up and the right apical lesion had apparently healed.

Among this latter group of cases were several in which the infection was almost certainly of very recent standing.

Case 8.—A typist, aged 30. This patient had had a slight haemoptysis, but otherwise she felt well. Clinically there was nothing further suggestive of active infection, but x-ray examination on the receipt of a positive cultural report indicated a lesion in the left apex. After sanatorium treatment the patient recovered satisfactorily and returned to work.

Case 9.—A male, aged 32, employed as an able seaman, complained of haemoptysis. Clinically he appeared fit and was able to carry out his duties without difficulty. X-ray examination following a cultural report indicated a lesion in the left apex. In this instance the diagnosis was of importance as regards pension adjustments, etc., but an observation period in a sanatorium fully confirmed the diagnosis.

Case 10.—A baby boy, aged 11 months, had attacks of mild pyrexia at intervals over three weeks, which were followed by signs of consolidation at the left apex. The mother was known to be tuberculous, the family history being altogether bad. The patient was found to react positively to the Mantoux test, the concentration of tuberculin used being 1 in 100,000. In this instance the culture was of the human type.

In all the above cases the cultures were derived from sputa, but the organism has also been unexpectedly demonstrated in other situations by this method.

Case 11.—A boy aged 13 complained of prepatellar bursitis of left knee. This condition had persisted for months, to a great extent varying with his general health. On account of a bad family history, a specimen of pus aspirated from the lesion was submitted for examination. No growth appeared on blood agar and no organisms were found on direct films, but tubercle bacilli were isolated on culture.

CASES WITH LESIONS OTHER THAN TUBERCULOUS

In the remaining six cases there were lesions other than those of tuberculous infection to which the patients' symptoms were attributed by the clinician in charge. The possibility that tuberculous infection was also present, however, could not be entirely discounted in any of these cases, the details being as follows.

Case 12.—A married woman aged 39 complained of frequent head colds, with subsequent irritable cough, for four years, dating from childbirth. She was ambulant, but always appeared unwell. Clinically and radiologically there was no evidence of tuberculous infection, but tubercle bacilli were isolated on culture from sputum.

Case 13.—A woman aged 40 was admitted to hospital with "meningitis of doubtful origin," later considered to be cerebrospinal meningitis on clinical grounds and on the isolation of meningococci from cerebrospinal fluid in the hospital laboratory. A specimen of fluid submitted to this laboratory for verification was found to show no organisms in direct films and no growth on blood agar, but tubercle bacilli were isolated on culture. The patient recovered without further developments and was discharged apparently well.

Case 14.—A man aged 63 was admitted to hospital as a case of congestive heart failure. Clinically there was no evidence of tuberculosis, although x-ray examination revealed a gross right basal lesion, probably encysted fluid. On culture tubercle bacilli were isolated from sputum.

Case 15.—A married woman was diagnosed clinically as suffering from severe bronchitis complicated by pyelitis. Ordinary physical examination revealed no sign of tuberculous disease of the lungs, and the bronchitis cleared completely following recovery from pyelitis. No x-ray examination was made. Culture of the sputum for tubercle bacilli was successful.

Case 16.—A married woman aged 32 was under observation for pulmonary tuberculosis, but no evidence was obtained other than the isolation of tubercle bacilli from a specimen of sputum. There appeared to be considerable doubt as to the diagnosis in this case, as x-ray examination carried out four years previously was negative but had not been repeated. The possibility of a right apical lesion was not entirely ruled out.

Case 17.—This male patient complained of symptoms indicative of an intrathoracic lesion on the left side. The sputum was blood-stained, but showed no tubercle bacilli in direct films, although a growth of this organism was present on

board, one inch in thickness, drilled with holes just large enough to hold the base of a bottle and fitted with a plywood base. In a rack eight inches by twelve inches were carried forty-eight cultures, the flat surface presented by the tops of the bottles enabling racks to be piled one above the other, while still permitting free passage of air and uniform heating of the cultures. Incubation was continued at 37° C. for four weeks, and all cultures were then examined. Films of suspect cultures were stained by the Ziehl-Neelsen method, and on finding the morphologically typical acid-fast bacilli the pathogenicity of the strain was in many cases confirmed by animal inoculation. The expense involved prohibited the examination of all strains by this method. Random selection of cultures for the test was therefore made, but all strains which showed the slightest variation in cultural characteristics were included in the selection. Cultures from specimens of sputum were tested for virulence in forty-nine (34.5 per cent.) of 142 cases which had been reported as negative in the routine microscopical examination, and in sixty (15 per cent.) of 401 cases in which the direct film report was positive. The pathogenicity of positive cultures from specimens of pleural fluid, pus, urine, cerebrospinal fluid, and milk was thus confirmed. In no instance was a diagnosis based on the morphological and cultural characters of a strain proved erroneous on animal inoculation.

Results

Sputum.—As previously stated, the bulk of the material examined consisted of sputa from tuberculosis dispensaries and those received from practitioners for general bacteriological examination. In Table I are collected the results

TABLE I.—Results of Examination by Combined Direct Film and Cultural Methods of 3,306 Specimens for *B. tuberculosis*

Result		Specimen							Total
Film	Culture	Sputum	Pleural Fluid	Pus	Urine	C.S.F.	Milk	Faeces	
+	+	401	0	4	5	1	2	3	416 (12.5%)
-	+	142	3	5	7	3	5	0	165 (5.0%)
+	-	9	0	4	0	0	2	0	15 (0.4%)
-	-	2,244	57	85	212	19	74	19	2,710 (82.1%)
		2,796	60	98	224	23	83	22	3,306 (100%)

obtained by the combined method. Of 2,796 such specimens 552 (19.7 per cent.) were reported positive by direct film, cultural, or combined examinations. Cultivation alone was successful in 543, or 98.3 per cent. of all positive results obtained. In the remaining nine specimens results obtained. In the remaining nine specimens results examination confirmed the presence of tubercle bacilli in direct films, but always in scanty numbers. The most significant finding was that only 410, or 74.3 per cent. of all positive results, were detected by the routine film examination. Repeated examination by separate observers confirmed the absence of tubercle bacilli in the original stained smears of the 25.7 per cent. of sputa later proved positive by culture. In such specimens the colonies appearing were often few in number, but not invariably so. Indeed, the rich growth which sometimes occurred was surprising in the face of a negative film report. As indicated in Table II, only five sputa were subjected to guinea-pig inoculation; all were negative in the triple test.

Pleural Fluid.—No specimen of pleural fluid was found positive by direct microscopical examination, but three were detected by culture. In these the number of colonies appearing on the Löwenstein medium were one, three,

TABLE II.—Results of Examinations for *B. tuberculosis* in which Guinea-pig Inoculation and Cultivation were both Utilized

Specimen	Number	Cultural and Animal Results				
		C+ A+	C— A—	C+ A—	C— A+	C+ A+
Sputum ..	5	—	5	—	—	—
Urine ..	17	3	12	1	1	—
Milk ..	77	4	61	3	9	—
Pleural fluid ..	8	1	6	—	1	—
Pus ..	4	1	2	—	—	1
C.S.F. ..	3	1	1	—	1	—
Gastric lavage	4	2	—	—	1	1
Totals ..	118	12	87	4	13	2

C = culture; A = animal inoculation; + = positive; — = negative; d = delayed animal died before reading possible.

and four respectively, indicating the extreme paucity of the numbers of organisms present. Guinea-pig inoculation succeeded in one instance where direct film and cultural examination failed.

Pus.—Of the thirteen positive specimens of pus, mainly from lymphatic glands, direct film and cultivation failed in five and four respectively. As three of the negative cultural results were from old-standing lesions, the organisms seen in direct films were possibly degenerated or actually dead.

Urine.—Since this laboratory serves as a group laboratory for several municipal hospitals a large number of urines were received for general bacteriological examination. Animal inoculation being reserved for special cases, routine cultivation proved a useful accessory measure. Seven of the twelve positive cases being detected by this method. One specimen negative by both film and culture was positive on animal inoculation. Another specimen in which very few organisms were seen in direct films was positive on culture but negative on animal inoculation. In view of this surprising result the pathogenicity of the culture was confirmed by animal inoculation.

Cerebrospinal Fluid.—In the three specimens positive on cultivation only, the colonies appearing were in each instance few in number. Cultivation failed in one specimen positive by the animal test.

Milk.—The preculture treatment outlined above was not successful in eliminating all acid-fast saprophytes such as the timothy grass bacillus. These strains appeared rapidly on culture media, being clearly visible within two or three days, and were thus easily differentiated from strains of bovine tubercle bacilli, which were not apparent for an interval of eighteen days or more. Furthermore, growths of saprophytic strains were luxuriant as compared with the sparse dysgonic growth of the pathogen. Nine specimens positive on animal inoculation were reported on culture, while three positive cultural results were reported on animal inoculation. The pathogenicity of the latter strains was confirmed by animal inoculation.

Correlation of Bacteriological with Clinical Diagnosis

Although in most cases in human subjects from whom specimens had been received there was some clinical justification for the request that an examination for *B. tuberculosis* be carried out, the great increase in results obtained by the cultural method made it desirable to discover to what extent the bacteriological diagnosis agreed with the results of other methods of examination.

TREATMENT OF STREPTOCOCCAL EMPYEMA WITH INTRAPLEURAL SULPHANILAMIDE

EXPERIMENTAL STUDY IN RABBITS

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Methods

Rabbits were used in this work, for it is not difficult to infect them with a human strain of haemolytic streptococcus and pleural puncture is fairly simple in animals of this size. A haemolytic streptococcus isolated from a fatal case of septicaemia occurring in the hospital was passed successively through ten rabbits in order to increase its virulence for them. Equal doses of a broth culture of the organism recovered from the tenth rabbit were injected into the right pleural cavities of a series of rabbits of approximately equal weights. In one case the injection resulted in immediate death from haemorrhage, due to puncture of a blood vessel. The animals of the test series received regular doses of soluble prontosil by direct injection into the right pleural cavity, and an effort was made to remove a volume of fluid from the pleural cavity equal to the volume of prontosil to be injected, so that the intrapleural pressure was disturbed as little as possible. This was not always easy in practice. The drug was the 2.5 per cent. solution of prontosil. Hörlein (1935) has demonstrated that rabbits tolerate 50 c.cm. of this solution intravenously per kilogramme of body weight; but the largest dose used in these investigations was 10 c.cm., and this was found too large, for reasons suggested later. The control animals received the infecting dose of streptococci, but no treatment. Complete necropsies were performed, cultures being taken from the pleural cavity and the presence of prontosil in other organs observed.

Results

The first ten animals gave the results tabulated in Table I, which includes one other animal which died on being injected. Note the early deaths in the treated group, compared with the controls. In two cases in the test group there was a very marked shift of the mediastinum to the left, the right pleural cavity being filled with prontosil-coloured fluid. The pus in the test animals was thinner than in the controls, but this was probably due to their early death during the formative stage of the empyema. Although, as already stated, 10 c.cm. of 2.5 per cent. solution of prontosil is well within the tolerated dose for rabbits—these rabbits weighing on an average 1.2 kg—it became apparent that 10 c.cm. as a single intrapleural dose may cause considerable changes in intrapleural pressure; therefore in the next series of animals the dose was reduced.

In the second series (Table II) the four controls received streptococci into the pleural cavity; four test animals received 2 c.cm. of prontosil into the pleural cavity twenty-four hours after it had been infected, and subsequent doses of the drug as shown; four more were not infected, but prontosil alone was injected into the virgin pleural cavity. One animal in this last group died of septicaemia, probably having been infected by its cage-mates. The animals in this series survived long enough to develop thick pus in

the pleural cavity, and in only one case was there much of a mediastinal shift.

In the third series (Table III) four rabbits were inoculated with streptococci and prontosil at the same time; four were infected and the prontosil immediately given into the muscles; four were controls with no therapy. A decrease in virulence is shown in the last group.

In the fourth series (Table IV) two received prontosil alone, two streptococci. Four were inoculated with streptococci, and prontosil was given by the intramuscular route. Into the last four both streptococci and prontosil were injected simultaneously into the pleural cavity. The organism shows a marked decrease in virulence, most of the animals being killed after ten days, but the last group of four shows the greatest mortality, three of them dying of the disease with a positive pleural culture.

Two facts are apparent: first, that the animals which were given prontosil into the pleural cavity died earlier than those animals from which it was withheld; secondly, that the former more often had a positive culture returned from the swab of the pleural cavity. Some of the test animals died from effects due to changes in intrapleural pressure, but this did not account for all of them. Prontosil injected into the virgin pleural cavity did not appear to damage the tissues grossly, although it may have reduced local resistance in one case. Intramuscular injection of prontosil gave better results than its injection into the pleural cavity. No renal or hepatic lesions due to the prontosil were found.

Discussion

Sulphanilamide has so rapidly become a universal remedy that it is important to study its action in controlled experiments as much as possible. Most of this sort of work has been carried out in mice, the peritoneum being infected and the drug given by mouth or intramuscularly (Domagk, 1935; Levaditi and Vaisman, 1935; Colebrook and Kenny, 1936; Long and Bliss, 1937; Mellon, Gross, and Cooper, 1937). The action of sulphanilamide has also been studied *in vitro*, but experimental empyema does not appear to have been investigated. The increasing frequency of clinical cures of streptococcal empyema reported (Brown, 1937), where the method of treatment has been the direct injection of prontosil into the pleural cavity associated with daily aspiration of pus, makes it desirable to try a similar experiment in animals. Only the successes appear in clinical reports, and the cases rarely exceed two or three. As is well known, streptococcal infections are notoriously variable in virulence, and cases of streptococcal empyema sometimes resolved with simple aspiration long before prontosil was introduced. The cases reported in which prontosil had been used are those in which thick pus was present at the first aspiration. This in itself shows that the dangerous stage of the disease has already been passed, and the injection of prontosil may have had little to do with the subsequent thinning of the pus and disappearance of the organisms. The time when the drug is most indicated is, of course, at the onset of the infection, when the pneumonia is active but the empyema is only in its formative stage. It is then more logical to give the drug by mouth, intramuscularly, or intravenously. Good results are also obtained in the later stages of the empyema by the oral administration of the drug, according to several reporters (Mielnotte and Briquel, 1936). When this work was started it was hoped that perhaps prontosil might prove to be bacteriostatic when injected into the pleural cavity simultaneously with streptococci. If this had been proved its use in combating the virulent

culture. The x-ray appearances suggested a neoplasm of the lung. The patient died in hospital, but permission for a post-mortem examination was not obtained.

Discussion

The results of this investigation over a period of two years have justified a cultivation test in the routine examination for *B. tuberculosis*. The adoption of cultivation lengthens the examination considerably, and on this account careful choice should be made of the material subjected to the treatment. This entails the co-operation of clinicians, particularly in the case of laboratories dealing with large numbers of specimens from hospital sources. Much of the time and energy now expended on multiple routine examinations, often demanded without real justification, could be profitably devoted to a more prolonged investigation of a smaller number of likely cases.

The results of sputum examination were especially significant. Animal inoculations of all such specimens is rarely possible or even practicable, and in the absence of this test cultivation affords a very satisfactory substitute. In this series cultivation yielded an increase of 32.4 per cent. of positives over the direct film result. There is the possibility that multiple film examinations may have been more successful than the use of a single film, but it is extremely doubtful if the results secured by cultural methods could have been attained. That direct film examination is not sufficient has been indicated by Jamieson (1936), who found cultivation successful in 100 sputa from 100 known cases of phthisis, whereas repeated examinations of direct films were positive in but ninety-two cases. It is an additional advantage, moreover, in doubtful clinical cases, that the pathogenicity of the organism isolated from sputum can be confirmed if necessary. The routine procedure now adopted in this laboratory as regards sputum examinations is to report positive film results as before. In the case of negative results there is added a note that culture is being attempted and will be reported later if positive.

But the efficiency of the test cannot be gauged merely by the increased number of positive results which it yields. There must be confirmation of the bacteriological findings by other methods. That confirmation has been amply obtained, as the majority of the cases giving negative direct film but positive cultural results, and for which clinical data were available, were unquestionably infected subjects. All stages of infection have been detected in this way. In a very small number of subjects there was not, in the clinician's opinion, much ground for supporting the bacteriological diagnosis, but the possibility of this being correct could in no case be excluded. When one remembers the prevalence of subclinical infection as indicated by post-mortem examinations, tuberculin testing, and other methods, it is not surprising that cases of this nature will be discovered by the cultural method. But the delicacy of the test calls for great care in the taking of specimens for examination with tuberculous where the possibility of contamination with tuberculous secretions is present—as, for instance, the investigation of family contacts by the examination of sputa. Precautions must be made to ensure that only the subject's secretions and not those of a relative reach the specimen container. The method appears to be of value even in the early stages of infection, and may possibly be applied to detect an initial infection in childhood. Case 10 may prove to be an instance of this, as the child is now progressing satisfactorily. It may be stated here that there was no doubt that the growth was derived from the child's own secre-

tions and was of the human type. Shrewsbury has raised the point that the method may be applied to the detection of "carriers" of tubercle bacilli. While on account of the existing lack of information this possibility cannot be denied, it is more than likely that the so-called "carrier" is a person with a focus which defies clinical demonstration during life. Such cases can only be demonstrated by cultural or animal inoculation methods, so that the ultimate issue remains as before—namely, the possible detection of a hidden source of infection. One further point on which the method will furnish reliable information is the incidence of the two types of tubercle bacillus in human infections.

While not so striking on account of the smaller number dealt with, the usefulness of cultivation was also indicated in the examination of specimens other than sputa. At the present time, however, cultivation cannot entirely replace animal inoculation, particularly in specimens in which there is a possibility of the bovine type of organism existing in small numbers. Feldman (1934) after an investigation of similar nature came to the same conclusion. Animal inoculation cannot, however, be regarded as infallible, and in Table II appear four instances in which animal inoculation proved negative, whereas cultures from the same inoculum were positive. Examples of this type of result have been recorded by Woolley (1931). The results of animal inoculation and of cultivation (Table II) were the same in ninety-nine specimens and different in nineteen. Of these nineteen, animal inoculation was most frequently positive (thirteen), while cultivation was successful in four specimens which were negative in animals and two specimens in which inoculated animals died before a report was permissible. The optimum results, then, can only be secured in the investigation of such material by the utilization of both methods of examination.

Conclusions

1. Cultivation is a practicable measure in the routine examination for *B. tuberculosis*.
2. In a series of 3,306 specimens of all types, mainly sputa, the percentage of positives was 12.9 by direct film and 17.9 by the combined film and cultural examinations.
3. While animal inoculation is in most cases more reliable than cultivation, it is not invariably so.

It is with pleasure that I acknowledge the assistance and willing co-operation of the laboratory technical staff. With their help, and in particular that of Mr. R. K. Lister, such a large number of specimens could not have been handled. I am indebted to Professor T. J. Mackie for his interest in the work and the granting of various facilities. To all practitioners who supplied clinical data my thanks are due, for their information added a very real interest to the investigation.

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TABLE III

Rabbit	Days :												Pleural Fluid, Culture	Mediastinum	Prontosil Where Found	Other Organs	Cause of Death
	0	1	2	3	4	5	6	7	8	9	10	Over 10					
34	h.str. 5 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	M								Thin pus Positive	Shift to left	R. pleura and bladder	L. lung collapsed	Mediastinal shift
35	"	"	"	"	2 c.cm. P pl	2 c.cm. P pl	—	M					Thick pus Positive Thin pus Negative	—	R. pleura	L. lung collapsed	Empyema
36	"	"	M		"	"	—						Thin pus Positive	Slight shift to left	R. pleura and bladder	L. lung collapsed	Mediastinal shift
37	"	"	2 c.cm. P pl	"	"	"	—	2 c.cm. P pl	M				Thin pus Positive	—	R. pleura and bladder	Pyæmic abscesses	Septicaemia
38	h.str. 5 c.cm. P m	2 c.cm. P m	2 c.cm. P m	2 c.cm. P m	2 c.cm. P m	2 c.cm. P m	—	2 c.cm. P m	—	—	2 c.cm. P m	M 12	Thin pus Positive	Shift to left	—	Pyæmic abscesses	Septicaemia
39	"	"	"	"	"	"	M						Thick pus Positive No lesion Negative No fluid Negative	—	Bladder	—	Empyema
40	"	"	"	M									—	—	—	—	?
41	"	"	"	2 c.cm. P m	"	M							—	—	—	R. pneumonia	Pneumonia
42	h.str.	—	—	—	—	—	—	—	—	—	M		No fluid Pneumothorax Negative No fluid Negative	—	—	Blood culture Negative	?
43	"	—	—	—	—	—	M						—	—	—	Abscess in muscle Pyæmic abscesses Positive Blood culture Negative	Septicaemia
44	"	—	—	M									No fluid Negative	—	—	—	?
45	"	—	—	M									Thin pus Positive	—	—	—	Empyema

TABLE IV

Rabbit	Days :												Pleural Fluid, Culture	Mediastinum	Prontosil Where Found	Other Organs	Cause of Death
	0	1	2	3	4	5	6	7	8	9	10	Over 10					
46	2 c.cm. P pl	2 c.cm. P pl	—	2 c.cm. P pl	—	2 c.cm. P pl	2 c.cm. P pl	—	2 c.cm. P pl	—	—	K. 11	No lesion Negative No lesion Negative	—	—	—	Killed
47	"	"	—	"	—	"	"	—	"	—	—	K. 11	—	—	—	—	Killed
48	h.str.	—	—	—	—	—	—	M					No fluid Negative	—	—	Pyæmic abscesses Positive	Septicaemia
49	h.str.	—	—	—	—	—	—	—	—	—	—	K. 11	No lesion Negative	—	—	—	Killed
50	2 c.cm. P m h.str.	2 c.cm. P m	—	2 c.cm. P m	—	2 c.cm. P m	2 c.cm. P m	—	2 c.cm. P m	—	—	K. 11	R. pneumonia thorax Negative Thin pus Positive	—	—	—	Killed
51	"	"	—	"	—	"	"	M					—	—	—	—	Empyema
52	"	"	—	"	—	"	"	—	"	—	—	K. 11	No lesion Negative Thin pus Positive	—	—	—	Killed
53	"	"	—	"	—	"	"	—	"	—	—	K. 11	Thin pus Negative	Shift to left	—	—	Killed
54	h.str. 2 c.cm. P pl	2 c.cm. P pl	—	2 c.cm. P pl	—	2 c.cm. P pl	M						Thin pus Positive	—	—	Pericarditis	Pericarditis
55	"	"	—	"	M								Thin fluid Positive	—	R. pleura and bladder	Pneumonia	Pneumonia
56	"	"	—	"	—	"	M						Thin fluid Pneumothorax Positive Thick pus Negative	Shift to left	R. pleura	L. lung collapsed	Mediastinal shift
57	"	"	—	"	—	"	2 c.cm. P pl	—	2 c.cm. P pl	—	—	K. 11	—	—	—	—	Killed

streptococcus culture in 53 per cent. Seventeen animals treated with intrapleural prontosil survived an average of 5.7 days, the pleural fluid giving positive haemolytic streptococcus culture in 70 per cent. Eight animals treated with intramuscular prontosil survived an average of 7.8 days, with a positive haemolytic streptococcus culture in 37 per cent.

Summary

1. The direct effect of prontosil on streptococcal empyema has been studied in rabbits.
2. The treated animals died earlier than the controls.
3. No sterility of the empyema was produced.
4. The clinical value of these observations is discussed.

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TABLE I
(M = Mors; P = Prontosil; pl = into pleural cavity; m = intramuscularly; h.str. = haemolytic streptococci.)

Rabbit	Days:												Pleural Fluid, Culture	Mediastinum	Prontosil Where Found	Other Organs	Cause of Death
	0	1	2	3	4	5	6	7	8	9	10	Over 10					
11	h.str.	10 c.cm. P pl	M										Thin Negative	—	Both pleurae and bladder	—	Peritonitis
12	"	"	"										Thin Negative	—	Both pleurae and bladder	—	Peritonitis
13	h.str.	"	10 c.cm. pl	M									Died immediately of haemorrhage	Shift to left	R. pleura and bladder	—	Mediastinitis
14	"	"	"	10 c.cm. pl	—	M							Thin, excessive Positive	—	R. pleura and bladder	—	Mediastinitis
15	"	"	"	"	—	M							Thin, excessive Positive	—	R. pleura and bladder	—	Mediastinitis
16	"	"	"	"	—	M							Turbid, excessive Positive	Shift to left	R. pleura and bladder	—	Mediastinitis
17	h.str.	—	—	—	—	—	—	—	—	—	—	—	Thick pus, adhesions Positive	—	—	Pericarditis	Pericarditis and empyema
18	"	—	—	—	—	—	—	—	—	—	—	M 12	Thick pus Positive	—	—	—	Empyema
19	"	—	—	M	—	—	—	—	—	—	—	—	Thick pus Positive	—	—	Pericarditis	Empyema and pericarditis
20	"	—	—	—	—	—	—	—	—	—	—	—	Thick pus Positive	—	—	—	"
21	"	—	—	—	—	—	—	—	—	—	M	—	Thick pus Positive	—	—	—	"
												M 23	No lesion Negative	—	—	—	"

TABLE II

Rabbit	Days:												Pleural Fluid, Culture	Mediastinum	Prontosil Where Found	Other Organs	Cause of Death
	0	1	2	3	4	5	6	7	8	9	10	Over 10					
22	h.str.	M	—	—	—	—	—	—	—	—	—	—	* No necropsy	—	—	—	—
23	"	—	—	—	M	—	—	—	—	—	—	—	Thick pus Positive	—	—	Pericarditis	Pericarditis
24	"	—	—	—	—	M	—	—	—	—	—	—	Thick pus Positive	—	—	—	"
25	"	—	—	—	—	—	—	—	—	M	—	—	Thick pus Positive	—	—	Effusion on left Pericardium	"
26	h.str.	2 c.cm. P pl	2 c.cm. P pl	—	M	—	—	—	—	—	—	—	Thick pus Positive	—	R. pleura and bladder	Pericarditis	Pericarditis
27	"	"	"	—	5 c.cm. P pl	2 c.cm. P pl	M	—	—	—	—	—	Thick pus Positive	—	Bladder	Subcutaneous abscess	Empyema
28	"	"	"	—	M	—	—	—	—	—	—	—	Thick pus Positive	—	Bladder	—	"
29	"	"	"	—	5 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	M	—	Thick pus Negative	Shift to left	Bladder	Both lungs collapsed	Mediastinitis
30	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	—	5 c.cm. P pl	2 c.cm. P pl	M	—	—	—	—	—	A little fluid Negative	Slight shift to left	Bladder	—	Mediastinitis
31	"	"	"	—	"	"	2 c.cm. P pl	2 c.cm. P pl	M	—	—	—	No fluid Pneumothorax Negative	Shift to left	—	Both lungs collapsed	Mediastinitis
32	"	"	"	—	"	"	"	"	M	—	—	—	A little fluid Positive	—	—	Pneumonia R. and L. Thymic abscesses	Septicemia
33	"	"	"	—	"	"	"	"	2 c.cm. P pl	2 c.cm. P pl	2 c.cm. P pl	M 11	No lesion Negative	—	—	Sterile abscess in muscle	"

streptococcal empyema which sometimes complicates lobectomy would have been worth a clinical trial. But it appears to have no such action. This is in part explained by the recent work of Finklestone-Sayliss, Paine, and Patrick (1937), who have shown that sulphanilamide actually stimulates streptococci to multiply in the early stages of treatment, this effect being especially evident in young cultures. Later its bacteriostatic effect exerts itself. The danger of introducing prontosil into the pleural cavity may in part be due to this effect, in that the organisms multiply and reach the general circulation, whereas the drug is absorbed with increasing difficulty as the empyema develops. In the present state of our knowledge it seems

to be advisable to avoid the intrapleural injection of prontosil in cases of streptococcal empyema, but rather to give prontosil by mouth, or, if the drug is introduced by way of the pleural cavity, it should certainly be combined with the oral administration of prontosil. Naturally there is considerable difference between empyema in rabbit and that in man, but the dissimilarity can hardly be greater than the normal variation in virulence of human streptococcal infections, so that the results seen in the rabbit are not without their clinical interest.

Summarizing the results of the tables we find that fifteen animals, untreated, survived an average of 7.4 days each, and that the pleural fluid gave positive results in 10

A NOTE ON EPIDEMIC DROPSY

BY

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Several articles have appeared in the medical literature of the last few years referring to epidemic dropsy in India and other countries of the East, and associating outbreaks of the disease with the use of mustard oil for cooking purposes. The most recent we have seen is that by Lal and Roy (1937), who give a description of the disease and the various theories that have been put forward as to its causation, and who have come definitely to the conclusion that the ingestion of mustard oil is the cause. They admit that the majority of people who use mustard oil for cooking do not get the disease, and conclude that only certain forms of the oil sold commercially are toxic. In spite of several experiments they were unable to distinguish between harmless and harmful mustard oil. The Annual Report of Fiji for 1927, quoted by J. N. Leitch (1930), describes an outbreak there in which mustard oil certainly appears to have been the cause, and gives a detailed account of the symptomatology.

Three Recent Cases

Three cases which have been under our care recently at the General Hospital, Singapore, would seem to add corroborative evidence to these conclusions. The syndromes present suggested to us a common toxic origin, such as from some drug or plant taken internally. We consulted Professor R. B. Hawes of the Singapore College of Medicine on the matter, and he informed us that he had come across a similar syndrome in a few people some years previously, and that it had corresponded closely with mustard-oil poisoning or epidemic dropsy as described in the Fiji Annual Report mentioned above.

Case 1.—A male Bengali was admitted to hospital on June 17, 1937, complaining of general malaise. There was cardiac irregularity due to premature beats, microcytic anaemia, and oedema of the legs with the overlying skin of a dusky purplish colour. There was no fever while in hospital. He improved gradually with rest in bed and iron internally, and was discharged comparatively well on July 29, though still with slight oedema of the legs.

Case 2.—The wife of Case 1, also a Bengali, was admitted on June 24, 1937, complaining of pain and swelling in both legs and of one month's continued fever. Her temperature was 101° F. on admission, but this rapidly subsided in hospital. Her legs were oedematous from knee to ankle, tender, and painful, and were discoloured a peculiar mottled purplish red, rather more strikingly so than her husband's. There was a loud systolic cardiac murmur, heard best over the pulmonary area, as well as tick-tack rhythm. She was treated with iron for the anaemia, and with methylene blue (on account of a possible toxic element in mustard oil being a cyanide derivative.) She was discharged much improved on August 1, but with considerable anaemia still present.

Case 3.—The sister of Case 2 was admitted on June 27, 1937, seriously ill. Her legs were oedematous and intensely painful and tender; she also had had fever for one month, and this took some time to subside in hospital. The patient's legs were still more strikingly discoloured with purplish-red mottling. There was a dry irritating cough, and dry coarse crepitations all over both lungs. The heart was rapid and

slightly irregular, with tick-tack rhythm, a loud mitral systolic murmur, and an accentuated second sound at the pulmonary area. The urine was normal and the blood urea 36 mg. per 100 c.cm. Teleroentgenography of the heart showed enlargement, but when repeated at the end of treatment there was a considerable reduction in size. Microcytic anaemia was present, a little more severe than in the other two cases; the red blood cell count was 2,600,000 per c.mm., and the haemoglobin 44 per cent.: there was slight leucopenia. On July 15 she complained of blindness in one eye. On examination small scattered retinal haemorrhages were seen, one on the macula: these all cleared up before the patient was discharged on August 15, when the sight of both eyes was good. She was treated on the same lines as Case 2, with additional symptomatic treatment for the cough. On discharge there was still some anaemia and a pulse of rather poor volume, but the cardiac murmur had practically disappeared.

Conclusions and Commentary

These three patients had lived in the same house and shared the same meals; a fourth member of the family, a brother of the two girls who had previously lived with them, stated that he had also been affected in a mild form, and that he had suspected the food and had accordingly changed his abode. Mustard oil was used daily in the household cooking, and had been so used constantly in the past without ill effect. Some of the oil from the household was subjected to chemical analysis and also used for animal-feeding experiments; these were kindly undertaken by the Government analyst, Mr. M. Jamieson. The results were entirely negative, but it is doubtful whether the oil we obtained was from the same tin as that which had caused the illness: all the contents of that tin had probably been consumed before the patients came to hospital. On inquiry we found that a few other cases had occurred in the town, and we obtained other specimens of oil for examination, but none was found to be toxic to animals.

The syndromes of these patients fit in well with the usual description of epidemic dropsy, and differ from beriberi by the presence of the purplish-red mottling of the skin of the legs, the retinal haemorrhages, the fever, and the lung signs. The disease throughout the world appears only to have been observed among people who use mustard oil for cooking their food, and then merely in sporadic outbreaks; it is strange that the toxic element present has so far defied analysis.

We are indebted to the Director of Medical Services, Straits Settlements, for permission to publish.

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G. de Flora and A. Crocetta (*Minerva med.*, December 2, 1937) state that though the hypotensive action of acetylcholine was demonstrated by Hunt and Taveau in 1915, the introduction of this drug into clinical medicine did not take place until 1928, when Villaret and Besançon were among the first to use it in various vascular disturbances of spastic origin, in scleroderma, and in lead poisoning with encouraging results. Their findings were confirmed by numerous Italian workers, but later investigators showed the extremely transient action of the drug, a dangerous diphasic stage, and an injurious influence on the heart. Subsequently, however, it was shown that the action of acetylcholine was counterbalanced by eserine, and the present authors found that the combination of acetylcholine with eserine made the hypotensive action of the former much more persistent without causing any dangerous diphasic stage.

PRIMARY CARCINOMAS OF THE STOMACH AND SIGMOID COLON OCCURRING SIMULTANEOUSLY

BY

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Dr. Pemberton and Dr. Waugh of the Mayo Clinic, in the August, 1937, issue of *Surgery*, describe a case of a male physician, aged 57, who was admitted to their clinic suffering from a cancer of the sigmoid flexure of the colon. At operation primary growths were found to be present both in the colon and in the stomach. The tumour in the colon was excised after the manner described by Paul and Mikulicz, a subtotal resection of the stomach being undertaken some weeks later. Microscopically both growths were adenocarcinomas, and both were Grade 2. They write:

"Multiple primary carcinomas which affect the same individual have aroused the interest of the profession since the first reports of such lesions in 1869 by Billroth, although the frequency with which present-day pathologists report this finding is tending to make it almost commonplace. However, the finding clinically of two separate and distinct carcinomas appearing simultaneously in the sigmoid flexure and stomach is rare, and this, coupled with the fact that both lesions were amenable to surgical treatment, makes the report of the case unique. . . . The case . . . cited is, so far as we are aware, the only recorded instance of successful surgical removal of simultaneous independent carcinomas of the stomach and sigmoid flexure."

In view of these statements and also because I have had in my own practice recently a similar case, in which, however, it proved possible to excise at one single operation (partial colectomy and subtotal gastrectomy) both the primary growth in the sigmoid colon and the cancer of the stomach, I have considered it worth while to submit a record of the details of this case.

Case Report

A married woman aged 55 was admitted under my care at the Southend General Hospital on June 26, 1937, complaining of intermittent bouts of abdominal pain, loss of weight, and severe constipation. Some three months before her admission she stated that she had had several recurrent attacks of abdominal pain situated mainly centrally, but occasionally referred to the left side rather low down. The pain lasted only a few minutes, but was cramp-like and intractable. The attacks had no relation to food and did not appear to be relieved by medicines.

Approximately one month before admission she was seized with severe subumbilical colic and vomiting, which lasted for over six hours and then cleared up spontaneously. She had always been constipated, but this was becoming progressively worse, there being no history of attacks of alternating diarrhoea and constipation or of blood and slime in the motions. She had been gradually losing weight, and estimated that she had lost about two stone in three or four months. Her appetite was good and there were no symptoms of indigestion or other gastric disorder.

On examination she was thin and pale, the tongue was clean and moist, the abdomen was scaphoid rather than distended, and there was a palpable movable lump about two inches below and to the left of the umbilicus. A digital rectal examination as well as a sigmoidoscopic examination proved negative. A complete blood count showed that there was a

slight degree of secondary anaemia, and the barium enema revealed a small annular stricture at the beginning of the sigmoid colon.

On July 3, after a week's pre-operative preparation, the abdomen was explored (under spinal anaesthesia) through a left oblique Kocher incision which started at the tip of the tenth costal cartilage and proceeded vertically downwards towards the pubis, all the layers of the abdominal wall being divided in a line with the incision. A small freely movable growth was located in the gut at the point indicated by the barium enema. The abdomen was further explored to ascertain whether there were any metastases in the mesocolon, along the aorta, in the omentum, or in the liver. No enlarged glands could be detected in the mesocolon or elsewhere, but while a hand was being swept upwards into the epigastrium to palpate the right lobe of the liver an indurated mass was felt on the lesser curvature of the stomach; this was thought to be in all probability an early cancer of the stomach and not a secondary implant from the original growth in the colon. The descending and sigmoid colon was freely mobilized, and some twelve inches of gut (including the growth) exteriorized and resected by Paul's method.

The abdominal wound was closed as snugly as possible around the two short projecting portions of colon, and the clamps were left *in situ*, occluding the proximal and distal ends. This area of the operation was isolated with sterile towels, and as the resection of the colon had proved a simple matter and the patient's condition was highly satisfactory, after fresh sterile gowns, gloves, etc., had been donned, the epigastrium was immediately prepared for exploration.

Through a median vertical epigastric incision the stomach was examined and was found to contain an ulcerated area in the middle of the lesser curvature about one and a half inches long by two inches wide. On invaginating the stomach in the region of the greater curvature the ulcer could be felt to have a raised indurated edge, which was of stony consistency. There were a few shotty glands along the lesser curvature, but these did not appear to be malignant, nor was there any involvement of the visceral peritoneum of the stomach.

A subtotal gastrectomy, with removal of the great omentum, half of the first portion of the duodenum, practically the whole of the lesser curvature, and two-thirds of the greater curvature with all the adjacent lymph glands, was performed. The jejunum was brought over the transverse colon and the proximal portion anastomosed to the cut end of the stomach. After its top half had been closed, the proximal loop of the jejunum being applied to the reconstructed lesser curvature, and the distal loop to the greater curvature, after the manner suggested by Hoffmeister.

At the completion of this anastomosis it was found that the proximal jejunum took a rather short and graceful curve to the point of anastomosis, and it was therefore not considered necessary to perform an entero-anastomosis between the proximal and distal loops, a procedure which is now favoured by Balfour. The abdominal wound was closed in the usual way without drainage.

The patient made a splendid recovery, and was discharged on August 13 with the colostomy working well. She was readmitted on September 18, and a clamp was applied to the colonic spur on the Paul-Mikulicz stoma, while on September 29 the colostomy was closed under spinal anaesthesia. Shortly after this the bowels functioned naturally, and the patient's condition to-day leaves nothing to be desired.

The pathologist's report was adenocarcinoma of the sigmoid flexure without any involvement of the lymph nodes in the mesocolon which had been excised, and a microscopic section of the ulcer in the stomach showed adenocarcinoma undergoing colloid degeneration. Several glands which were adherent to the ulcerated region, particularly those adjacent to the ulcerated region on the lesser curvature, were examined microscopically, and were found to be normal in appearance.

bacteria, notably streptococci and less frequently Vincent's organisms, in any series of diphtheria patients. Pure cultures of diphtheria bacilli are obtained from carriers rather than from cases. Indeed, the associated organisms or secondary invaders may so overwhelm the cultures obtained from the most severe of infections that a second or third swab has to be taken to establish a bacteriological diagnosis the clinical counterpart of which has never for a moment been in doubt.

These three cases raise again the question of the Schick-positive carrier. Dudley (1923) says that so far as his experience goes the Schick-positive carrier is unknown. How, then, is a susceptible individual to obtain natural immunity except by an attack of the disease? That some do obtain it by another way is obvious, for how otherwise could 70 to 80 per cent. of adults have become insusceptible? Not all nor even the majority of them have had a clinical attack of diphtheria. Surely at one time in their history they must have been at least temporary carriers of small numbers of virulent diphtheria bacilli.

Immunization of the Schick-positive cases was carried out in six instances. Two doses of alum toxoid were used on four occasions and three doses of toxoid-antitoxin mixture on the other two occasions with complete success. It is strange to reflect that active immunity may be more readily produced by artificial than by natural means.

Summary and Conclusions

The results of Schick-testing a series of patients six or more weeks after an attack of diphtheria are reported. These results have suggested the following conclusions:

1. That after an attack of diphtheria, irrespective of its severity, about 10 per cent. of persons remain potentially susceptible.
2. That the chance of remaining susceptible is not diminished by delayed administration of serum.
3. That immunity is either developed early—that is, before the sixth week—or not at all.
4. That cases developing paralysis would appear generally to have acquired immunity.
5. That cases which do not develop a natural immunity as the result of infection respond satisfactorily to active artificial immunization.

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In the twelve months September 30, 1936, to September 30, 1937, eighty-seven students received training in the medical side of missionary work abroad at Livingstone College. The annual report contains numerous personal tributes to the practical value of this training, which is available for all Christian missionary students without any denominational discrimination. There was a small financial deficit on the year's working, due in large measure to a fall in the amount received from the students' fees. The number of students, it is mentioned, has slightly increased, but the majority in that year only came for short periods. The report contains also the speech delivered at the Commemoration Day meeting in June, 1937, by Mr. W. A. Cadbury, relating to his work in Northern India. The volume of testimonies to the usefulness of the curriculum at Livingstone College shows how missionaries thus trained can be of the greatest value in parts of the world where ordinary medical assistance is scanty.

Clinical Memoranda

"Mixed Tumour" of the Lip: Report of Two Cases

After reading Mr. R. Pilcher's article in the *British Medical Journal* of May 8, 1937 (p. 967), I feel that the following two similar cases of "mixed tumour" of the lip are worth recording. Case II came to my notice a few weeks following the appearance of Mr. Pilcher's article; the other was encountered in 1935.

CASE I

A Chinese woman, aged 24, had had a swelling on the right side of the lip for four years. The tumour was oval, about the size of a walnut, and quite firm.

Histologically the tumour consisted of a fibrous tissue stroma in which were strands of epithelial cells, most of them in alveolar formation, and some appeared to be lining the lymph spaces. Small dark epithelial cells with hyperchromatic nuclei arranged in solid masses were also in evidence. In various areas mucoid and osteoid tissue as well as hyaline material were seen. Lymphocytic infiltration was pronounced in various parts of the tumour.

CASE II

This patient, a Chinese woman aged 36, had had a painless slow-growing swelling on the upper lip for thirteen and a half years. There was no history of trauma, the swelling having first started as a small reddish nodule, growing very gradually. On examination it was found to be hard, pedunculated, and freely movable. It was covered by a tense skin, and several prominent vessels could be seen on its surface. Its under-surface was continuous with the mucous membrane of the lip. The removal of the tumour was followed by a skin graft.

The specimen was oval in shape and about 3 by 2.5 cm. It was firm, encapsulated, and covered by skin. On section it showed a white and opaque smooth surface, containing several small yellowish areas.

The histological report was as follows: "Section shows acini and solid clumps of epithelial cells lying in a fibrous connective-tissue stroma, which in places appears myxomatous. The acini are lined with low cubical or flattened epithelium. Their contents appear pink-staining and homogeneous. Some of the acini are dilated and cystic. The solid masses, with their closely packed cells and a tendency to form cell nests in the centre, present a striking resemblance to squamous epithelium. Distributed in the stroma are seen cartilage-like areas and foci of lymphocytic infiltration."

These two cases were encountered in the course of the routine examination of biopsy material submitted by the University Surgical Clinic. Reports of similar cases in other parts of China are lacking.

I am much indebted to Professor K. H. Digby for the clinical reports.

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A Case of "Mixed Tumour" of the Upper Lip

I was greatly interested in the case of "mixed tumour" of the lip reported by Mr. Robin Pilcher in your issue for May 8, 1937. By a coincidence it so happened that on the day on which I read his report an almost exactly similar case was in my wards awaiting operation.

SCHICK RELAPSE AFTER DIPHTHERIA

BY

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Second attacks of most infectious diseases are somewhat rare. A history of a previous infection in a child suffering from a typical attack of measles raises grave doubt as to the correctness of the earlier diagnosis. Similarly, infection with chicken-pox, rubella, variola, mumps, and the organisms of the enteric group confers an immunity which, if not lifelong, is of many years' duration. Even vaccinia confers sufficient immunity to exert some protective effect for a period as long as the average expectation of life at birth (Hanna, 1913).

The position with regard to scarlet fever and diphtheria is not nearly so clear-cut. Second attacks of both diseases undoubtedly occur. Rolleston (1929) found that of 3,000 cases of diphtheria forty (1.3 per cent.) had relapses and sixty-seven (2.2 per cent.) gave a history of a previous attack. Fortunately we have in the Dick and Schick tests yard-sticks which may be used as a measure of the relative immunity conferred by the primary infection. While we cannot say that a Dick-negative person is unable to contract scarlet fever or that a Schick-negative person is unable to contract diphtheria, we know that they are much less liable to do so than a corresponding Dick-positive or Schick-positive person. We know, too, that even if they are so unfortunate as to contract either disease their chances of rapid uncomplicated recovery are very much greater than those of the Dick-positive or Schick-positive person.

The object of this investigation was to form some idea of the frequency with which cases reverted to Schick-positiveness six or more weeks after an attack of diphtheria. All the patients received serum, and so they must at some time during their illness have been Schick-negative either actively, as a result of their own antitoxin, or passively, as the result of the antitoxin administered. Schick (1911) himself noted the rapid disappearance of antitoxin after an attack in some cases. Dudley (1923) reported that of fifty cases of clinical diphtheria occurring at the Royal Naval School, Greenwich, eight were still Schick-positive or gave a positive combined reaction three to six months after an attack. He did not encounter a second case in any boy who had had a previous attack, in spite of prolonged exposure to infection under ideal circumstances for its spread. He deduced, therefore, that "one attack of diphtheria confers immunity in the vast majority of instances, even if the Schick reaction remains positive."

However true this statement may be, the practitioner in charge of a Schick-positive case of clinical diphtheria cannot excuse a delay in giving serum even though he may be sure that the patient has had a previous attack. His duty is too plain to be avoided. The theories of sub-immunity developed by Glenny (1925), however accurate they may be in the mass, cannot be relied upon in any individual case, for clearly if a patient's circulating antitoxin is less than the amount required to render him Schick-negative we have no ready method of finding out whether he is only just susceptible or entirely unprotected. Delay may do no harm or may be dangerous, none can say which. Treatment on these lines becomes a gamble.

The Investigation

Eighty-seven entirely unselected cases of diphtheria were Schick-tested six or more weeks after a definite clinical attack. The diagnosis was confirmed bacteriologically in every case. Nine gave a positive reaction. They were retested with the same result. Seventy-one were female, of whom seven were positive, and sixteen were males, of whom two were positive. The age distribution was as follows:

	0-2 years	2-5 years	5-10 years	10 years or over
Number of cases ..	1	17	48	21
Positive reactors ..	—	1	6	2

It was thought that perhaps the day of disease or admission, which was also the day on which serum was given, might be in some way connected with the Schick relapse. The cases were grouped:

	Day of admission		
	1st and 2nd	3rd to 5th	6th day and on
Number admitted ..	20	47	20
Number positive ..	3	4	2

They were also grouped according to the localization of the disease:

	Faucial	Nasal	Combined Faucial and Nasal
Number of cases ..	51	10	26
Positive reactors ..	7	—	2

and again according to the dosage of serum employed:

	Dose in thousands of units		
	2-8	12-32	12-215
Number of cases ..	50	22	15
Positive reactors ..	5	3	1

The Schick test was performed between the sixth and twelfth weeks in seventy-one cases, seven of these being positive, and between the twelfth and twenty-fourth weeks in sixteen cases, with two positive results. Paralysis occurred in thirty-one cases. Only one of these was later found to be Schick-positive. No paralysis occurred in the other fifty-six cases, and eight of these were later Schick-positive.

The Schick-Positive Carrier

One Schick-positive patient had had a previous attack twelve months before. Three had virulent diphtheria bacilli in their throats at the time they were Schick-positive yet none had any clinical evidence of the disease. One of the three, who had been a chronic carrier for nearly four months, developed a second attack in the twenty-fourth week. She received 2,000 units of antitoxin.

The criteria adopted for the diagnosis of a second attack were the presence of a clinically diphtheritic lesion in the nose or throat, a Schick-positive reaction in the patient, and the bacteriological finding of virulent diphtheria bacilli in the swabs taken from the lesion. The fact that organisms were found in the cultures was not held to affect the diagnosis, for more often than not it is difficult to find in association with the causative bacilli

neurologist this method may seem of doubtful orthodoxy, and he will no doubt consider the expositions in many cases superficial and even in some respects misleading; yet even he, when asked to give a clinical lecture to students or masseuses, or some such not too critical audience, on headache or involuntary movements or such-like topic, will turn with gratitude to Purves-Stewart to make sure that he has adequately covered the ground.

Several of the chapters have been rewritten in this edition to bring them up to date without, as the author himself remarks, altering the original conception and plan of his subject. Nor, fortunately, has this rearrangement added to the length of the book, already extended to over 800 pages. To try to give any conception of which parts of this edition are new would involve more than can be compassed in a review, and it may be more useful to remind old readers of its scope and introduce new readers to its usefulness. After a short review of the physiological anatomy of the nervous system and methods of case-taking, such symptoms as delirium and coma are dealt with, then involuntary movements from convulsions to rigors are described. There is a useful summary of aphasia and disorders of articulation, followed by a discussion of the diagnostic significance of lesions of the cranial nerves. This leads to chapters on the differential diagnosis of pain and abnormalities of sensation, which are particularly useful to the practitioner. Paralysis of all types are dealt with, and a useful clinical description is given of incoordinations and peculiarities of postures and gait. Trophoneuroses of endocrine origin are dealt with, as are affections of the vegetative nervous system. There are useful sections on the significance of reflexes, electro-diagnosis and prognosis, and cerebrospinal fluid findings. A chapter on psychoneuroses is inserted, and while this will not please all modern psychologists it contains many good clinical descriptions, especially of hysterical syndromes. Disorders of sleep are discussed briefly, and finally there is a long chapter on intracranial tumours, which is founded on the author's book on this subject.

The volume is well produced, with copious case histories and good illustrations, and is written in the easy readable style which we expect from the author. We have every expectation that the present edition will prove as useful and popular as its predecessors.

YEARBOOK OF RADIOLOGY

The 1937 Year Book of Radiology. Edited by Charles A. Waters, M.D., Whitman B. Firor, M.D., and Ira J. Kaplan, B.Sc., M.D. (Pp. 503; 550 figures. 4.50 dols. or 19s.; postage inland 7d., abroad 1s. 3d.). Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co. Ltd. 1937.

This yearbook maintains the high standard of its predecessors. The first of the series appeared in 1932, and the form of the book has not altered much since then. It is, as usual, in two parts. Part I, Radiologic Diagnosis; Part II, Radiotherapeutics. The international literature of the previous year has been carefully searched, and almost all that is new is commented upon, with suitable illustrations and references. Attention might be specially drawn to the injections of opaque substances and to the effect of drugs on the gastro-intestinal and genito-urinary tracts.

An excellent article by Twining of Manchester on "Tomography by Means of a Simple Attachment to the Potter-Bucky Couch" is referred to and a good description of the apparatus is given, with diagrams and its method of use. There is a useful chapter on the teaching and principles of practice, which includes long extracts

from a paper by Kornblum and Tumen on "What the Radiologist Should Know about Clinical Pathology." Many instructive cases of rare pathological conditions of the gastro-intestinal system are recorded, and extracts from a paper by Ritvo on drugs as an aid in roentgen examination of the gastro-intestinal tract should prove of great interest.

Under radiotherapeutics all the various methods of x-ray and radium treatment are dealt with, and one chapter is devoted to radiation physics. The work of Eve and Grimmer of London on radium beam therapy is referred to, and the difficulty of obtaining from radium a large depth dose, on account of the short distance at which it must be used, is discussed, and beam therapy is compared with high-voltage x rays. Low-voltage near-distance x-ray therapy is described, and Chaoul's work in making this method applicable to lesions of internal organs is outlined. The latest "super-voltage" therapy—that is, kilovoltages of 1,000 and upwards—is discussed, but the author is of opinion that notwithstanding its theoretical advantages it has yet to be proved that it is of enough practical value to warrant the enormous expenditure required for its installation. The reports from various clinics where this particular form of therapy is employed still leave doubts as to its value.

A short chapter on radiation injuries is of great service and should be read by all radiotherapists. There is an excellent summary of a paper on "X-Ray and Radium Injuries of the Skin and Mucous Membrane" by M. C. Tod of Edinburgh. In this the danger of overdosage, with the final production of x-ray cancer some years later, is discussed. The book is well illustrated throughout and there is an excellent index.

MENTAL HOSPITAL ADMINISTRATION

Administrative Psychiatry. By William A. Bryan, M.D. (Pp. 349. 15s. net.) London: George Allen and Unwin Ltd. 1937.

It was the reviewer's good fortune to meet Dr. William Bryan a few years ago and to spend a day at the Worcester State Hospital. From reading his book one might be inclined to picture Utopian buildings and equipment and to congratulate him on his good luck to preside over them. In actual fact the bricks and mortar are neither better nor worse than in the average mental hospital here or in America, but the administrative philosophy and leadership have produced a spirit of enthusiasm and co-operation which has made Worcester one of the most famous mental hospitals in America.

This book explains the philosophy of "participative democracy" upon which the hospital is run, and in addition gives a great many details of administrative technique. Dr. Bryan has an exceptionally high ideal of what a mental hospital should be and for what it should stand in the life of the community. He would no doubt be dubbed an impractical visionary had not most of his ideas become current practice during his many years of superintendence at Worcester.

Such a frank and detailed book, covering as it does the whole field of hospital organization and administration (there are chapters on building a staff, on the nursing problem, teaching, co-ordinated research, "public relations," etc.), must inevitably contain many debatable ideas—for instance, the wisdom of the practice of periodic rating for efficiency of the nursing staff by a medical committee. But Dr. Bryan points out that psychiatrists have not hesitated to "sell" their psychological theories of management to the industrial world, though in the

CASE-RECORD

The patient was a Hindu lady, aged 25, who came to hospital complaining of obstruction to breathing through her right nostril. This was found to be due to a swelling the size of a walnut in the substance of the right upper lip. She stated that the swelling had started without cause three years previously, and that it had grown slowly, causing no disability until a few months before, when the obstructed breathing had come on.

The tumour was firm, coarsely lobulated on the surface, quite free from attachment to skin and mucous membrane, of even consistency with a definite edge, freely mobile, not translucent, and not tender. An out-patient diagnosis of a "submucous retention cyst" was obviously wrong, and was altered to that of a "mixed tumour" as soon as the case was seen. The tumour was removed through an incision in the mucous membrane of the lip, and shelled out with perfect ease. Convalescence was normal. The pathological report, for which I am indebted to Dr. P. Ramachandra Rao, professor of pathology in the Vizagapatam Medical College, is as follows:

PATHOLOGICAL REPORT

"Naked-eye Appearance.—The tumour is an irregularly oval, greyish-white, slightly bosselated, encapsulated, fairly firm mass about the size of a marble ($1\frac{1}{2} \times 1\frac{1}{2}$ cm.). The greyish-white cut surface is slightly bulging, faintly lobulated at the periphery, and shows an irregular slightly depressed white fibrous area at the centre. The bulging periphery has a mucoid adenomatous appearance. No cysts are, however, distinguishable even with the magnifying glass.

"Microscopical Appearance.—The section shows small spindle-shaped cells with oval plump nuclei containing one or two nucleoli and with scanty cytoplasm, arranged closely in sheets or branching columns or in the form of alveolar networks. In some places the cells form a cluster of branching papillae with very delicate hyaline connective-tissue cores. In others, especially about the cicatricial centre, rounded masses of these cells undergoing hyaline change have formed typical epithelial pearls. In still other areas tubular spaces of varying size, but principally of microscopic dimensions, with homogeneous hyaline contents and lined by cuboidal epithelium in which the nuclei lie near the base, are seen. Some of the tubules have a double lining of the epithelial cells—the distal layer being more columnar in shape. The stroma is formed principally by a mucoid embryonal type of connective tissue, which contains lobules of fatty tissue in places. The centre, however, shows dense hyaline connective tissue with septa radiating from it to the periphery between the epithelial masses giving rise to the lobulated appearance. Cartilage is not in evidence. The stroma, however, shows a fair amount of elastic tissue, particularly in the centre. The vessels are thin-walled and scanty.

"The tumour belongs to the group of 'mixed tumours' of the salivary gland, and may more appropriately be called epithelioma adenoides cysticum."

MAJOR F. M. COLLINS, M.B., F.R.C.S.,

Medical College, Principal and Professor of Surgery.
Vizagapatam.

An International Congress on Rheumatic Diseases will be held at Bath, March 31 to April 3, to celebrate the bicentenary of the Bath Royal National Hospital for Rheumatic Diseases. Lord Horder will deliver the presidential address. In a discussion on "Gout and Chronic Rheumatism of Metabolic Origin" Sir Walter Langdon-Brown and Dr. Mathieu-Pierre Weil will be among the opening speakers. Other papers will be read, and the programme also includes a demonstration of cases at the hospital, a mayoral reception and dance, a banquet at the Guildhall, a tour of the baths, and excursions to places of interest in the neighbourhood. Particulars can be obtained from the joint honorary secretary, Dr. G. D. Kersley, 6, The Circus, Bath.

Reviews

APPENDICITIS

Appendicitis. A Clinical Study. By W. H. Bowen, M.S., F.R.C.S. With an introduction by Sir Arthur Hurst, D.M., F.R.C.P. (Pp. 202, 7s. 6d. net.) Cambridge: At the University Press, 1937.

Mr. W. H. Bowen's monograph on appendicitis is a clinical study, and in his preface the author states that his aim is to give the student and practitioner a broad outline of the common varieties of disease of the appendix. For this reason rarer manifestations such as actinomycotic, tuberculous, and malignant disease have been excluded. Aetiology, diagnosis, complications, prognosis, and treatment are discussed in a work of some two hundred pages in which illustrative cases are also recorded. Chapter on obstructive appendicitis, appendicitis with pregnancy, and the controversial subject of chronic appendicitis are of particular interest. Mr. Bowen favours the pararectal (Battle's incision) approach in most cases, but advises the muscle-splitting incision when the disease complicates pregnancy. The discussion on when to carry out expectant treatment is clearly and logically put, and there can be no disagreement with the conclusion that unless indications for delay are definite and unmistakable the safest and wisest course is immediate operation.

In an introduction Sir Arthur Hurst writes that physicians will welcome a definite statement as to the indications for surgery in chronic appendicitis, with a very convincing analysis of a series of cases in which there has been no recurrence of symptoms over a period of several years following operation. There will be general agreement with the statement that "a man who instead of insisting on a preliminary thorough examination is ready to say, 'Let us have a look inside—we can always remove the appendix,' should have gone into business instead of becoming a surgeon." This work should have a particularly wide appeal, for there is much in it to interest radiologists and physicians as well as surgeons and general practitioners. It is a really excellent account of the aetiology, diagnosis, and treatment of the various types of appendicitis, and a most welcome contribution to our knowledge of this very frequent condition, which even to-day has a regrettably appreciable mortality.

NEUROLOGICAL DIAGNOSIS

The Diagnosis of Nervous Diseases. By Sir James Purves-Stewart, K.C.M.G., C.B., M.D., F.R.C.P. Eighth edition. (Pp. 842; 337 figures. 35s. net.) London: F. Arnold and Co. 1937.

It is a remarkable thing for a book on diseases of the nervous system to reach an eighth edition in a period of just over twenty years. That it should do so is a proof of its widespread popularity and utility. It is not uncommon for the general practitioner to complain that the diseases of the nervous system are so complex and confusing that he can make neither head nor tail of them, and yet he can hardly go through one day's work without being met with signs or symptoms associated with the nervous system. Pain, paralysis, or peculiarity of conduct are all daily problems which are difficult to elucidate from the systematic textbook, and what he wants is to be able to look up accounts of these various types of cases which will guide him in assessing the probable cause. This is just what "Purves-Stewart" gives him, and it doubt accounts for the book's success. To the end

character with a rigid distorted personality, the sex deviate, and the criminal. Stress is laid upon the influence of the neurotic parent in building up the neurotic child, and a plea is entered to let the child grow up instead of overmuch trying to bring him up. There is a brief description of the sort of treatment given by the psychiatrist, and the book begins with a description of a few mal-adjusted persons and ends with that of a few who have grown up in emotional health. There are a very large number of books such as this, and though Dr. Adamson's is clearly enough written we doubt if it will bring very much more understanding to the laity than its predecessors.

General Selection from the Works of Sigmund Freud, by JOHN RICKMAN (Selwyn and Blount, 5s.), is the first of a series of psycho-analytic epitomes which are designed to give the reader an outline of the development of theory and not an exposition of case histories or a short cut to instruction in treatment by psycho-analysis. The arrangement is in large measure historical, tracing the development of Freud's thought and the modifications he has made in his original theory. The lectures in which he first enunciated his new conceptions are quoted fairly fully, then shorter selections are given dealing with special points such as the pleasure-pain reality concept, the unconscious, negation, the vicissitudes of instincts, repression, character types, narcissism, and depression. Next the further developments are quoted starting with the concepts of beyond the pleasure principle and suicide, the Ego, the Superego and the Id, and the later work on anxiety. Finally there is a bibliography and glossary. The chief attraction of this book will be for those already acquainted with the work of Freud who wish to dip back and remind themselves of certain points without having recourse to each separate volume from the library. It may stimulate interest in the neophyte, but unless he is prepared to go back to the original and study the questions in full this book will not be of much use to him.

We have received a copy of the *Proceedings of the First Congress of Internal Medicine* held by the Argentine Medical Association at Buenos Aires under the presidency of Dr. Rodolfo A. Ayherabide in September, October, and November, 1936. Two subjects were chosen for discussion—namely, bronchiectasis from September 28 to October 2, and chronic appendicitis from November 23 to 27. The work is a richly documented and liberally illustrated volume of 654 pages, which can be strongly recommended to readers of Spanish interested in bronchiectasis and appendicitis.

The Nurse's Pocket Encyclopaedia, Diary, and Guide for 1938 (Faber and Faber Ltd.; in ordinary binding 1s. 6d., in superior binding with a pencil 2s.) takes the place of *The Nursing Mirror Pocket Encyclopaedia and Diary*. It is a useful little book containing information on all branches of nursing, and including a section on drugs, a directory of nursing institutions, and many recipes with which to tempt back the convalescent patient's appetite. It has been rather erratically revised, however. A note on prontosil contrasts strangely with a celery-seed recipe for rheumatism. The suggestion that the sterilization of raw catgut is simple is dangerous, and many of the splints and instruments depicted have not even a historical significance.

Dr. VALLERY-RADOT has done a large amount of work on anaphylaxis, particularly in rabbits, and, together with Drs. MAURIC and HOLTZER, he has now produced *L'Anaphylaxie Expérimentale et Humaine* (Paris, Masson et Cie, 36 fr.). The first part of the book deals mainly with the authors' experiments on anaphylaxis in rabbits. A remarkable observation is that rabbits cannot be sensitized passively by the ingestion of serum of sensitized rabbits. Striking photographs showing vasoconstriction

during shock, as revealed by arteriography, are included. Anaphylactic shock as seen in guinea-pigs is dismissed in three pages. Much important work done by other investigators is not mentioned. The second part of the book is concerned almost entirely with allergy in man, particularly with the detection and treatment of the allergic state. The authors conclude that the only methods of any value for the detection of the condition are the skin reaction and the Prausnitz-Küstner reaction.

It remains to be seen whether political changes in Germany will react to the permanent detriment of medical research in that country. In certain spheres its contributions have lately been few, and among these is cancer research. It appears to be the object of *Neuere Ergebnisse auf dem Gebiete der Krebskrankheiten*, edited by Dr. C. ADAM and Professor R. AULER (Leipzig, S. Hirzel, RM. 12), to acquaint the medical public of Germany with the present position of cancer research, both clinical and experimental. Its forty-six chapters are devoted, some to the technique of diagnosis and treatment of cancer in different organs, and some to the experimental study of the disease and other aspects concerned with its aetiology. The individual subjects in the latter category include chemical carcinogenesis, viruses, tumour metabolism, racial and other inherent susceptibility, industrial cancer, and methods of serological diagnosis. This compendium will serve its general purpose, but the serious inquirer will find the account of some of these numerous subjects far from complete, and will regret the frequent absence or paucity of lists of references.

Preparations and Appliances

X-RAY MATERIALS AND ACCESSORIES

The medical and scientific department of Kodak Limited have sent their latest catalogue of x-ray materials and accessories. What chiefly strikes us is the bewildering number of sizes to which x-ray films and papers are cut. The film is supplied on four different types of base and in seventeen sizes denominated by inches and in six others denominated by centimetres. Dental x-ray film is issued in nineteen kinds, varying in size and coating. The sizes of x-ray papers are almost as varied as those of films, running from a little larger than a lantern slide up to a sheet of 40 by 50 centimetres. The number of accessories which are convenient if not essential to the x-ray department continues to increase, and the catalogue gives particulars of cassettes, exposure holders, intensifying screens, negative markers, developing tank outfits, hangers, thermometers, illuminators, and, finally, serial folders, in which are placed six or a dozen barium-meal half-plate reduced prints, complete with report sheet and envelope. A feature is made of an improved type of x-ray reduction camera, offering a simple means of making reductions—prints, transparencies, or lantern slides—from negatives up to a size of 17 by 14 in., without visual focusing, automatic focusing scales being provided.

MALTED MILK WITH VITAMIN D

Cow and Gate (vitamin D) malted milk (Cow and Gate Ltd., Guildford, Surrey) is a milk powder which is fortified with a natural vitamin D (cod-liver oil) concentrate. It is recommended as a well-balanced food-drink for persons of all ages.

OSTOALCALCIUM TABLETS

Glaxo Laboratories Ltd. (Greenford, Middlesex) have now improved both the flavour and the friability of these tablets, while substantially increasing their calcium content. Two and a half grains of calcium phosphate have been added to the original formula (7½ grains calcium sodium lactate and 500 international units of vitamin D). Thus each ostoalcalcium tablet now supplies 1½ g. (0.1 gramme) of metallic calcium. The price is unchanged.

psychiatric hospitals these principles have often escaped our attention. He believes that the best way to build up a loyal and enthusiastic personnel is by developing a true democracy in management. Dr. Bryan has written a most useful and stimulating book.

REGIONAL ANATOMY IN BRIEF

Short Manual of Regional Anatomy. Written for the Medical Student as an Aid to a Rapid Revision of the Whole Subject. By J. A. Keen, M.B.Lond., F.R.C.S.Eng. (Pp. 167; 76 figures. 5s. net.) London, New York, Toronto: Longmans, Green and Co. 1937.

This small book has been written for the medical student as an "aid to rapid revision of the whole subject." It differs considerably from other works with a similar purpose. Keen's *Manual* is an attempt to combine the purely verbal descriptions of certain well-known anatomical revision books with the pictorial or diagrammatic method. The mental exercise of remembering a written description is thus assisted by a visual concept. The book is well written, terse, and to the point, and although some parts are more fully dealt with than others it does cover most of the matter that a student is required to know for the ordinary examinations, and should prove specially useful to a type of student who in his endeavours to be thorough in the study of one particular region—for example, the central nervous system—finds shortly before an examination that he has no time for revision of other important parts. But it is obvious that however skilful the author may be he cannot compress the whole subject of human anatomy within the limit of a small book such as the one we are considering. A surprising amount of information is, however, contained in Keen's *Manual*, and we can recommend it for use in the way which has been indicated—namely, that of revision.

We have little in the way of constructive criticism to offer. Certain of the illustrations, however, are, as the author himself admits, "very diagrammatic"—for example, Fig. 74 (p. 140) and Fig. 75 (p. 142). These might be improved with benefit both from the artistic and educational standpoints. There are many students, however, who will not worry themselves about aesthetic considerations so long as the book will help them to get through their examinations, and it is for these that it is intended.

BACTERIOLOGICAL DIAGNOSIS OF TUBERCULOSIS

Diagnostic Bactériologique de la Tuberculose. By A. Saenz and L. Costil. (Pp. 240. 40 fr.) Paris: Masson et Cie.

Rapid strides have been made in the last few years in the bacteriological diagnosis of tuberculosis; but the clinician is apt to be confused by the large amount of published work, not seldom contradictory. A concise authoritative statement on the relative value of the different methods was overdue. This is now provided in the book by Drs. Saenz and Costil, published from the Pasteur Institute. The authors deal purely with the bacteriological aspects, but their findings, based on extensive personal experience, are put forward briefly and clearly. There should be no difficulty in applying their conclusions to clinical work.

A historical sketch of the culture of the tubercle bacillus is followed by a brief description of the various culture media, and the results of studies of their comparative value and of the relative sensitiveness of the methods of culture and guinea-pig inoculation. The

authors describe the method of culture they have found most satisfactory, and give the experimental work on which this opinion is based. A chapter is devoted to the precautions that must be taken in interpreting results obtained by the direct method, the culture method, and guinea-pig inoculation; and a simple method of determining the type of the bacillus is described. The bacteriological diagnosis of tuberculous materials—sputum, pleural effusion, cerebrospinal fluid, urine, gastric lavage fluid, and specimens removed at necropsy—is discussed in detail. The last section, which forms a third of the volume, is devoted to the authors' investigations on tuberculous bacillaemia. The work was partly carried out in connexion with the inquiry of the Health Organization of the League of Nations into the claims made by Loewenstein.

This is a most useful publication, though we should like to make one criticism. A summary or conclusions at the end of each section would have been of great help to the busy practitioner. This, however, could easily be corrected in a future edition. The book fills a gap, and can be unhesitatingly recommended to all tuberculous workers.

Notes on Books

We have received a copy of the second volume of the *Transactions of the Institute of British Surgical Technicians*, which contains among other items of interest, papers on "Hearing and Hearing Aids," by Mr. Terence E. Cawthorne, on "Modern Operation Theatre Technique," by Mr. F. F. Rundle, and on "Sterilization of Surgical Ligatures," by Sir Weldon Dalrymple-Champagne. There is also an interesting paper by Mr. H. C. Hopwood on "Stainless Steel." The price of the volume is 30s. net.

The third volume of the forty-seventh series of *International Clinics* consists of seven sections devoted respectively to medical clinics at the Johns Hopkins Hospital, tuberculosis and syphilis, diseases of the lungs, cardiovascular disease, endocrinology, diseases of metabolism, and diseases of joints. The publishers are J. B. Lippincott and Co., and the price is 50s. a set of four volumes.

The last fasciculus of Vol. iv of the *Traité de Colloïdogie* by Professor W. KOPACZEWSKI deals with narcosis (Paris: Gauthier-Villars, 35 fr.). The author has collected extensive data concerning the physical, chemical properties of narcotics and the action of narcotics on the hydration of proteins. It is nearly 20 years ago that Overton and Meyer showed the remarkable parallel between the lipid solubility of narcotics and their biological action. Since then the relation between the physicochemical properties and the biological action of narcotics has been the subject of intensive research, and an enormous mass of data has been accumulated. The general result has been to show a remarkable series of striking parallels. A large number of alternative theories have been evolved regarding the physicochemical nature of narcotic action, but no single one has found general acceptance. The monograph under review is an account of certain of these theories, but its length (200 pages) is inadequate to permit an exhaustive treatment of this very wide problem.

So You're Going to a Psychiatrist? by Dr. FETTER and ADAMSON (London: Sir Isaac Pitman and Sons, 12s. 6d.) is one more attempt to explain modern psychiatry to the lay public. The trend of modern medical psychology is explained along Freudian psycho-analytic lines. The types of "patient" are described—the neurotic, the psychotic, the deviations from normal in his behaviour, etc.

is absent, or that direct film examination of sputum is negative, can no longer be justified.

The cultural method is thus of far-reaching importance in treatment of pulmonary tuberculosis and prevention of all forms of tuberculosis. Its universal practice would, moreover, probably influence current statistical notions, the present classification into "sputum-positive" and "sputum-negative" patients being based on vaguely defined and bacteriologically unreliable terms. The method can no longer be regarded as an investigational luxury or as a Continental fad, and facilities for its practice in association with the work of every tuberculosis dispensary and institution should form an essential item in the control of tuberculosis.

MODERN VIEWS ON PELLAGRA

Stannus¹ has recently shown that pellagra, which is endemic in Spain, Italy, Rumania, Egypt, and the southern States of the U.S.A., also occurs in Africa and in the tropical parts of Asia, America, and Australia, notably in prisons, asylums; and similar institutions. Cases are reported, too, in Batavia,² among children in Kenya,³ where the disease is unknown in adults, and in the province of Venice, Italy,⁴ where pellagra disappeared almost completely after the great war but is now reappearing and increasing. In view of such widespread distribution a survey of some of the more prominent features of this disease may be of interest. The peak of incidence is between January and March in Lower Egypt⁵ and May and July in Georgia, U.S.A.⁶; in Kenya pellagra may be seen all the year round except in July and August. This geographical variation in seasonal incidence seems to depend on the time of harvesting cereal crops and on the seasonal variation of the intensity of sunshine. In Yugoslavia^{7,8} and in Georgia pellagra is much more common among women and in Egypt among men, probably because hard physical work in the open air is done by women in the former and by men in the latter pellagrous regions. Most Egyptian pellagrins are under 30, and the majority of American pellagrins are between 21 and 60 years of age. Skin lesions, glossitis and stomatitis, and diarrhoea affect equally sufferers in the different countries, but changes in the central nervous system, which were found rarely in Lower Egypt, more often in Upper Egypt, and

to no noticeable extent among the Kenya children, were very common in the American cases.⁹ Again in contrast to the findings in America, peripheral nerve lesions were absent in Egypt. The heart is reported to be unaffected in pellagra by some authors,¹⁰ while others¹¹ have often found the heart muscle degenerated. In Egypt infection with intestinal parasites is so usual that Ellinger, Hassan, and Taha thought pellagra "secondary" to this condition; such infection was also common in the pellagrous children of Kenya. Sydenstricker and Armstrong found other disorders in about 50 per cent. of their "endemic" pellagra cases, and three such cases examined post mortem by Spies and his co-workers¹² showed severe non-pellagrous lesions of the gastro-intestinal tract.

Theories of aetiology other than those concerned with defective nutrition have failed to survive for lack of evidence.¹³ The view that pellagra is caused by an amino-acid deficiency was put forward by Wilson¹⁴ in 1921, and seemed to explain the association of pellagra with the consumption of maize as a staple cereal, since about 60 per cent. of the protein of maize consists of zein, which lacks the essential amino-acids lysine and tryptophane. There is, however, a mass of experimental evidence showing that the total proteins of whole maize are not very inferior to those of whole wheat, and there are two observations in particular which indicate that pellagra cannot be due to a lack of good protein: the discovery of Voegtlin and his colleagues¹⁵ that a protein-free extract of liver was curative for pellagra, and the complementary observation of Goldberger and his co-workers¹⁶ that a large extra daily ration of purified casein did not prevent the disease. The idea that pellagra might be caused by a toxin, perhaps derived from moulds or other impurities in the maize eaten, has also been widely supported. Somewhat similar are the notions that the disease follows poisoning by dioxyphenylalanine (dopa) produced in the metabolism of maize and is amenable to treatment with sodium thiosulphate,^{17,18,19} or that it is due to chronic cyanide poisoning and curable by sulphur compounds.²⁰ Yet another view, based on similarities between selenium poisoning and canine black-tongue, is that pellagra is a form of selenium poisoning.²¹ None of these sug-

¹ Beckh, W., Ellinger, P., and Spies, T. D. (1937). *Quart. J. Med.*, New Ser., 6, 305.

² Porter, W. B., and Higginbotham, U. (1937). *South. med. J.*, 30, 1.

³ Sydenstricker, V. P., and Thomas, J. W. (1937). *Ibid.*, 30, 14.

⁴ J. Amer. med. Ass., 1937, 108, 853.

⁵ Chick, H. (1933). *Lancet*, 2, 341.

⁶ J. Hyg., Camb., 1921, 20, 1.

⁷ U.S. Pub. Hlth. Serv. Ser. Hyg. Lab. Bull., 1920, No. 116.

⁸ Publ. Hlth. Rep. Wash., 1925, 40, 54.

⁹ Sabry, I. (1931). *J. Trop. Med. Hyg.*, 34, 303.

¹⁰ Sabry, I. (1932). *Ibid.*, 35, 164.

¹¹ Sabry, I. (1934). *Ibid.*, 37, 225.

¹² Clark, A. (1935). *W. Afr. med. J.*, 8 (No. 4), 7.

¹³ De Rohan-Barondes, R. (1937). *Presse méd.*, 45, 183.

¹ *Trop. Dis. Bull.*, 1936, 33, 729, 815, 885.

² Siegenbeek van Heukelom, A. (1937). *Nederl. Tidschr. Geneesk.*, 81, 278.

³ Trowell, H. C. (1937). *Arch. Dis. Childh.*, 12, 193.

⁴ Javicoli, J. (1937). *Quad. Nutrizione*, 4, 1.

⁵ Ellinger, P., Hassan, A., and Taha, M. M. (1937). *Lancet*, 2, 755.

⁶ Sydenstricker, V. P., and Armstrong, E. S. (1937). *Arch. intern. Med.*, 59, 883.

⁷ Ellinger, P., and Dojmi, L. (1935). *Chem. Ind. Rev.*, 54, 507.

⁸ Ellinger, P., and Dojmi, L. (1935). *Lijec. Vjesn.*, 2, 6.

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BACTERIOLOGICAL DIAGNOSIS OF
TUBERCULOSIS

Examination of smears of suspected material by the Ziehl-Neelsen method has been of inestimable value in establishing a diagnosis of tuberculous disease in the lungs or other organs. But soon after the introduction of the method clinicians realized that in an appreciable proportion of patients it let them down because of the large numbers of tubercle bacilli required to be present in the material examined—estimated by Corper at over 100,000 per c.cm. of sputum, for instance—before bacilli could be detected in the smears. Concentration methods increased the percentage of positive findings. But as by culture an enormous multiplication of bacilli would occur, the possibilities of this method in clinical work were soon being explored. The attempts of Koch and others were unsuccessful because difficulties arose in excluding the growth of secondary organisms. Since 1900, however, the work of Spengler, Piatkowski, Uhlenhuth, Petroff, Petragani, Loewenstein, Höhn, and K. A. Jensen has led to the perfecting of a method of culture which is now being firmly established in the clinical field. Loewenstein showed that the tubercle bacillus was resistant to high concentrations of acid or alkali; moreover, he prepared a medium, containing egg, asparagine, and Congo-red or malachite-green, on which better and more easily visible growth of the bacillus occurred. Colonies of human bacilli generally appear within twelve to thirty days, bovine colonies not till after thirty days. The characteristics of the colonies of these two types are distinct enough to allow a diagnosis of type to be based on appearance alone, except in isolated cases when animal inoculation is required. Saenz and Costil¹ have recently claimed, moreover, that the date on which the result is obtained can be hastened by the examination of "microcultures." Seven or eight days after incubation a platinum loop is passed over the whole of the surface of one of the tubes inoculated (they recommend inoculation of several tubes), without injuring the medium, and any material collected is spread on

a slide and stained by Ziehl-Neelsen's method. The tube is then replaced in the incubator. If the result proves negative the same procedure is carried out on the other tubes on the eleventh, fifteenth, and eighteenth days until "microcolonies" are found, constituted by isolated, or masses of, bacilli. This procedure does not interfere with the ultimate growth of the colonies.

In this country Evelyn Holmes² first drew attention to the value of cultivation in the diagnosis of tuberculosis. Edwards, Lynn, and Cutbill³ have published some results; and the paper by Dr. C. A. Green, which appears elsewhere in this issue, indicates clearly what may be expected from the method in clinical practice. Among 2,788 specimens of sputum examined 19.7 per cent. were positive for tubercle bacilli by direct film, cultural, or combined examinations. Cultivation alone was successful in 98.3 per cent. of all positive results. As Dr. Green points out, the most significant finding was that only 74.3 per cent. of all positive results were detected by the routine film examination. Repeated examination by separate observers confirmed the absence of tubercle bacilli in the original stained smears of the 25.7 per cent. of sputa later proved positive by culture. The comparative results in pleural effusions, pus, urine, and cerebrospinal fluid were less striking, but still in favour of the method of culture. Correlation of the bacteriological with the clinical diagnosis left little doubt as to the reliability of the method. But it is evident that the practice of the method calls for expert technique and interpretation, and that animal inoculation may be needed occasionally for confirmation. For the errors that may be introduced into the method we would again refer the reader to Saenz and Costil.¹

Dr. Green stresses the point that cultivation much prolongs the time of examination for tubercle bacilli, and on this account careful choice should be made of the material submitted to the treatment. With this we entirely agree. That the direct film examination should be repeated two or three times (if possible) before material is cultured needs no emphasis. But addition labour may be wasted and a wrong significance attached to a negative result when unsuitable specimens are sent to the laboratory: for instance a specimen which is nothing more than saliva from a patient in whom only such material is obtained, a gastric lavage should be carried out, and the contents appropriately treated and cultured and inoculated in a guinea-pig. A method so obviously useful in diagnosis would not be without value in the treatment of tuberculous patients. The withholding of "quiescence" on the ground that

¹ *J. State Med.*, 1934, 42, 479.
² *Tubercle*, 1934, 7, 17, 191.

³ *Diagnostic Bactériologique de la Tuberculose*. Reviewed in this issue at page 124.

ALL THE WORLD A LABORATORY

An exhibition of scientific instruments, arranged by the Physical Society, attracted a large number of visitors to the Imperial College of Science, South Kensington, during the first week of January. It was divided into a trade and a research and educational section, but really the dividing line between the two sections was not very clear, because many trading firms are themselves carrying out important and far-reaching pieces of research. The relatively few instruments which had a medical interest were microscopes and other laboratory and class-room apparatus, hearing aids and acoustic measuring equipment—very much in evidence—long-wave diathermy apparatus, and an instrument called the “theracoupler” for raising the body temperature of patients by electro-magnetic induction. This instrument, which was exhibited by Marconi-Ekco Instruments Ltd., is intended for use either in general fever therapy or for localized disabilities. The oscillatory inductance takes the form of a flexible cable which may be wound around a limb or joint, looped over or under the body, or applied in the form of a pancake coil. The National Physical Laboratory showed a selection of the instruments used in its optical work, illustrating the routine tests it undertakes for a number of public bodies. One problem now being investigated is the effectiveness of the mercury and sodium discharge tubes which are increasingly used for street lighting. The question many people ask themselves is whether the colour is more effective than the white light for enabling the eye to detect objects on the roadway. Cinematograph records are being made of the manner in which uninstructed observers react to the different lights, the time they take to detect each of a number of objects being automatically recorded. The interest taken in noise control was shown by the number of sound-measuring instruments on view. One “noisemeter” was shown, a portable construction with a microphone, giving a direct reading in phons of the noise level in a vehicle or a factory or wherever it might be taken. The science of noise measurement appears to be established, but it is not entirely within the physicist's province to secure noise reduction. Another instrument that might perhaps be put to useful purpose was a volume indicator, to maintain at the appropriate level of audibility and comfort the loudness of reproduced speech and music in public places. An instrument shown for the first time was a gas-detection apparatus, the result of some work in which the Chemical Defence Research Department has been co-operating with the Department of Scientific and Industrial Research. It consists of a hand pump with a holder in which prepared test papers can be clamped. The suspected atmosphere is aspirated through the test paper and the stain produced is compared with standard colour charts. It was stated that concentrations of carbon monoxide of 0.2 per cent. can be detected in less than two minutes, and concentrations of 0.05 per cent. in six minutes. A new system of recording vibrations, accelerations, and the like was exhibited by the Cambridge Instrument Company in what they called

“stylus-on-celluloid.” The line produced by the stylus is so fine and smooth that when optically magnified readings accurate to about one-thousandth of a millimetre can be made. The recording is carried out in such a way that records taken over long periods occupy little space, are immediately available for inspection and measurement by using a simple form of microscope, and can be photographically enlarged.

PROPHYLAXIS OF MEASLES

Measles now ranks with diphtheria as a fully controllable disease, though the method of control is totally different and the only form of immunity which can be produced artificially is passive. What is perhaps more important than the fact that immune human serum will completely prevent an attack if given during the first five days after exposure to infection is the possibility, by reducing the dose or by giving it between the sixth and ninth days of the incubation period, of securing a mild attack which will confer permanent immunity. The day of the “measles tea-party” is returning, and deliberately to expose children to infection when a suitable opportunity occurs, and then by the appropriate use of serum to reduce the consequent attack to the level of German measles, would appear to be the ideal method of dealing with this disease. Deliberate exposure removes uncertainty as to the date of infection and enables the prophylactic dose and the time of its administration to be calculated with confidence in the result. The most potent serum is that obtained from convalescent donors within a few weeks of the attack, but the protective antibody persists throughout life and the serum of adults who have had the disease in childhood is effective. A quantity of blood such as is removed for transfusion may yield enough serum to secure a modified attack in from twenty to fifty children, according to their age and the time relations of its administration. An added advantage of this method is that human serum is free from all the drawbacks of therapeutic sera prepared in horses: it neither causes serum sickness nor sensitizes to further doses. It is in fact a most valuable therapeutic agent, and to render it more generally available will be an important service to the community. A recent report by Brincker and Gunn¹ gives details of the present sources of supply. The only product commercially available is obtained from placentas; and, according to this report, is liable to cause reactions; other sources are mainly local health authorities in London and a few other cities, which place restrictions on use of their stocks. The authors recommend that a serum pool be formed for use by members of the Medical Officers of Schools Association. There are doubtless many other attempts in progress to meet this demand on a smaller scale. It should be within the capacity of many laboratories to prepare serum for this purpose, and the organization of supplies for local use is a task which public health authorities might well undertake more generally. Where such facilities exist there is a corresponding obligation on the practitioner

¹ *Ann. Rep. Med. Off. Schools Ass.*, 1936, p. 92.

gestions has received adequate experimental or clinical confirmation.

The view accepted at present is that pellagra is a deficiency disease caused by lack of the vitamin B_2 complex. Two new variations on this theme are now under discussion. Sydenstricker and his co-workers²² state that pellagra can be cured simply by the administration of the gastric juice of healthy individuals. They conclude that pellagra is due partly to loss of the power to produce an intrinsic factor, secreted with the gastric juice and stored in the liver, and partly to the lack of an extrinsic factor, vitamin B_2 , in the diet. Stannus²³ considers the action of the anti-pellagrous factor in the diet to be that of a catalyst governing the metabolism of the cells of the skin, mucous membranes, and nervous system—an explanation somewhat difficult to follow. Quite different is the view advanced by Ellinger and others, after observing that rats deprived of the constituents of the vitamin B_2 complex excrete in the urine a highly concentrated coproporphyrin, which disappears after these substances have been added to the diet.²⁴ Clinical investigations along the same lines showed increased porphyrin in the urine in cases of "endemic" pellagra in Posusje, Yugoslavia, in "alcoholic" pellagrins in Cleveland, Ohio, and in Egyptian pellagrins. The porphyrin output appeared to be greatest before or at the onset of the disease and to decrease for a time while the clinical symptoms were developing; it usually disappeared after treatment with substances rich in vitamin B_2 . Porphyrin is thought to be an essential symptom of pellagra, and to cause the characteristic dermatitis by rendering the skin sensitive to light and pressure. The connexion between the dermatitis and exposure to sunlight has also been demonstrated by Smith and Ruffin.²⁵ The lack of vitamin B_2 causing pre-pellagrous porphyria may be due to malabsorption or malnutrition, or both; but once the pre-pellagrous state is established hard physical work, especially in the open air, exposure to sunlight, or the occurrence of infectious disease will precipitate the symptoms of pellagra. The clinical similarity of pellagra and congenital porphyria has also been stressed.

Treatment of pellagra has been advanced by the use of yeast, which reduced the death rate of pellagrins in Georgia from 33.7 per cent. before 1926 to 25.3 per cent. in the following nine years. Complete rest in bed, a diet containing as much as 4,500 calories, and the simultaneous administration of large daily doses of dried yeast or liver

extract has given striking results.²⁶ Ruffin and Smith,²⁷ investigating the pellagra-preventive dietary factor postulated by Goldberger and others,^{28,29} conclude that this factor in liver extracts consists of two or more substances. Ellinger, Hassan, and Taha³⁰ observed cure or improvement in pellagra following the oral administration of dried yeast or an autoclaved watery extract of yeast, without any other alteration of the diet or conditions of life. The fuller's earth adsorbate of the watery extract of yeast which Goldberger and Wheeler³¹ found effective in the prevention of black-tongue, believed to be the canine equivalent, gave no decisive results in human pellagra. An eluate prepared from the fuller's earth adsorbate gave promising results, as did the filtrate from this adsorbate when given with lactoflavine. These substances were prepared according to the methods of Edgar and Macrae,³² who tested them on growing rats deprived of vitamin B_2 , and found them to possess growth-promoting activity. The activity of the fraction isolated has been tested in most instances on rats or dogs, and the application of the results to human pellagra is difficult and uncertain in the present state of knowledge. Much confusion exists owing to the different sources (yeast, liver, rice bran, etc.) from which various fractions have been isolated and to the lack of a uniform nomenclature for them.

A further complication has been introduced by Leutsky,³³ who suggests that there is reason to seek the cause of pellagra-like lesions in mice in an insufficiency of mineral components in an otherwise adequate diet. In the treatment of canine black-tongue Elvehjem and his co-workers³⁴ found nicotinic acid of value and isolated nicotinamide from highly active liver concentrates. If these results are confirmed and nicotinic acid is found equally effective in the treatment of human pellagra as seems to be the case from the results recently published by Fouts and others³⁵ and by Smith, Ruffin, and Smith,³⁶ it will be interesting to see whether the consumption of trigonellin, the methyl betaine of nicotinic acid, has any influence on the development of pellagra in Lower Egypt. Trigonellin is contained in "helba," the seed of *Foeniculum foenum graecum*, which is a common constituent of the bread eaten by the rural population of this district, where pellagra is endemic.

²² Spies, T. D., Chinn, A. B., and McEwen, J. B. (1937) *Med. J.*, 30, 18.

²³ *South. med. J.*, 1937, 30, 4.

²⁴ *Publ. Hlth. Rep. Wash.*, 1926, 41, 1025.

²⁵ *Ibid.*, 1926, 41, 297.

²⁶ *Lancet*, 1937, 2, 1188.

²⁷ *Publ. Hlth. Rep. Wash.*, 1928, 43, 172.

²⁸ *Biochem. J.*, 1937, 31, 856.

²⁹ *Lancet*, 1937, 2, 1421.

³⁰ *J. Amer. chem. Soc.*, 1937, 59, 1767.

³¹ Fouts, P. J., Helmer, O. M., Leutsky, L. P., and Leutsky, J. (1937). *Proc. Soc. exp. Biol. N.Y.*, 37, 27.

³² *J. Amer. med. Ass.*, 1937, 109, 204.

³³ *Amer. J. med. Sci.*, 1936, 192, 1.

³⁴ *Trop. Dis. Bull.*, 1937, 34, 183.

³⁵ Ellinger, P., Edgar, C. E., and Lucas, N. S. (1935). *Chem. Ind. Rev.*, 54, 269.

³⁶ *Arch. intern. Med.*, 1937, 59, 631.

was increased, so that much serous exudate escaped into the tissues. Blackman considers that the formation of this exudate is characteristic of lead encephalitis, as the picture which results from its formation has not been observed in any other type of encephalitis. The exudate causes distortion of the architecture of the brain, the regions in which exudate collects showing destruction of nerve cells and fibres, with overgrowth of neuroglial fibres around the cells that have been destroyed. During fixation of the brain some of the exudate escapes into the fixing fluid, leaving large spongy areas in the brain, especially in the grey matter and in the apical white matter. Similar lesions are found in the cerebellum, particularly in the molecular layer, the Purkinje layer, and in the dentate nucleus. Small perivascular haemorrhages and focal areas of necrosis are common but are not specific. Special stains are recommended for demonstration of the exudate. A point of particular interest was that most of the children developed encephalitis and died during the summer—nineteen out of the twenty-two cases succumbed during the hottest time of the year. The suggestion is made that the high seasonal temperatures, which cause vasodilatation, may possibly precipitate the onset of encephalitis by acting on vessels already weakened by the toxic effects of lead.

THE JOURNAL OF NEUROLOGY AND PSYCHIATRY

The first issue of the *Journal of Neurology and Psychiatry*, dated January, 1938, has been published this week by the British Medical Association. As it is the lineal descendant of the *Journal of Neurology and Psychopathology* the aim of the editors is to uphold the traditions, character, and standard handed down by the late Dr. Kinnier Wilson. The present number contains original papers dealing with various aspects of neurology and psychiatry and a critical review of the pathology of apoplexy. It has been decided to replace the editorial article of the previous journal by an authoritative critical survey of some particular subject. The choice of subject under review will be guided largely by the type of work being carried out at various hospitals and centres of research. In this way it is the desire of the editorial committee to keep readers abreast of the latest additions to knowledge in neurology and psychiatry. To aid in the same purpose, each issue will also include an epitome of current literature in which the contents tables of recently published numbers of journals devoted to these branches of medicine are reproduced, along with short abstracts of articles of special interest. Appreciating the need for keeping in touch with the basic sciences, the scope of the epitome will embrace journals of anatomy, physiology, and biochemistry. The critical reviews and the epitome should be of much value to neurologists and psychiatrists throughout this country, the Dominions, and the United States, because there is at present no adequate service in the English language for bringing to their notice in compact form work which is going on in the world. To assist Dr. E. Arnold Carmichael

in editing the *Journal of Neurology and Psychiatry* a board has been set up consisting of Dr. D. E. Denny-Brown, Mr. Geoffrey Jefferson, Dr. Aubrey Lewis, Dr. R. A. McCance, and Dr. Alfred Meyer. The medical public is thus assured of a quarterly periodical of high standard which, with its new typography and lay-out, deserves the support of neurologists and psychiatrists in all parts of the British Empire. It is not too sanguine to expect that, with the standard set by the editorial board in this first number, our contemporary, under a new name and a wider policy, will become recognized everywhere as being authoritative and invaluable to those engaged in the study and practice of the subjects covered by its title.

WORKMEN'S COMPENSATION FOR SILICOSIS

The group of pulmonary diseases known as silicosis attack a large number of workmen in countries where much mining is done in siliceous rock. The problem of silicosis was one of the first to be dealt with by the International Labour Office at Geneva, which has published a considerable body of literature on its researches. The International Stoneworkers' Secretariat has for long pressed the Office to help it to obtain compensation in all countries for silicosis, and in the course of its investigations the Office has examined the compensation legislation in force in various countries. This legislation mostly falls within three typical systems: special legislation, special schemes within workmen's compensation legislation, and schedule. These are represented by practice in Great Britain, South Africa, and Germany respectively. In a recent report on workmen's compensation for silicosis in the Union of South Africa, Great Britain, and Germany¹ the Office has analysed these systems of law according to a uniform plan, and compared the results. In a series of appendices it gives an account of the system of blanket coverage and its practical application, data connected with radiological technique and terminology, enumeration of products used and of industries, statistics of incidence and cost of compensation, and a list of countries which have introduced compensation.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement and Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Secretary, B.M.A. House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

¹ International Labour Office. Studies and Reports. Series F (Industrial Hygiene), No. 16. Workmen's Compensation for Silicosis in the Union of South Africa, Great Britain, and Germany. Geneva, 1937. Price 3s. 6d. Published in the United Kingdom by P. S. King and Son, Ltd., Orchard House, 14, Great Smith Street, Westminster, S.W.1.

to use the serum to the best advantage. Every case in which the date or the fact itself of exposure to infection is in doubt has to be judged on its own merits, but two indications are quite clear: that serum is wasted if given after the attack has begun, and that absolute prevention of an attack should be sought for only in infants or in children who, by reason of other illness are unfit to undergo even a modified attack.

SCHOLARSHIPS AND GRANTS FOR RESEARCH

The *Supplement* this week (p. 34) contains an announcement of the five scholarships which the British Medical Association awards annually and for which it is prepared now to receive applications. The value of the scholarships, which are tenable for a year, is £200 each in the case of the Ernest Hart Memorial Scholarship and the Walter Dixon Scholarship, and £150 for each of the other three. Grants to assist research are also made annually, and both scholarships and grants are awarded by the Council of the Association on the recommendation of its Science Committee. Applications for scholarships and grants should be made on forms prescribed for the purpose, which are available on request, and should reach the Secretary of the Association not later than May 7, 1938.

EFFECTS OF TEMPORARY CORONARY OCCLUSION

Following upon the recognition of certain changes in the electrocardiogram after myocardial infarction, many examples of changes similar in type, if less in degree, were reported in angina of effort. The changes in the latter, like the pain, lasted only a few minutes, but it is believed that functional changes, due to a temporary ischaemia, occur in the muscle during this time, and that with the return of a normal balance between work and blood flow the pain and the metabolic changes disappear. It is known that myocardial infarction may arise with widespread narrowing of the coronary branches but without complete occlusion of any vessel; but it is not certain whether the periodic increases of chronic ischaemia, expressed as attacks of effort angina, are a factor in the production of infarction in these cases. Some animal experiments to determine the electrocardiographic and other effects of temporary coronary occlusion have been made by H. L. Blumgart *et al.*,¹ the anterior descending branch of the left coronary being occluded in cats for periods of five to forty minutes. In all the animals where the occlusion was from fifteen to forty minutes the tracings showed the changes of infarction, and these persisted till the animals were killed—that is, for periods up to nine days. With occlusion for less than fifteen minutes these changes did not always occur, and when they did persisted a shorter time. In no case was any gross or microscopical evidence of infarction discovered in the hearts, and it was shown that the circulation through

the occluded vessel was fully re-established after removal of the ligature. During the experiments ventricular fibrillation was often noted; the onset of the arrhythmia was most frequent at the release of the ligature and, secondly, just after its application. The mechanical trauma which would take place at these times may possibly explain this. There are doubtless clinical counterparts to these results. Cases have been recorded in which an apparently sound clinical diagnosis of myocardial infarction confirmed by electrocardiogram has not been borne out by post-mortem examination. Anginal pains of a duration comparable to that of Blumgart's experiments occur in the varieties known as angina decubitus and spasmodic angina, and are held to be independent of infarction. Also, progressive changes in the T waves are often seen in patients who give a history of nothing more than angina of effort. In all of these groups it is possible that chronic progressive changes in the electrocardiogram may appear and in some be indistinguishable from those of myocardial infarction. Increasing knowledge of these conditions will probably show that the present-day tendency is to diagnose cardiac infarction too readily.

LEAD ENCEPHALITIS IN CHILDREN

Lead poisoning is usually considered to be an industrial problem, and the development of public health services, with their influence on industrial medicine, has resulted in a great decline in the number of workers who contract this occupational disease. Of the protean manifestations of lead poisoning none is more serious or irrecoverable than encephalitis, which is often fatal. This encephalitis may arise either in acute lead poisoning or in chronic cases. The nature and pathology of lead encephalitis in adults have long been recognized, but little has been known about its occurrence in children until recently, when an outbreak of lead poisoning in small children caused by chewing furniture and toys coated with lead paint stimulated interest in this subject in the United States. Whether such cases occur in this country and escape recognition, or whether British children have less depraved appetites than their American cousins, cannot be determined at present. All that can be said is that in Great Britain lead encephalitis is a very rare diagnosis in children. The fact that Blackman² was able to study the pathology of the brain in twenty-two fatal cases of lead poisoning in children between the ages of 13 months and 7 years. Most of these cases were in coloured infants, but there were in white children. Evidence of lead poisoning was available in every case, both from the history and from the clinical picture. On naked-eye examination the brains appeared highly oedematous and congested. Microscopically, lesions were found throughout the nervous system, but were most abundant in the cerebral hemispheres and in the cerebellum. Most of the damage to nervous tissues resulted from changes in the small cerebral vessels, the permeability of

¹ *Amer. J. med. Sci.*, 1937, 194, 493.

² *Johns Hopk. Hosp. Bull.*, 1927, 21, 1.

Haemorrhage can usually be arrested by local pressure—the application of a first-aid dressing with a firm bandage over it. Under the conditions implied by first-aid, when the dressings are from a stock packet sterilized some time previously and there are no facilities for boiling instruments or adequate preparation of hands, opening the wound or packing its depths should be avoided. Should this seem essential for life-saving, the packing gauze, if possible, should be wrung out of an antiseptic. For severe haemorrhage from a limb a tourniquet provides a certain method of arrest, one far safer than packing under doubtful conditions. A tourniquet should not be left on the arm longer than half an hour if it can be avoided, and in no case longer than an hour; in the leg these times may be doubled. In the arm the dangers of a tourniquet are not alone those of tissue necrosis following prolonged ischaemia; paralysis of some of the nerves, usually temporary but occasionally persisting as a partial weakness, is to be feared even after a short application of any band of a rigid type. Here it is safer to use the cuff of a sphygmomanometer.

Tincture of iodine is universally painted over wounds as a first-aid measure. That this practice should be retained in ambulance classes is probably wise; the use of iodine discourages meddlesome exploration, re-sterilizes dressings which have often been de-sterilized in application, and brings a visible and pungent reminder of the value of antiseptics. When a really sterile dressing can be applied with careful technique iodine is better omitted. In a fresh wound it is extremely painful, and to one whose nerves have been upset by a recent accident very distressing, while its sterilizing action is limited to the skin and the dressings and does not extend appreciably to the depths of the wound, the proteins of which are coagulated by the alcohol. When haemorrhage has been arrested and a clean dressing applied the part should be fixed on a splint or otherwise protected from avoidable movement.

General Treatment

As soon as the patient reaches a place where adequate treatment can be instituted—his house or the doctor's, a nursing home or hospital—a more careful study of him and his injury must be made. We must ascertain as far as possible the extent of the wound, the degree of contamination, and the structures that have been injured. This examination may mean gently lifting up the flaps of the wound with forceps and cautious probing, but any forcible separation of the parts, anything that may hurt the patient or restart the haemorrhage, should be postponed till an anaesthetic has been given. At this stage a careful search will be made for nerve and tendon injuries and for fracture of neighbouring bones. Such a survey will allow us to decide whether the general condition of the patient demands treatment for shock or whether we may proceed to repair the wound at once; whether an anaesthetic is necessary, and if so of what nature; what structures are certainly damaged and need repair; and if infection is to be feared, particularly infection by some of the more dangerous organisms.

It is rarely that treatment for shock is essential before the wound can be repaired, and then only if it appears reasonably certain that active haemorrhage plays no part in the shock. Because of the difference outlined above between contamination and infection it is really important that the surgical toilet of the wound shall be delayed as little as possible and that bacteria should not be allowed to establish a hold. The treatment of shock by warmth

and the administration of fluids can in most cases be carried on while the wound is being repaired. If necessary a local anaesthetic can be given.

Preventive Therapy

While infection may be present and is to be feared in any wound, there are three organisms whose presence can often be anticipated and whose ravages can be forestalled—the bacillus of tetanus, the bacillus of gas gangrene, and the haemolytic streptococcus. The bacilli of tetanus and gas gangrene are both found in the alimentary flora of farmyard animals, and therefore in stables and on all manured land, on the surface of roads, and in the clothing of those who work in gardens or with horses or cattle. Either bacillus may gain entry to wounds incurred in such surroundings or by people in these occupations: but whereas the tetanus bacillus will establish itself wherever anaerobic conditions are found, the *Cl. welchii* rarely gains a foothold except in the presence of grossly devitalized tissues. A prophylactic dose of 1,000 English units of antitetanic serum (2 English units correspond to 1 U.S.A. unit) should be given in all cases of road or farm accidents, and indeed in every case of a lacerated wound where soiling is at all possible: a prophylactic dose of 4,000 units of anti-gas-gangrene serum should be given in addition where soiling and laceration coexist.*

Infections with virulent strains of haemolytic streptococci are rarely encountered, except in wounds inflicted in hospital practice. In pricks or scratches incurred during necropsies, or while operating on or dressing septic cases, they may almost be anticipated, and are notoriously dangerous and even fatal. In such cases a prophylactic dose of sulphanilamide should be given.

Anaesthesia

The question of anaesthesia demands little discussion. Trivial wounds, and occasionally larger ones in phlegmatic adults, may be stitched without anaesthesia. If the patient has not to make a journey afterwards a preliminary injection of morphine may be given to allay apprehension. In most cases a general anaesthetic will be found advisable, since it leaves the surgeon free to extend his procedures in time or space, and it is almost essential if a tourniquet is to be applied or haemorrhage is anticipated. Local anaesthesia is particularly applicable to wounds below the knee and elbow. The method of local infiltration is not really suitable for the repair of wounds, and some form of nerve block will be preferred. Fortunately the median, ulnar, and radial nerves at the elbow and wrist, and the internal and external popliteal and long saphenous nerves at the knee, run in easily identified anatomical sites, and may be blocked by injection with 1 per cent. novocain. Local anaesthesia is indicated when the wound is part of an injury that includes fractures of the ribs, since pulmonary complications may follow general anaesthesia, however carefully administered.

Operative Treatment

The aim of the surgeon is to suture healthy, uninfected tissues as accurately as possible. When the wound has been inflicted with a clean sharp instrument, the tissues on its surfaces are undamaged, and the edges of skin and deep layers clean-cut, the wound may be sewn up completely after gentle irrigation with a harmless antiseptic,

* Many surgeons now give a mixed tetanus and gas-gangrene antitoxin in all road and industrial accidents: this is prophylactic against infection by *Cl. tetani*, *Cl. welchii*, and *Vibrio septique*.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

TREATMENT OF WOUNDS—I

BY

W. H. OGILVIE, F.R.C.S.

The aim of wound treatment is the restoration of perfect function: to attain this end the wound must be made to heal in the shortest time, with the least alteration in its structures by the processes of repair.

The Process of Repair

The ideal progress of a wound is, or should be, seen in the healing of a surgical incision. An operation wound differs in several particulars from the majority of accidental wounds: first, it is executed with sharp instruments, used in their cutting plane only, and the damage to tissues along its margin is therefore slight; secondly, there is no loss of substance; thirdly, haemorrhage has not been allowed to take place; and, fourthly, infection is absent or minimal. After suture the first change that takes place in such a wound is the outpouring of fluid between the apposed cut surfaces. Into this fluid and between these surfaces phagocytes wander, and proceed to engulf and remove damaged cells—in the case of a clean wound to a depth of a few cells only. The fixed connective-tissue cells of the part multiply and bridge the gap, and on the surface the epithelial cells do the same. After four days the epithelial wound if linear is covered with fresh cells, and the deeper parts are bridged by new connective tissue. After ten days the wound is mechanically very nearly as strong as the normal parts on each side of it, but the newly united tissues are more cellular and vascular. By the end of six weeks mature connective tissue has replaced the fibroblasts and repair may be looked upon as complete.

In traumatic surgery an imperfect result may be due to the nature of the wound alone, the process of healing having proceeded normally, or to permanent interference with the function of the structures in the neighbourhood of the wound due to delayed or imperfect healing. In the first case there has been actual loss of substance which cannot be replaced, and the resulting disability will depend upon the extent and importance of the tissue lost. We can do nothing to mitigate or to prevent this loss. In the second case repair has been by second intention—that is, it has passed through an intermediate stage of granulation. Granulation tissue is not in itself vicious. It is Nature's method of dealing with a dead space, the putty she puts into imperfections before finishing off. Granulation tissue must therefore be expected where the loss of substance has been too great for the tissues to be approximated by suture; where approximation, though possible, has been imperfectly performed; or where it has been broken down later by haemorrhage or infection. The evil of granulation tissue is that it is finally replaced by a fibrous tissue which contracts to approximate the margins of the defect it originally filled. Its purpose is to bind, fix, and repair; its vice that this fixity destroys movement. The skin over a granulated scar is thin, fixed, prone to break down with friction, and liable to keloid or even malignant changes later; muscles are weakened in proportion to the gap in their fibres, and bound to each other by adhesions; tendons become fixed

to their neighbours and their sheaths; nerves regenerate poorly if at all.

If our ideal is to be the approximation of healthy tissue without infection we must, in each case that presents itself, assess both the mechanical and bacteriological condition of the wound. From one point of view wounds may be classified as punctured, incised, lacerated, crushed or complicated by injury to bones, joints, or nerves. From the other they fall into the categories of clean and infected. The two are not really independent, for wound infection depends not alone upon the entry of bacteria but on the presence of dead or damaged tissues upon which they can thrive and establish a foothold. In general, clean-cut wounds are more likely to be bacteriologically clean than lacerated ones, but this is by no means always the case; among the most dangerous are the small punctures caused in hospital work by infected needles.

Contamination and Infection

The progress of a wound infection may be divided into two somewhat arbitrary stages—contamination and infection. In the first stage the bacteria which have been carried in by the agent inflicting the wound lie on the surface—in bits of dirt, clothing, or metal fragments—or in small groups in the blood clot. They are a local contamination and have not yet started to multiply or invade. They can, at this stage, be removed by a thorough mechanical cleansing, leaving the tissues round them uninfected. In the second stage the bacteria, profiting by the supply of culture medium available in them in the dead matter around, in blood clot, lymph, and damaged muscle, have multiplied and started to invade the tissues of the host. They can now be removed only by the protective reaction of the living cells, or by some wide excision which necessitates the removal of healthy tissues, and involves the risk that it may breach the defence wall without including in its scope all the invaders. For practical purposes the stage of contamination may be looked upon as lasting for twelve hours before it passes into that of infection. It must be remembered that where the organisms introduced are few the available pabulum scanty, and the tissues are healthy, infection may never establish a foothold.

An estimation of the probable degree of infection is the first step in deciding upon the treatment of any wound. This will take into consideration the nature of the injury, the state of the patient's skin and clothes, and the appearance of the wound, and will be no more than a working guess based upon experience, but a guess upon which treatment must be decided. If the wound is clean it should be sewn up completely; if infected, it should be drained. When there is any doubt undue conservatism is safer than mistaken optimism.

First-Aid Measures

These should be of the simplest character and limited to absolute essentials—the arrest of haemorrhage, the protection of the part from infection and further damage. They are only necessary when some competent person is not at hand and when the interval in time or space before proper treatment can be undertaken is appreciable.

CROYDON TYPHOID INQUIRY

CLOSING PROCEEDINGS

The Croydon Typhoid Inquiry reached its final stage at the beginning of the present week. It had extended over sixteen days. The evidence on behalf of Croydon Corporation was completed by the calling of the town clerk, Mr. Ernest Taberner, who, in reply to Mr. A. H. Forbes, for the Croydon Division of the British Medical Association and the Local Medical and Panel Committee, said that his council favoured co-operation with local medical practitioners, though it had not exercised the powers of co-optation afforded by the Local Government Act, 1933. He had no doubt that as the result of the present proceedings it would take the suggestion into consideration. He thought that it would not have been feasible at the beginning of a serious outbreak for the medical officer to take himself away from his work and set up a body of medical practitioners for the purpose of co-operation.

Dr. O. M. Holden, the medical officer, who was recalled, said in reply to Sir Humphry Rolleston that he began to be concerned about the cases on October 30, when four cases had been notified and two others were suspected. The infection of the Addington well by a typhoid carrier was in his view the most probable cause of the outbreak, though he agreed with the chairman that this did not imply any wilful misconduct on the part of the carrier or any other person.

Evidence by Residents

A number of witnesses were presented by Mr. A. M. Lyons on behalf of the South Croydon Typhoid Outbreak Committee. Among these was Mr. R. L. Moss, secretary of the committee, who said that at a meeting of residents on October 31 Dr. Holden had stated that water as a source of infection was "inconceivable." Another witness was a local councillor, Mr. S. A. Maycock, who said that he as a councillor received no information of the outbreak until November 9, when an official statement was made to the council at the mayor-making ceremony. Mr. Maycock added that his son had been a typhoid patient, but was now recovering. Asked whether he was in hospital, Mr. Maycock replied, "No, emphatically not; we kept him at home." Other witnesses included a hotel proprietor, a local schoolmaster, the matron of a nursing home, and Mr. C. R. Rimington, whose son was taken ill as early as October 24 and died of typhoid. On October 29, having heard of other cases in the road in which he lived, Mr. Rimington wrote to the medical officer of health mentioning these cases and stating that the only common thing appeared to be water. On October 30 he saw Dr. Holden and offered to place himself entirely at the medical officer's disposal in investigating the outbreak. He called an emergency meeting of local ratepayers on the following day, and it was at this meeting that Dr. Holden said, in reply to a question, that it was inconceivable that water was the cause.

The last of this series of witnesses was a typhoid patient, Mr. Cecil E. Green, who stated that he was taken ill on November 20 and removed to Mayday Hospital, which he had been allowed to leave for the first time on the day on which he gave evidence. He desired to take the opportunity of expressing his high appreciation of the medical, nursing, and domestic attention he had received at the hospital, against which, he understood, some adverse criticism had been directed. Mr. Lyons said that no such criticism had been made by those he represented, and he wished to dissociate himself from anything of the kind. Mr. Green confirmed the testimony of previous witnesses that at the meeting of residents on October 31 the medical officer was asked if he thought that water was the cause of the trouble, and replied that this was inconceivable, because the water was tested. He was asked at the same meeting whether it would not be a good idea to inform local practitioners of the outbreak, but Dr. Holden did not

agree that at that time there was an outbreak, and that was one of the reasons why the residents were dissatisfied with the results of the meeting.

Sir William Willcox's Evidence

Sir William Willcox was also called by Mr. Lyons. He said that he desired to make certain statements in the interests of the public. The Croydon outbreak in his view was an epidemic of a rather serious form of typhoid, with clinical manifestations a little unusual. The mortality rate looked like being 15 per cent., which was fairly high. In reply to questions, he said that if there were five or six cases of typhoid in the same area, as was the case in Croydon by October 31, his suspicions would have been aroused, and his attention would first have been drawn to water and milk. In dealing with such an outbreak he would advise close liaison between the medical officer of health, the municipal authority, local medical practitioners, and the voluntary hospitals.

"I am not criticizing the medical officer of health for Croydon, but I do criticize the machinery which exists throughout the country to-day, and the lack of liaison between the general health and municipal authorities and general practitioners. There should be some *ad hoc* committee representing the medical practitioners of the district who can advise the medical officer if called upon and who can in turn be helped by the medical officer."

He quite agreed that it was the responsibility of the medical officer of health to deal with an outbreak, and that it would not be possible in the midst of such an outbreak for the medical officer himself to go round to all the local doctors. He added that he was of opinion that the cause of this epidemic was discovered very quickly. "It was a good piece of work. From a scientific point of view the diagnosis in this case was very quickly made." He was sure that Dr. Holden did everything possible to help the doctors. The outbreak was rather sprung upon him, and perhaps he did not realize the importance of the help that a committee might have afforded.

At the conclusion of Sir William Willcox's evidence Mr. Sandlands (for Dr. Holden) said that although he had previously stated that he would call a witness, he would not now do so in view of Sir William's commendatory observations regarding the medical officer.

Other Medical Evidence

Dr. George Lewin, who said that he had attended twenty-three cases during the present outbreak, urged that it was not enough merely to circularize the practitioners of South Croydon. All the practitioners in the borough and the surrounding districts should have been warned earlier, and a map of the water supply in relation to the occurrence of cases would have been of great assistance. Replying to the chairman of the tribunal (Mr. H. L. Murphy, K.C.) he said that had he been medical officer when the outbreak occurred he would have suspected water from the very beginning and have informed the practitioners—in confidence, if necessary—of the fact. The general practitioners bore the frontal attack in an outbreak of this kind, and the M.O.H. was the intelligence officer.

Dr. E. T. Conybeare, a medical officer of the Ministry of Health, who had assisted in Croydon from the beginning of the outbreak, answered some questions by the chairman. He thought that the coincidence between the dates on which the known carrier was working in the well and the probable date of infection in the majority of the cases pointed to the probability that this man was connected with the outbreak, though not the cause of it in the gross manner which had been indicated. He was of opinion that the incubation period in typhoid was longer than fourteen days. Dr. Macdonald Scott, bacteriologist at the Ministry of Health, gave evidence that his examination showed that one of the workmen was a

such as 1 in 1,000 acriflavine, and the arrest of all bleeding and oozing points. Such an apparently clean wound almost necessarily contains organisms; but these, if small in number and of low virulence, will be exterminated by the healthy tissues around them if no circumstances favourable to them, such as the accumulation of exudate or the presence of foreign material, are allowed to appear. Dead spaces must be eliminated, so the wound must be sutured to its depth; it is not sufficient to approximate the skin. For the deep sutures catgut of small calibre should be used, but used sparingly. Size 00 is usually sufficient, and the sizes larger than 1 are seldom needed, being bulky and irritating to the tissues rather than strong. For the skin unabsorbable sutures of horse-hair or fine silkworm gut are best. An ideal material is the suture of 00 ophthalmic silkworm gut, which is supplied by most firms in sterile tubes for plastic work, on fine eyeless cutting needles. These sutures can be inserted almost painlessly without anaesthesia and leave no visible scar when removed. All stitches in deep structures or skin must be interrupted to allow any fluid accumulating to escape between them, and beyond this precaution drainage is unnecessary in the clean type of case under discussion. If, on the other hand, the wound is lacerated and soiled it must be trimmed and cleansed before it can be sutured, and even then it should not be closed completely unless the excision has been wide and early; usually drainage of some kind must be allowed.

Such a wound is first opened freely and its depths inspected. Loose blood clot, dirt, and fragments of clothing are removed, and the cavity is lightly sponged out with gauze swabs. If bleeding from a vessel of some size is then encountered it must be stopped; otherwise the arrest of haemorrhage should be left till obviously damaged tissues have been excised. Excision is carried out methodically and carefully from the deeper to the more superficial layers. The torn surface of muscle should be trimmed with scissors to the depth of a few millimetres. Vessels and nerve trunks must of course be left, and can only be cleansed in so far as swabbing with an antiseptic will do it. In most lacerated wounds the subcutaneous layer appears to be most soiled and must be methodically trimmed, care being taken, however, to remove only as much as is badly damaged, and not to interfere with the blood supply of the skin flaps. Skin should be removed very sparingly, the bruised edge alone of the flaps being cut away with a sharp knife.

Haemorrhage should be arrested, where possible, by ligature of the bleeding point. After the excision of bruised tissue the point of emergence of the jet of blood from the clean surface should be seen comparatively easily, and the point can be picked up with artery forceps and ligatured. If excision has been done under a tourniquet the vessels appear as the band is loosened. Blind diving for bleeding points that cannot clearly be seen is to be deprecated, for arteries and nerves usually run together, and the nerve may be seized with, or instead of, the vessel. Ligature of large masses of tissue should also be avoided, as being liable to lead later to sepsis. While the actual bleeding point should be picked up and tied, under the conditions of poor light, inadequate assistance, and inefficient anaesthesia in which wounds often have to be treated such a course may be unwise. Bleeding may continue, and its source appear to lie deep in an interosseous space or near some important structure, where the operator is unwilling to adventure under the circumstances prevailing. Here packing offers an alternative method of arrest, and one that is immediately effective,

though ultimately far less certain than ligature. In the type of case being discussed a packed wound inadequately excised is almost certain to become infected to some degree, and secondary haemorrhage, demanding ligature of the main artery to the part at a distance, is very likely to follow at any time in the ensuing ten days. When a wound has been packed to arrest bleeding the pack should be removed two or three days later, a second pack being ready for immediate insertion should the bleeding restart.

Drainage and Delayed Primary Suture

A wound lacerated and soiled enough to require excision can rarely be sutured up completely. In most cases a small drain, preferably a length of corrugated rubber or a strip cut from a surgical glove, should be put down to its depth and brought out between two stitches. The drain can be removed as soon as lessened discharge and normality of temperature and pulse show that there is no infection in the depth of the wound; if it comes out within forty-eight hours the cosmetic result will be that of an undrained wound without its risks. In small wounds a very satisfactory temporary drain can be made by a wisp of six to ten strands of silkworm gut laid side by side, some or all of which can be removed as the wound clears up.

If the excision has been incomplete or if the wound has been grossly contaminated, and in all cases of large and dirty lacerations repaired later than twelve hours after infliction, it is better to pack the wound at first, or at most to close it in part only. The method of "delayed primary suture," used with success in the war, is particularly applicable to these dangerous cases. The wound is excised, and after haemorrhage has been arrested it is carefully packed with strips of gauze soaked in 1 in 1,000 acriflavine, care being taken that all recesses are filled and that no pockets remain in which serum can accumulate. The abortion of infection is judged by the general condition of the patient, the state of his temperature and pulse, the absence of pain, and the normal appearance of the parts around the dressing. If these indications are satisfactory the packing is removed after two or three days under general anaesthesia, and if the wound appears healthy its sides are brought together over a small drain with catgut mattress sutures for the deeper parts and interrupted silkworm-gut stitches for the skin.

After suture the wound is dressed with sterile gauze and wool and bandaged firmly enough to keep the deep layers apposed and discourage oozing. The injured part must be kept immobilized for at any rate the first week after suture. This may imply rest in bed, confinement to the house, a sling, or, in many cases, a splint. Rest is essential to prevent effusion, aid repair, and assist the tissues to overcome infection. It is far better overdone than omitted. For these reasons a splint is often advisable to immobilize the whole of an involved limb segment and, in some cases, to maintain a position which relaxes the sutured planes.

(To be continued)

The Medical Society of Evian is organizing a second congress on renal insufficiency, which will take place at Evian from September 21 to 24, under the presidency of Professor F. Rathery. Titles of papers to be read at the congress should be sent to the secretaries, Dr. F. P. Merle and Dr. M. Derot, before July 15. All communications or inquiries should be addressed to the Secrétariat du Congrès, 138, Avenue des Champs-Élysées, Paris, Rome.

to do and of which no mention was made. Every doctor who wanted help could obtain it from the office of the medical officer. At the invitation of the doctors of Croydon Dr. Holden or his deputy had paid no fewer than fifty visits to patients in their homes. He mentioned that as showing that cordial co-operation did exist between the individual medical men who wanted help and the medical officer whose duty it was to supply it. In addition there were multitudinous arrangements to be made—samples to be taken, laundry supervision to be instituted, a great increase of hospital accommodation and nursing staff to be provided. All these were matters which should be considered in judging the work and the responsibility of the medical officer during the strenuous and anxious period.

The closing speeches of the Inquiry were made by Mr. Lyons, K.C., on behalf of the South Croydon Typhoid Committee, and Sir Walter Monckton, K.C., on behalf of Croydon Corporation.

On the last day of the hearing (January 11) it was announced that the total cases numbered 290, no fresh cases having been notified for several days. The number of deaths was 38. A bulletin outside the town hall stated that six patients were still dangerously ill with typhoid at Mayday Hospital, and seven others seriously ill.

EDUCATION AND HEALTH

CONFERENCES OF TEACHERS' ORGANIZATIONS

Over fifty educational associations combined for a five-day conference during the first week of the New Year at University College, London. As many as six meetings were sometimes taking place simultaneously, and the crowded theatres and corridors bore witness to the enthusiasm of the teaching profession. Several of the sessions were occupied, directly or indirectly, with the subject of health in the schools, and the Government's physical fitness campaign was often referred to, and at times critically examined.

The Minister of Health (Sir KINGSLEY WOOD) was president of the conference, and in an inaugural address on the subject of "Education and Health" ranged over the activities of his department. He mentioned that the new midwifery service would be seen in almost full operation throughout the country during the present year. Already some 7,000 midwives had been appointed. Lord DAWSON OF PENN, who proposed a vote of thanks to the Minister, said that an improvement in the maternal mortality figures might be hoped for in the near future, but it could not be repeated too often that in the earnest advocacy of the importance of reducing maternal mortality care must be taken not to frighten those young people who had maternity in front of them. Lord Dawson said that members of the medical profession were thinking more than ever in terms of education, and it was important that all those posts which were concerned both with education and health should be open to all medical men and women.

Health in the Schools

Sir FARQUHAR BUZZARD presided over a joint conference of all the organizations on the subject of "Health in the Schools." He stressed the importance of games, recreation, rest, diet, and fresh air, as well as the mere physical exercises, in the national campaign which had for its object a higher standard of physical fitness. The conference was addressed by Mr. M. L. JACKS, head master of Mill Hill and director-elect of the Department of Education, Oxford University. He dealt with certain forms of "sickness" which were specially the concern of the teacher, such as lack of power to develop skill, lack of knowledge of muscular potentiality and economy, and

inability to sit, stand, or move with grace and ease. The first necessity was to create in every public school a department of physical education, on a level with other departments such as modern languages, and with a university graduate to direct it. The interest of the director should be in the individual, particularly the weakling, rather than in the class. Mr. Jacks said that in his own experience he had discovered that whereas at about the age of 16 a boy normally put on about two pounds in weight every term, in the term in which he took the school certificate, generally at the age of 16½, there was a tendency to stand still or to lose weight. This indicated one of the strains and stresses which the director of physical education would have to bear in mind.

Criticism of the physical fitness campaign came from the high mistress of a girls' school, Miss ETHEL STRUDWICK of St. Paul's, Hammersmith. The word "fitness" was too closely associated with advertisement. She had never found it easy to believe that medicines or anything else which were widely advertised on the hoardings really did anybody any good. She distrusted the advertisement part of the campaign because she feared it might mean an artificial boom followed inevitably by a slump. Nor did she like the idea of middle-aged women being encouraged to emulate the poster-girl and poise on one toe!

Medical Aspects of Backwardness

In his address to the Medical Officers of Schools Association Dr. R. G. Gordon said that backward children might be divided into three classes—those who were born stupid, those who acquired stupidity, and those who had stupidity thrust upon them by bad upbringing. In the first class might be included children with certain inborn defects of vision, hearing, and other senses, which made for backwardness, also children physically enfeebled because coming from poor or degenerate stock. As for those who acquired stupidity, he thought that while malnutrition might for the time being depress intelligence, it did not seem to be a cause of backwardness in itself. General diseases likewise did not seem to have a very pronounced influence in this respect except in so far as they led to absence from school. The effect of diseases of the central nervous system was an important and interesting subject. The most obvious of these was epidemic encephalitis, and the effects of this disease largely determined a modification of the definition of mental deficiency in the new Act. He believed this condition demonstrated in an exaggerated form the process which was seen in a much more common condition—namely, chorea. Choreic children, who were often, of course, rheumatic children, were of the highly strung rather than the bright, intelligent type; but it had been well said that the choreic child was jerky in mind just as he was jerky in body, and so he was erratic, inattentive, and lacking in concentration. Enlarged tonsils and adenoids were often blamed for backwardness, but he was rather a sceptic about the wholesale blessings which followed operation for their removal as a mass production performance. Dr. Gordon also dealt with endocrine abnormalities and emotional disturbances in the same connexion. As for the third class of children, those who had stupidity thrust upon them, this was a group with which, as practitioners, they had comparatively little to do, since in this category were included those who had been badly taught and thus deprived of the grounding which was so essential to future progress. Yet although it was not the business of the doctor to criticize the teacher, he ought to keep in mind that the backwardness upon which he was called on to advise might be due to factors not really within his province at all.

Health and Retardation

The question of the backward child figured in several other discussions during the conference. Dr. MILDRED

consistent carrier of *B. typhosus*. All his tests at the gathering ground had been negative.

In a final speech to the tribunal on behalf of the Croydon Division of the B.M.A. and the Local Medical and Panel Committee, Mr. Forbes said that it might have been wise at such a time to have recognized the Local Medical and Panel Committee as a body with which to co-operate. He hoped that medical men would in future be co-opted on the Public Health Committee. Mr. Forbes added:

"My clients are not here to make any attack on anybody. It is apparent to the tribunal, and must be to everybody, that the Croydon medical officer of health is a loyal, able, and industrious servant of the corporation, and it appears also that in the witness box he was a truthful and careful witness. Whatever I have to say by way of criticism of his views, it must not be thought by him or by anybody that it constitutes anything in the nature of an unfriendly attack or an attack of any description."

The Case for the Medical Officer of Health

The closing speech of Mr. P. E. Sandlands, K.C., for the medical officer of health, occupied the whole of one afternoon and the greater part of the next morning. He said that Dr. Holden had been medical officer for Croydon since 1928, and, before that, medical officer for two other important county boroughs. In the letter over the signatures of Lord Dawson and Sir Kaye Le Fleming he was referred to as "distinguished," and Mr. Forbes, counsel for the Croydon Division of the B.M.A., who came to the Inquiry as a critic, ended by being almost a partisan of the medical officer, whom he described as loyal, able, and industrious, and as a witness careful and truthful. The tribunal had seen him in the witness chair, and heard what he had done—or only part of what he had done, because there had been hundreds of duties in connexion with the outbreak which he had efficiently discharged and on which no comment was made—and he could not help feeling that the critical atmosphere in respect to Dr. Holden in which the Inquiry began had been considerably modified as it proceeded. He thought Dr. Holden must have impressed the tribunal with his modest demeanour and quiet efficiency.

What were the causes of the outbreak? Was Dr. Holden blameworthy in failing at first to localize the source or in dealing with it when localized? A medical officer of health had many statutory duties, but no statute had laid upon him the duty of looking after the water. The governing regulation read that "he must inform himself as far as practicable as to all matters affecting or likely to affect public health in the district and be prepared to advise the local authority on them." "As far as practicable" was a phrase like a concertina, which could be extended or compressed. The criterion of judgment was what the medical officer's predecessors had done and what he himself had done. He had never been summoned to the Water Committee. The borough engineer and the medical officer both had service agreements, and it was fair to suppose that the borough engineer was the senior officer; his remuneration indicated this unmistakably. But both were principal officers, and each was under an obligation to let the other know about matters affecting the other department. Dr. Holden in repelling criticism was not seeking to deflect it to anybody else. His impression of Dr. Holden was that he would rather take blame which was not clearly his than let a colleague suffer. He was not attacking the borough engineer or anybody under him. Dr. Holden had no special duty with regard to water, but he had from time to time inspected the gathering ground and had made recommendations to the borough engineer.

The most probable cause of the outbreak was the infection of the Addington well by a carrier working at the well. That was the opinion of Dr. Suckling and Dr. Conybeare. Against that was the opinion of Sir William Willcox that the cause of the outbreak was sewage from the gathering ground getting into the well through

fissures in the chalk, but Sir William had not heard all the evidence. Was Dr. Holden to be held responsible for a carrier? He did not know that work was proceeding at the well. In fact nobody was to blame for this unhappy accident. If a medical officer of health was to be held responsible in such a case eligibility for such an office would require "a combination of the qualities of Solomon, the Archbishop of Canterbury, the heads of the Royal Colleges, and a veterinary surgeon." Dr. Holden had believed that chlorination was in progress. As long ago as 1930 he had suggested that, chlorination of the Addington well should be considered. Mr. Sandlands desired to make it clear that the dose which Dr. Holden had recommended—namely, 0.05 part in a million—was simply a precautionary dose, to be increased when circumstances demanded. To double the dose would make the water more resistant from the point of view of other organisms, but not from the point of view of typhoid; when dealing with the typhoid bacillus the smaller dose was sufficient. The advice Dr. Holden had given with regard to chlorination was perfectly sound and had resulted, as the succession of analyses showed, in a most satisfactory water being supplied until the eve of the outbreak. Mr. Forbes had expressly exonerated Dr. Holden from any blame in this respect, and Sir William Willcox had said that from the scientific point of view the detection of the cause of the epidemic was a very good piece of work and a quick diagnosis.

The chairman said that there was no question of the tribunal differing from what Sir William Willcox had said on that point.

Potential Causes of Outbreak

Mr. Sandlands went on to urge that it was the business of the medical officer, faced with an outbreak, to consider all possible causes; only by elimination could he arrive at the actual source of the trouble. Suppose it had turned out that the infection was milk-borne, and Dr. Holden had from the first concentrated his attention on the water, would he not have been subject to criticism? In fact, five out of the first six cases were on the same milk supply, and, with the Bournemouth epidemic in mind, Dr. Holden was keeping in view the possibility of milk among other causes. But he never neglected the water. It had been stated in evidence that at a meeting of residents, in reply to a question, he said it was "inconceivable" that the water could be to blame, but it was evident that all the people concerned were thinking at that time, not of the general water supply, but of some local contamination affecting the main in the streets where the first cases arose. Even before that meeting took place Dr. Holden, so far from neglecting water, had given instructions for samples to be taken from taps in the houses where cases had occurred and for the mains to be tested.

On the question of want of co-ordination, the fact that no medical committee was in existence might be a matter for recommendation by the tribunal. But it was not a matter on which the medical officer could be expected to take the initiative during an epidemic. It was not Dr. Holden's fault that the committee was not constituted; it was for the other doctors to constitute the committee and proffer their help. He was not concerned with the suggestion that there should be an obligation on all local authorities to set up committees of medical men, but Dr. Holden had said that he would be glad to have co-operated had such a committee existed. Neither the Panel Committee nor the British Medical Association represented the whole of the medical profession, and, moreover, as Sir William Willcox himself had said, the thing could not be done in the midst of an outbreak; it must be prepared beforehand. But he was anxious that the tribunal should not have the impression that the Corporation or Dr. Holden was antagonistic to the idea.

In conclusion Mr. Sandlands hoped the tribunal would not forget the hundreds of things that Dr. Holden had

Reports of Societies

CARDIAC COMPLICATIONS IN MAJOR ABDOMINAL SURGERY

At a meeting of the Section of Surgery of the Royal Society of Medicine on January 5, Professor G. GREY TURNER presiding, the question of cardiac complications in major abdominal surgery was discussed.

Dr. PAUL WOOD said that the cardiac complications of major abdominal surgery were "over-diagnosed" by many surgeons. Hearts with disease stood up to the strain of abdominal operations surprisingly well. During the post-operative period certain symptoms suggested heart trouble. He proceeded to attempt a classification of cardiac and non-cardiac complications based on these presenting symptoms. Pain in the chest might be due to myocardial infarction, to pulmonary embolism, or to pericarditis; more often it was non-cardiac. He laid stress upon the various manifestations of pulmonary embolism, and particularly upon the cases without pain or haemoptysis. Dyspnoea might be caused by congestive heart failure or by pulmonary embolism, but was usually non-cardiac, and might be due to pulmonary complications, to abdominal distension, to subphrenic inflammatory conditions, or to uraemia. He emphasized the rarity of congestive heart failure as a post-operative complication. Sudden collapse might be due to myocardial infarction or to pulmonary embolism. A slower type of collapse was usually due to dehydration, haemorrhage, peritonitis, or to other surgical complications. Peripheral circulatory failure was far more frequent than cardiac failure. A rising pulse rate and a falling blood pressure were important signs of impending collapse, and sufficient fluids must be given rectally or intravenously—about 7 litres in twenty-four hours; a urinary output of some 1,500 c.cm. daily should be maintained. Irregularities of rhythm were commonly due to ectopic beats, and pointed more to infection or to abdominal distension than to heart disease. Patients who developed auricular fibrillation should be thoroughly overhauled by a physician.

He summed up his argument by saying that the most dramatic occurrences were usually due to pulmonary embolism, but might be the result of myocardial infarction. Dyspnoea found alone was nearly always of a pulmonary nature, and might derive from bronchopneumonia or some like condition. Congestive heart failure was a rare event, and did not occur unless the heart was very badly diseased. When faced with obscure post-operative disease the surgeon would do well to consider carefully all possible surgical causes and complications before he accused the heart. In the absence of a necropsy it was often very difficult to convince the surgeon of the heart's innocence.

Cholecystitis and Heart Disease

Mr. D. H. PATEY remarked that it was interesting to hear the cardiologist emphasize the rarity of heart failure as a cause of death after operation; this point had been stressed so much from the anaesthetist's side. He raised a question on the apparent association of the gall-bladder with cardiac pain. Was there some relation between the gall-bladder and myocardial infarction, or was it that cardiac pain was simulated by the gall-bladder? Mr. H. W. RODGERS asked whether the fear of impending death had been found to have any relation to the presence of a cardiac lesion: also whether the use of digitalis was at all justifiable in cases in which there was no auricular fibrillation. Mr. HOPE CARLTON referred to the amount of fluid which Dr. Wood had recommended in cases of impending collapse. It seemed to him that 7 litres in twenty-four hours, given rectally or intravenously, was enormous. Ten years ago intravenous therapy was pressed upon them strongly, but more recently it had been somewhat discounted. Professor GREY TURNER was glad to

find Dr. Wood insisting on the risks that could be taken surgically in cases of heart disease. Nothing had impressed him more than the way in which patients with heart disease would tolerate the necessary operation.

Dr. WOOD, in reply, said that cholecystitis was sometimes diagnosed as angina and angina as cholecystitis. In patients with angina and cholecystitis or gall-stones, if the gall-bladder were removed there was a temporary improvement in the angina. Any failing heart would benefit from digitalis, but if administered it should be by a physician. With regard to fluid, it had been shown quite conclusively that patients needed 6 pints of fluid a day. About half of this amount they received in the form of solid diet; but the patients in these cases were not receiving solid diet, and therefore required the same amount of fluid in another form. In addition, they might have been vomiting a great deal, certainly they had been sweating, and probably over-breathing under the anaesthetic, so that they were in a dehydrated state. He granted that if 7 litres were given in twenty-four hours most of it should be given rectally. Far more fluid could be given successfully by the rectal route than was generally recognized.

The Circulation in Gangrene

Mr. JAMES F. PHILIP gave a demonstration by means of lantern slides of the circulation in gangrene of the lower extremities as seen radiographically after injecting the arterial tree. He discussed the different forms of gangrene seen in diabetes, arteriosclerosis, and thrombo-angiitis obliterans. He believed that no single mode of treatment could be universally successful, and that sympathectomy, physiotherapy, and amputation each had its place in the treatment of this disease. As regards the venous system, in arteriosclerosis the veins were seldom occluded; in diabetes, thrombosis of the veins was a frequent occurrence; and in thrombo-angiitis obliterans the veins appeared to be affected just as much as the arteries. After some questions and brief discussion Professor GREY TURNER said that he could not help thinking that there was yet a good deal of work to be done on revascularization in such cases. It must be assumed that something of this kind might occur in certain cases of gangrene spontaneously. He recalled patients in years gone by who had refused to have surgical intervention in gangrene, and who had recovered. In diabetic gangrene he had been impressed on occasion by the extreme virulence of the infective type. This was not nowadays so often noticed, because the metabolic condition was brought under treatment at an earlier stage.

Mr. PHILIP, in reply, described attempts at revascularization by means of physiotherapy, which, he said, gave good results. He instanced the case of a gamekeeper, aged 60, who could walk only 200 yards before developing claudication. Pulsation was absent from the major arteries of both legs. He was put on various exercises, contrast baths—that is, alternating hot and cold—and diet, with rest and the wearing of warm socks, and afterwards reported at three-monthly intervals. He had now been back at work for three years, though there was some slight recrudescence of the trouble each winter. Even in gangrene due to diabetes these attempts at revascularization of the limb had been at times of assistance.

A meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland was held on December 10, 1937, with the president, Dr. E. T. FREEMAN, in the chair. Dr. H. L. PARKER reported a case of the Laurence-Moon-Biedl syndrome, and Dr. ALAN THOMPSON a case of chloroma. Dr. P. T. O'FARRELL read a paper on a series of cases of both acute and chronic types of peripheral arterial occlusion of organic origin. Each communication provoked a lively discussion in which, among others, Dr. A. R. PARSONS (President of the Academy), Dr. EUPHAN MAXWELL, Dr. E. HARVEY, Dr. G. C. DOCKERAY, Dr. J. C. FLOOD, Dr. H. B. GOULDING, Dr. BOUCHIER HAYES, Dr. J. LEWIS, and Dr. JESSOP took part.

CREAK, psychiatrist at the Maudsley Hospital, discoursed to the Child Guidance Council on the children who fail to learn. Even the Mathematical Association discussed the teaching of the complete duffer, and seemed to agree that mathematics was the first thing to suffer when a child was undergoing emotional conflict. The trouble was, as Dr. F. H. DODD pointed out to the mathematicians, that such a child retreated into a world of fantasy, and the world of reality—which is a mathematical world—became remote.

Dr. CHODAK GREGORY addressed the Child Study Society on "Health and Retardation." In particular she spoke of the neglect of children during the second and third year of life—a period of great morbidity if not of mortality. Advice on behalf of the toddler was comparatively rarely sought, and it appeared to be the idea of many parents that, having weathered the stress of infancy, he could be awarded a little wholesome neglect. Dr. Gregory also said how strongly she had been impressed by the incidence of rickets in young children. She had been asked to judge a baby show in a village, and was horrified to find that when the thirteen babies presented were undressed all but one of them showed some signs of rickets. This was in a village where there was no unemployment and where every cottage had its garden, though it appeared to be the parents' habit to keep their children in the stuffy rooms.

Dr. J. A. HADFIELD, who presided on this occasion, said that in his opinion, in respect of the recognition of mental deficiency at an early stage, council schools were more fortunately placed than private. He had had not infrequently children sent to him with quite aggravated mental deficiency by parents who refused to admit that their children were mentally deficient at all. Often backwardness was due to emotional causes. A child whose whole mind was occupied with fear and anxiety could not be expected to devote himself to scholastic work. Sometimes the fear arose out of a hypersensitive conscience, and in such cases might be traced back to an illness in early childhood. The fact that the child had got over pneumonia, rickets, or some other malady did not mean that everything was well. These conditions often left behind them abnormalities which manifested themselves later in the form of morbid fears.

Many Voices

The spiritual aspect of health, dealt with by Dr. BURNETT RAE before the Institute of Christian Education, attracted one of the largest of the sectional audiences. Fatigue problems in the preparatory school child was the subject of an address by Dr. ANNIS GILLIE to the Association of Head Mistresses, and Dr. BRADFORD HILL of the London School of Hygiene and Tropical Medicine addressed the Association of Teachers of Domestic Subjects on national nutrition. Physical training in the Army was described by Major T. F. KENNEDY to the British Association for Physical Training. The Army system, he said, was a combination of the Swedish and Danish systems, and aimed at producing a harmonious development of body and mind through the medium of progressive muscular-education. The Ling Physical Education Association was addressed by Mr. KENNETH LINDSAY, M.P., Parliamentary Secretary to the Board of Education, on the subject of national fitness, and this body had a number of other speakers, including Mr. W. P. ALEXANDER, director of education for Margate, who criticized the three-year course for physical education instructors on the ground of the insufficiency of time devoted to psychology.

The University of London Animal Welfare Society arranged a lecture by Dr. R. LOVELL of the Royal Veterinary College on diseases common to man and animals. After reviewing the various bacillary and protozoal diseases he showed how a disease in one species might develop in a different way from the same disease in another. A familiar example was the disease due to *Brucella abortus* as manifested in man and in cattle.

Finally a session was devoted to the health of the teacher's voice, which was considered in relation to the health of the individual as a whole. Dr. PHILIP KEMP, school medical officer, Birmingham, said that while the evils of noise had been faced and to some extent remedied, little had been done to exploit the therapeutic value of pleasant sounds. He foresaw a time when appropriate music might figure in medical prescriptions, especially in nervous disorders.

INTERNATIONAL ORGANIZATION AGAINST TRACHOMA

MEETING IN CAIRO

A meeting of the Executive Committee of the International Organization against Trachoma was held on December 9, 1937, at the Semiramis Hotel, Cairo. The secretary-general read the minutes of the previous meeting, held in Paris in 1936, and the accounts were then passed. The subvention given for purposes of research by the American Academy of Ophthalmology and Oto-laryngology—100 dollars—was allocated to Dr. Poleff of the Pasteur Institute at Rabat, Morocco. It was decided to hold the next meeting of the organization at the same place and at the same time as that of the International Council of Ophthalmology, in 1939.

Assembly of Delegates

On the following day an assembly of delegates was held. After a statement by the president on the business to be transacted, the audited accounts were passed, and Professor Manuel Marquez was elected an honorary member of the Executive Committee. The president, Mr. A. F. MacCallan, and the secretary-general, Dr. Wibaut, who were elected for a period of five years at the meeting in London in 1935, remain in office. According to the statutes four members of the Executive Committee were then due to retire, but as all members had to retire in 1937 it was decided to defer elections until the present meeting.

The president explained that six nations were already represented on the Executive Committee, as follows: Great Britain (Mr. MacCallan, president), Holland (Dr. Wibaut, secretary-general), France (Dr. Bailliart) and the United States (Dr. Park Lewis); representing the International Association for the Prevention of Blindness, Hungary (Professor de Groot) and Spain (Professor Marquez); honorary members. For the twelve vacancies it was decided that twelve nations other than those previously mentioned should be represented, and that each national representative should be selected by the national group; also that, as provided in the statutes no distinction should be made as to grades of vice-president, members, and secretary. It was then resolved that the following nations, as being those most subject to trachoma, should be represented on the Executive Committee: Argentina, Bulgaria, Czechoslovakia, Egypt, Germany, India, Italy, Japan, Lithuania, Poland, Rumania, and Turkey. Subsequently it was announced that the national groups had chosen the following as their representatives: Argentina, Dr. José A. Sena; Bulgaria, Professor Pascheff; Czechoslovakia, Professor Kadl; Egypt, Dr. Tewfik; Germany, Professor Rohrschneider; India, Professor Leonardi; Japan, Professor Oguchi; Lithuania, Dr. Avizonis; Poland, Dr. Zuber; Rumania, Professor Michail; Turkey, Dr. Naci Bengisu.

The Scientific Meeting

On December 10, 1937, the scientific meeting was held at the Semiramis Hotel. After an introductory address by the president, interesting discussions were held on "The Biological Aetiology of Trachoma," on "The Pathology of Trachoma," opened by Dr. Roland P. Wilson, and on "The Treatment of Trachoma." These were followed by papers by Professor Motegi, Dr. Iijima, Dr. Zuber, Dr. Naci Bengisu, Dr. Jacobsides, Dr. Hachoua, and Dr. Churruarín.

the middle of the nineteenth century to realize the importance of training in dentistry, and in 1856 he had begun a course of lectures on physiology and diseases of the teeth. Working with others he had opened an Edinburgh Dental Dispensary in Drummond Street in January, 1860. After various transfers the dispensary had come to occupy the present site in 1878, and had changed its name to the Edinburgh Dental Hospital and School. In 1914 the site and premises had been purchased, but the plans for extension had to be postponed till after the war. There had been alterations in 1927, but there was now urgent need for further extension. So far £11,000 has been subscribed in response to the appeal.

ENGLAND AND WALES

Prevention of Blindness

The London County Council is proposing to ask the Medical Research Council to take steps to investigate the question of the influence of myopia in causing blindness and the part played by the special schools for the partially sighted in such prevention. The Hospitals and Medical Services and Education Committees of the County Council have jointly considered the matter, and are of opinion that in order to obtain some satisfactory knowledge of the problems of myopia an investigation is urgently necessary. Such an investigation should be a comprehensive one and could not be adequately undertaken by a local authority. Assistance could be rendered to the Medical Research Council by placing county council records at its disposal and giving facilities for research work to be carried on in its educational institutions. The matter has arisen immediately out of the recent report of the standing committee of the Union of Counties Association for the Blind, a voluntary body working in close association with the Ministry of Health, the Board of Education, and various agencies chiefly concerned with prevention. This committee, in its report, points out that the treatment of visual defects of children attending special schools was dealt with in the report of the Committee on Partially Sighted Children in 1934. In that report no definite conclusion was reached beyond emphasizing the need for further research. The standing committee is in agreement with the conclusion that the influence of myopia in causing blindness, and the part played by the special school in preventing it, is the most important of all problems with regard to myopia which needs further consideration.

St. Mary's Hospitals, Manchester

The report for 1936 of the maternity department of St. Mary's Hospitals, which has been prepared by Dr. R. Newton, reveals that 931 maternity patients were treated in their own homes and 2,545 in the hospital, no fewer than 1,282 being emergency cases. It is interesting to note that of the 1,263 booked cases 1,040 were delivered at or near term, 215 were discharged undelivered, and there were eight abortions, whereas among the emergency cases admitted to the hospital only 627 were delivered at or near term, 335 were discharged undelivered, and there were no fewer than 239 abortions and nine ectopic pregnancies. There were altogether thirty-three maternal deaths, representing a mortality of 1.31 per cent. of the total in-patients, the mortality in booked cases being 0.63 per cent. as compared with 1.99 per cent. in emergency cases. Cases of contracted pelvis numbered 185, in fifty-three of which delivery was by natural forces; Caesarean section was undertaken in fifty-nine cases and induction of labour in fifty-three. The remaining cases were treated by forceps or by version and extraction. There were nine cases of tubal pregnancy, in seven of which rupture had occurred, and one of these patients died. Rupture of the uterus was also responsible for one death in five patients, and among the twenty cases of eclampsia treated during the year there were four deaths.

Correspondence

Use and Abuse of Antiseptics

SIR,—It is to be hoped that the article on this subject by Professor L. P. Garrod and Mr. G. L. Keynes which appeared in your issues of December 18 and December 25, 1937, has been widely read and will have the influence it deserves. I have on several occasions in the past tried to point out some of the defects of common surgical practice in regard to the use of antiseptics, and I am glad to see that the present authors are in almost complete agreement with me.

Greater emphasis might perhaps have been laid on the selective action of some chemical antiseptics. The older ones, such as carbolic acid or the hypochlorites, are more or less equally active on all pathogenic bacteria. Some of those introduced more recently, however, are highly selective, and inhibit the growth of one microbe in very high dilutions while having little effect on another (which may be closely related to the first) in ten, twenty, or more times that concentration. It seems to be the fate of all chemicals that if they are shown to have a beneficial effect on infections by one bacterium they are used in all sorts of other infections, despite definite laboratory evidence that there is no chance of their exercising any influence on the growth of the infective agent.

Wisely, the authors have treated separately the problem of the recently inflicted wound and that of the wound in which the infection has become established. In the recently inflicted wound the bacteria have not grown out but are simply lying at the point at which they were introduced, nor have the tissues begun to react to the infection. Theoretically it should in many cases be possible to reach the bacteria with an antiseptic, but practically in all but clean-cut wounds it has been shown that efficient surgical technique is more effective than chemicals. The body, if given a chance, can deal with considerable numbers of the bacteria which commonly infect wounds, and it is the function of the surgeon to give the body a fair chance. In most cases it is only the less skilful surgeon who would pin his faith on the local application of a chemical. In an established infection the bacteria have grown into the tissues and are out of reach of an antiseptic applied to the surface. At the same time the tissues around have reacted to the infection and are crammed with phagocytes whose function is to ingest and destroy the bacteria.

The injunction of Garrod and Keynes that "strong applications to the wound itself are to be avoided" seems to sum up a reasonable teaching in regard to the use of antiseptics in such wounds. They mention that some antiseptics may give benefit by a mild irritation which stimulates the flow of fluid from the infected walls into the cavity of the wound. This drainage of the infected tissues is as important as the drainage of the cavity of a wound. The defence against a septic infection is mainly phagocytic, but before the bacteria can be picked up by the phagocytes they must be acted on by the opsonic substances in the body fluid. These opsonic substances become used up in the stagnant fluids in the wall of an infected wound, and unless such fluids are drained off and replaced by fresh fluid from the vessels it is clear that the phagocytes are at a disadvantage. The importance of draining the infected tissues is not as well appreciated as it ought to be. However, this is not direct antiseptic action, and if we are to apply the name "antiseptic" to substances which stimulate the outflow

Local News

SCOTLAND

Glasgow Royal Infirmary

The annual nurses prize-giving and tour of the wards of the Royal Infirmary, Glasgow, was made on January 1 by Lord Provost Sir John Stewart and the governors of the institution. Sir John Stewart said that the voluntary hospitals seemed to have increasing difficulties with finance. He had often wondered why the Royal Infirmary had not started wards for paying patients. These had been successful in another hospital in Glasgow, and in the case of the Royal Infirmary would, he thought, help to ease the financial situation. Sir James Macfarlane, chairman of the Governors, said that their expenditure was steadily increasing, and during the past year had gone up by £10,000. Legacies, on the other hand, had dropped by £10,000. Provision had been made for paying patients in an auxiliary hospital of the Royal Infirmary at Canniesburn, which would be opened by Sir Iain Colquhoun on January 18. The number of patients admitted to the Infirmary during the past year had been 18,171—529 more than in the previous year—and the number of out-patients had been 113,003. During the year the hospital had obtained possession of the neighbouring premises previously occupied by the Royal Asylum for the Blind. Part of that building was being altered and would be used to accommodate the outdoor department and make provision for various specialties, including x-ray diagnostic work, medical electricity, and massage.

Maternity Work in Glasgow

The medical report for 1936 of the Glasgow Royal Maternity and Women's Hospital illustrates the working of the "permanent unit system." Of the 175 beds in this maternity hospital seventy-eight are reserved for ante-natal cases and another seventy-eight for lying-in cases, while nineteen beds in a special isolation block are set aside for suspect cases. Septic cases are transferred to the city fever hospitals. During the year under review 4,717 patients were admitted, the average daily number of patients in the wards being 166; the number of children born in the hospital was 3,389. There were sixty-six maternal deaths, the death rate being 1.4 per cent. Joint action with the Glasgow Corporation enabled the hospital to continue its policy of not refusing treatment to any woman in labour and at the same time not further overcrowding the wards. In 1936 the municipal hospitals accepted 651 patients as overflow cases. The ante-natal department is growing in importance; from the ante-natal dispensary on the hospital premises many cases were admitted to the obstetrical department and the ante-natal wards. During the year 4,724 women were attended in their homes by the hospital staff and 4,543 infants were delivered. The number of abnormal cases was 3,346 (70.9 per cent. of all admissions), many being emergencies, a fact which, coupled with the high incidence of rickets in the population served by the hospital, indicates the gravity of some of the cases and has a bearing on the morbidity and mortality rates. Twenty-one patients (31.8 per cent. of the total number of maternal deaths) died within twenty-four hours of admission, and a further twenty-one, who survived that period, died within seven days of admission. Of the total 4,717 cases treated in the hospital wards, 1,864 (39.5 per cent.) had received ante-natal supervision in the hospital clinic. The medical staff is conducting research into infections of the urinary tract, puerperal fever, the toxæmias of pregnancy, and the endocrine glands. This annual report, which has been as ably prepared by the registrar, Dr. R. Murdoch, as its predecessors, contains much information of clinical

interest, including a classification of maternal deaths on a pathological basis, with a detailed summary of each of these cases.

Finance of the Edinburgh Royal Infirmary

At the annual meeting of the Court of Contributors to the Royal Infirmary, Edinburgh, Sir Thomas B. Whitson, chairman of the Board of Managers, referred to a deficit of over £40,000 on the ordinary account for last year's working. There had also been an extraordinary expenditure with additions and improvements to buildings of £15,000, and a sum of £62,000 had to be met from legacies and special donations. The Managers pleaded most earnestly for increased and additional contributions, especially in view of the future, when, with a much larger institution, more expenditure would be incurred. The ordinary expenditure for the year had been £177,044. The average annual cost per occupied bed had been £177, and the average daily cost per patient 9s. 9½d. The speaker suggested that many people might be able to send a ten-shilling note, which would pay for one patient for one day. The appeal for the extension fund, he continued, was not making headway as quickly as they would like. Of the £200,000 appealed for only £80,000 had so far been raised, leaving £120,000 still to be collected. The most strenuous efforts would be required to get that sum.

It was agreed at the meeting to remit the annual report to a special committee for consideration. The report states that one satisfactory feature of the accounts was that the increase in ordinary expenditure had been covered by a corresponding increase in ordinary income, but the Managers could not but feel anxious as to the financial position in view of greater commitments in the future. When it was considered that patients were not asked to contribute, nor was there any inquiry as to their means, the amount received as contributions from patients, £5,407, was not unsatisfactory, but a further increase from this source would be welcomed. There had been a progressive falling off in the payments made by approved societies as additional benefits during the last few years. It was fortunate, however, that the receipts from legacies had been highly satisfactory, amounting to £95,142, of which £14,388 had been bequeathed for endowment purposes. Prices of commodities, as well as the number of patients treated, had risen, and the cost of maintaining the radiological department had reached a figure of £15,000 per annum. New methods of treatment, improved apparatus, and increased arrangements for the care and comfort of patients all created additional expense. The National Radium Commission had allocated to the Infirmary, as the National Radium Centre for South-East Scotland, a further supply in order that the mass unit might be increased to three grammes. The enlarged "bomb" had been erected at Beechmount Annex, and would very shortly be in operation.

Edinburgh Dental Hospital and School

An appeal has been issued by the Edinburgh Dental Hospital and School for £55,000 to meet the growth in the number of patients and the need for more modern accommodation and equipment for teaching and treatment. Lord Provost Gurnley, in a broadcast speech on January 2, said that this was the largest dental school in Scotland, and, in the United Kingdom, was second only to the dental school of Guy's Hospital. Patients attending in 1936 numbered 29,369, and in 1937 that number had risen. There had also been an increase in the number of students; in 1934 there were 187, and in 1937 there were 274. It was now proposed to demolish the old parts of the hospital behind the present modern frontage. These had originally been private houses, and their place would be taken by a building provided with what was practically an all-glass back. The natural lighting would thus be efficient for day work, and for night work special electric lighting would be available. The history of this hospital was interesting. Dr. John Smith had been the first man in Edinburgh to

fever, the chief credit undoubtedly belongs to my sister, Dora Colebrook—with the reservation that her investigation was made possible by the earlier pioneer work on agglutination reactions of haemolytic streptococci by Dochez, Avery, and Lancefield (1919), F. Griffith (1926 and 1935), and others. For the demonstration of the paramount importance of the group A streptococci in connexion with puerperal fever the chief credit belongs to my former colleague Dr. Ronald Hare, here again with due acknowledgment of the earlier work on the differentiation of the haemolytic streptococci into groups by Mrs. Lancefield.—I am, etc.,

Bernhard Baron Memorial Research LEONARD COLEBROOK.
Laboratories, Queen Charlotte's
Maternity Hospital, Jan. 6.

Insulin for Local Sepsis

SIR.—Mr. Nevil Leyton has just recorded (*British Medical Journal*, January 8, p. 70) his great success in healing chronic local sepsis by dressings of ordinary insulin solutions. This is no new story, and similar enthusiasm was recorded in France about 1926 in the treatment of chronic ulcers (I regret that, being in the country, I cannot now give the exact reference). Later it was shown that a dressing of similar acidity and anti-septicity without insulin had the same effect as actual insulin solution. And so the enthusiasm waned to revive again now.

From the nature and physiological action of insulin it is highly improbable that it can have any local action on a raw area. Insulin dressings, particularly of "double-strength" insulin which Mr. Leyton has used, must be very expensive, and before the method is advocated for widespread use more controlled and convincing experiences must be available. I would suggest that half the wound be dressed with active insulin solution, the other half with heated—and so inactivated—insulin solution. If any difference in healing is observed the expense might be proved worth while.—I am, etc.,

London, W.1, Jan. 10.

R. D. LAWRENCE.

Names for New Drugs

SIR.—During the past two years three groups of drugs, which may fairly be said to have revolutionized treatment in their respective spheres, have been widely introduced into medicine. It seems to me regrettable that while some of them have become the subject of a terminological haze, others are not yet easily available. The value of the sulphonamide or "prontosil" group must surely have been appreciated in view of its constant mention in recent literature, but it is still only possible to prescribe drugs of this group under a simple and easily remembered name by having recourse to proprietary preparations. It must be the experience of many panel practitioners that the price of these preparations varies greatly, and in the event of his prescribing honestly for his patient, and at the same time reducing the cost of his prescription to a minimum, he is always liable to end up with a headache. Since in the long run the true value of any drug rests in its successful use in the treatment of disease, and as the greatest incidence of disease in this country falls among the insured classes, the subject would seem not unworthy of a Royal Commission.

In my experience it may be fairly stated that the treatment of *B. coli* urinary infections has been revolutionized by the use of the mandelic acid derivatives. The period of illness and probably the liability to residual infection have been greatly diminished by these drugs. Is it any longer

fair to the insured classes to prolong treatment by using the less effective but inexpensive alkalis and hexamine medication? The cost of a prescription containing ammonium mandelate is high, but if the compensation paid to the patient while off duty were taken into account, the ultimate expense to the national health insurance funds would probably be less. Is it too much to ask that this drug should be included in the national health insurance formulary as soon as possible? Lastly, cannot some effort be made to create standard names for the more effective hormone preparations, in view of their increased efficacy and decreased cost? The trade names of these are rapidly becoming legion, and seem to me again to have outgrown the realms of easy reference. I feel that these deficiencies might in some way be overcome for the benefit of the general practitioner, among whose cases most opportunities for the exhibition of the drugs occur.—I am, etc.,

Grangemouth, Scotland, Jan. 4. J. M. HENDERSON, M.B.

Bacillary Dysentery

SIR.—Dr. Reginald Miller's paper on Sonne dysentery in the *Journal* of January 8 (p. 64) is a timely reminder that bacillary dysentery is endemic in this country, contrary to general belief. It is comparatively common in villages in agricultural districts where domestic wells and earth closets are the rule; and it is not unusual to find from time to time that diarrhoea "goes through the village." These cases present in a mild degree the usual dysentery syndrome of colic, frequent stools, passage of blood and mucus, and tenesmus, and over and over again I have found them to be associated with one or other of the dysentery bacilli. I have no doubt that a number of them are later diagnosed as "ulcerative colitis" because their original nature has been unrecognized, appropriate treatment has been lacking, and the patients have become secondarily infected. Moreover, they have never "been abroad."

The causative organism may, and does, vary in kind and virulence in different epidemics. Fortunately in this country it is the exception for the virulence to be of a high order: yet it will be recalled that a number of deaths occurred during recent drought years and that several members of one family died near Wantage from drinking water taken from the River Lambourne. Flexner Y was isolated.

The degree of severity depends doubtless on the virulence of the particular strain of organism concerned and the degree of immunity of the individual; but, as is well known, it varies within wide limits. At one end of the scale slight abdominal discomfort and the passage of one or two loose stools: at the other, death from toxæmia before the patient has passed a single typical dysenteric stool. I have seen *Bact. shigae* isolated from a comparatively mild case and *Bact. sonnei* from one of much severity. The more I see of it the less do I feel inclined on clinical grounds alone to associate any particular organism with a "clinical type." The dysentery syndrome indicates an acute infective ulcerative colitis—and that is about as far as it is safe to go on purely clinical grounds without guessing.

With regard to the vomiting mentioned by Dr. Miller, may I suggest that this may be purely toxæmic? After a day or two more or less ketosis is sure to be present; and if acetone be not noticeable in the breath ketone bodies will be found in the urine, due to starvation. Whether in the presence of toxæmia this is as harmless as uncomplicated starvation-ketosis I am not prepared to

of fluid from the infected walls of a wound, then common salt would have to be classed as a potent antiseptic, for this increased outflow is the basis of the hypertonic salt treatment which has been shown to be of great value in the treatment of septic wounds. Garrod and Keynes confirm my finding that Dakin's fluid has this power of stimulating the outflow of fluid from the walls of a wound. They mention continuous irrigation with this fluid, but this procedure does not seem to be necessary; better results were, I believe, achieved by the intermittent irrigation introduced by Carrel when Dakin's fluid was instilled into the wound every two hours. I have shown that within ten minutes of placing Dakin's fluid in a wound it ceases to be antiseptic in a serous medium. In Carrel's method, therefore, the antiseptic functions as an antiseptic for less than ten minutes, but the increased exudation from the walls of the wound persists, so that for something like one hour and fifty minutes out of every two hours there is an increased tissue drainage which favours phagocytosis but no chemical antiseptic that might hinder this defensive mechanism. This treatment was, I think, regarded as the most successful "antiseptic" treatment evolved during the great war.

I should like to make some reference to the action of acriflavine. Garrod and Keynes mention that leucocytes retain motility in a 1 in 1,000 solution. This is true, but in this matter the time factor is all-important. Acriflavine is a slow-acting antiseptic, and its full effect on bacteria is only seen after they have been exposed to the action of the chemical for some hours. Exactly the same thing happens with leucocytes; if only fifteen minutes' exposure is given they retain their phagocytic power in a concentration of 1 in 1,000. If the exposure is five hours their phagocytic activity is seriously impaired by a dilution of 1 in 500,000, and if they are exposed to acriflavine for twenty-four hours they are destroyed by 1 in 2 million—a dilution which has no action on the growth of bacteria.

The best simple test of the probable value of a chemical as an agent for killing bacteria in the body is a comparison of its power of inhibiting the growth of bacteria and of destroying leucocytic function. Such a test will show that all the commonly used antiseptics are more powerful inhibitors of leucocytes than they are of bacteria, indicating that there is little likelihood that by their continuous application any direct beneficial antibacterial effect will ensue. Some of the arsenic preparations, such as novarsenobillon, act on haemolytic streptococci in about the same dilutions as those in which they affect leucocytes, and sulphanilamide only inhibits leucocytes in a dilution of about 1 in 400, while it inhibits haemolytic streptococci in blood in a dilution of about 1 in 400,000. Sulphanilamide and the allied chemicals are the only chemotherapeutic agents which have a much greater action on bacteria than they have on leucocytes, and they are the only chemotherapeutic agents which have been used with striking success for the destruction of the ordinary pyogenic bacteria in the human body.

In conclusion, while congratulating Professor Garrod and Mr. Keynes on their article, I would like to say that my remarks are not in criticism but in amplification of their all-too-short paper.—I am, etc.,

ALEXANDER FLEMING.

Inoculation Department,
St. Mary's Hospital, Jan. 5.

SIR.—The object of this letter is to repair what I think is an important omission in the interesting paper on antiseptics by Professor L. P. Garrod and Mr. Geoffrey L. Keynes. Briefly stated, their paper deals with anti-

septics applied as lotions. Areas in which suppuration is kept up by the irritation of infected discharge are frequently treated by these. Any penetration of the antiseptic which takes place depends on diffusion, and unless the conditions are favourable penetration is slow and, moreover, is not easily controlled. The writers point out that the strength of solutions must be moderate to avoid causing irritation or destruction of tissues. The omission is that no mention is made of the electric current for introducing a particular component of a salt in solution which is a recognized antiseptic, such as zinc sulphate. The component in it on which the antiseptic action depends is the zinc ion. The solution can be used so weak (0.25 per cent.) that penetration due to diffusion need not be considered. The penetration and its extent depend on the strength of the electric current and on the time this is applied. When introduced the zinc combines with the albumin present in the film of infected discharge adhering to the surface and in the superficial tissue cells to form zinc albuminate—an insoluble precipitate. This is a bad culture medium for micro-organisms, which therefore die, irritation vanishing and suppuration ceasing. One treatment when the suppurating area is accessible is usually sufficient. The authors do not state how often the antiseptics they mention should be applied, or for how long. This may be due to lack of sufficient convenient clinical material to carry out tests. There exist numerous cases of chronic otorrhoea due to sepsis alone in an accessible position—the tympanic cavity—and the result of treatment by antiseptic solutions would show their relative value and the best method of applying them.—I am, etc.,

Sidmouth, Jan. 3.

A. R. FRIEL.

Prevention of Puerperal Fever

SIR.—May I be allowed to correct a false impression which Professor Miles H. Phillips has conveyed—unwittingly, I think—in his valuable historical review of steps in the prevention of puerperal fever, published in the *Journal* of January 1 (p. 1). He speaks of "special recognition" being given to my work in that field. I want to make it clear that the work done in this laboratory has been essentially team work by all the members of the laboratory staff, and that my own has not been the most important contribution to it. The results of our work may be briefly summarized as follows. First, we were able to confirm the fact, so ably brought out by Schottmüller twenty years ago, that anaerobic streptococci play an important, although not the most important, part in puerperal infections. Secondly, in collaboration with Mrs. Lancefield at the Rockefeller Institute, we were able to show that the great majority of the most severe puerperal infections are caused by one class of haemolytic streptococci, now commonly known as group A, in distinction to the several other groups, and that this, the most dangerous streptococcus, is probably always introduced into the genital tract from some outside source. Finally, it was shown that the haemolytic streptococci causing these severe puerperal infections were in most cases identical with those present in the respiratory tract of some person, with whom the mother was in contact either before, during, or after her confinement. This finding leaves little room for doubt that these streptococci are usually conveyed to the mother from such an extra-genital source.

For this last accomplishment, perhaps the most important landmark in the history of the prevention of puerperal

admitting that there are others who will be very difficult indeed and who had better be sent to a doctor with special experience. We do, however, need to emphasize the fact that a large number are easily curable, and that the general practitioner should not hesitate to make the attempt. After all, a very large number of those now practising psychotherapy in this country began to do so when they were general practitioners, stimulated and guided by the pioneers, two of whom were mentioned in my previous letter (December 18, p. 1247).

It is indeed important that the doctor in charge of the clinic should not be overwhelmed by crowds of patients, but I do not think he is going to be helped very much by the deliberations of a committee. Such a body is more likely to put the subject to sleep. It would no doubt have many meetings, hear many witnesses, make some recommendations which would receive careful consideration, *et voilà tout*. I think that the doctors in charge of a clinic could do much more to help themselves. As Dr. Skinner points out, I stipulated for one clear hour at the first interview. I shall now ask for another clear hour for the second, and for many patients a third hour at the third interview. If the patient needs any more full hours his case is not a simple one; it may even be an incurable one, for there are incurable neuroses. It seems to me that at the present stage we should concentrate on the easily curable cases, for we ought to demonstrate to the unconverted members of the profession, especially to the teachers, that psychotherapy is worth while, and we shall only do this by curing a large number of patients. There are many important physicians and surgeons who do not yet believe that our labours are of much value for the present or of promise for the future.

I have asked for three clear hours at least for each patient. If the doctor is to have half a dozen new patients sent to him every time he comes to the clinic the thing cannot be done; yet the demand for these hours is not unreasonable. It is clear that every psychotherapeutic interview is, in respect of time consumption, as great an undertaking as an average surgical operation, and in my opinion it is as grave and important a procedure. If a surgeon were told every time he came to his clinic that he was to do six extra operations before he left, in addition to the work he had already planned out for himself, he would, I think, refuse to try. It seems to me that the doctor in charge of the neurosis clinic should explain to his colleagues that it is not only useless but often damaging to see a neurotic patient for a short period, and if his list is full he should say that he is sorry he cannot see another patient until he has cleared off those on it. This will create a waiting list for the department, and when, as is inevitable, it becomes a scandal because of its length, his colleagues who wish their patients to receive psychotherapy will agitate to have the staff of the department increased in numbers. So long as this department continues to allow itself to be a dump where every patient who is a bit of a nuisance to the physicians and surgeons can be sent and forgotten, nothing will be done. But if the department will stand up to the others something will be attempted. Back pressure of this kind will do more to bring about reform than any number of recommendations from some committee which has investigated the subject.

I do not think that three clear hours for one patient is too much to ask of the general practitioner; as things are, he spends more time than this on each of his neurotic patients in the course of a year. Dr. Skinner may feel that I have thrown overboard the patient whose case will take a long time. That most of us will have such cases

is certain, but I think that until he has sufficiently impressed his colleagues and his board of management with the importance of his department he must confine himself to two or three long cases, and the others must await their turn until he is free. It is by such methods that the great masters have forced their views on the profession. Lister did not call for committees—he just went on demonstrating that his patients did not get septic fevers. We should, I think, do likewise.—I am, etc.,

London, W.1, Jan. 3.

T. A. ROSS.

Early Diagnosis of Pulmonary Tuberculosis

SIR.—In the *Journal* of December 4, 1937, Dr. Geoffrey Marshall, in his address on the early diagnosis of pulmonary tuberculosis, refers to the tuberculin test both for humans and beasts, but does not state specifically what he means by the tuberculin test. For the last few years I have been puzzled as to why there should be so much confusion concerning the usefulness of tuberculin in testing for early phthisis as well as in treatment, and I have concluded that it must be partly due to the use of the Mantoux test only. This in itself is useless for detecting the presence of early and active tuberculous infection. The tuberculin test for diagnosing active infection, as I understand it, consists of the primary intradermal (Mantoux) test followed by subcutaneous injections of increasing strengths, up to 0.01 c.cm., every three or four days, the increases depending upon the degree of reaction obtained with the intradermal injection. Should a diagnostic rise of temperature follow with doses of less than 0.01 c.cm., then further injections are not necessary. It is not a *sine qua non* that an active case should give a positive Mantoux test, and the use of tuberculin is not as simple as it may appear. The late Dr. Robert Carswell always claimed that tuberculin had never really been tried out. In "Further Notes on Tuberculin" (*Medical Officer*, May 15, 1937) two cases are recorded, "A. C." and "W. R.," illustrating a negative and positive tuberculin test. "C. W." is a third case illustrating a positive reaction confirmed microscopically. For those interested in the use of tuberculin the table (p. 61) in *Tuberculin, its Vindication by Technique*, by A. Camac Wilkinson, should be of particular interest and value; also Dr. R. Carswell's article in the *British Medical Journal* of May 16, 1936 (p. 990), on the value of the negative subcutaneous tuberculin test.—I am, etc.,

West Wickham, Kent, Jan. 1.

H. S. BURNELL-JONES.

Sulphonamide-P in *Brucella abortus* Infection

SIR.—The following case may be of interest.

On November 5, 1937, I saw an insurance agent, aged 33, who complained of having had "shivers" and of being unwell for the last three days. He had a temperature of 101.6° F., a pulse rate of 90 and a respiration rate of 22, but there were no other physical signs of disease. During the next few days he developed a slight cough, and his temperature ranged from 98° F. in the morning to 103° F. in the evening.

On the tenth day of the illness I put him on two 7½-grain tablets of sulphonamide-P (B.D.H.) four-hourly. The next day his spleen was palpable, and his post-pharyngeal wall was red and granular. On the twelfth day his blood agglutinated *Brucella abortus* 1:12,500 and *Brucella melitensis* 1:2,500, but was negative against typhoid and paratyphoid A and B. His temperature, pulse, and respiration were now normal. On the thirteenth day I ceased giving him sulphonamide-P, after he had taken in all twelve 7½-grain tablets. From then to the seventeenth day his temperature varied from 98° F. in the

say. Thirst is a common symptom, and in children especially I prefer to give some form of effervescing saline *ad lib*. This should be given when the effervescence has subsided. It relieves nausea and vomiting, corrects ketosis, and, most important of all, promotes elimination of toxins by bowels and kidneys as well as supplying fluid. In children this and repeated small doses of colloidal kaolin will be found adequate for ordinary cases. It is always important to identify the organism at the earliest possible moment in case antiserum might be necessary. The great bulk of a polyvalent serum makes its use very undesirable. From my own limited experience of the dysenteries I should say that Dr. Miller need not fear dehydration. Although the stools may be uncountable they are scanty and mucoid, not profuse and watery as in cholera. If he has any doubt about its determination of the specific gravity of the blood by Rogers' method is simple and will settle the matter.

As regards clinical diagnosis, I think the points are: (a) the epidemic character, (b) the rise of temperature, and (c) the dysentery syndrome. An uncomplicated dysentery should never be confounded with an intussusception; but in a child with bacillary dysentery intussusception might occur very rarely. Dysenteric ulceration may, of course, occur in the appendix. Fortunately it is the common things which usually happen. The abdominal type of subtertian malaria need not be considered in England. A brief microscopical examination of the cellular contents of the stool, pending cultivation or agglutination, will be found very informative.

I am glad to see that Dr. Miller emphasizes the need for rapid cultivation of the stools. If sent through the post they are quite likely to give a negative result. It is worth mentioning that specimens emulsified with glycerinsaline may remain active and culturable even if left in the laboratory over the week-end. In conclusion, I am sorry Dr. Miller did not give us fuller details of the way he feeds his patients, in view of its great importance. They often express a desire for food long before it is safe for them to have it.—I am, etc.,

H. M. STANLEY TURNER.

Ashtead, Surrey, Jan. 8.

SIR,—The article by my friend Dr. Reginald Miller on Sonne dysentery contains some remarks on treatment which may give rise to comment. He dismisses the use of sulphates with barely veiled contempt, although I had felt that the use of these salts was based on a reasonable attempt to understand the pathology of the disorder, the physiological activity of the colon, and the pharmacological action of these remedies.

The treatment he advocates is similar to a method recommended in dealing with cholera about 1850—a method which my C.O. in 1918 suggested that I might try when confronted with a small cholera epidemic. Chalk was then used in place of the more modern kaolin, combined with opiates. The anus was plugged with linen and a tight T-bandage applied. Needless to say we did not use this method but conformed to the usual routine with intravenous salines. I should be sorry to see the use of sulphates abandoned for the scanty reasons put forward by Dr. Miller.—I am, etc.,

London, W.1, Jan. 9.

PEARSE WILLIAMS.

Haematocolpos

SIR,—I was interested in Dr. A. L. Craddock's letter (December 25, 1937, p. 1304), and thought, as I saw a great number of these cases during my twenty-three years in Calcutta, my experience might be of help. My opinion

is that they are never due to hymeneal blocks, but to failure in development of the Müllerian duct. This can be proved by microscopical section of the blocking membrane, for on its inner surface there is always columnar epithelium, whereas on the outer surface it is stratified. These cases can be divided into (1) haematocolpos; (2) haematocolpos plus haematocervix; (3) haematocolpos plus haematocervix plus haematometra; (4) haematocolpos plus haematocervix plus haematometra plus haematosalpinx; (5) haematocolpos plus haematocervix plus haematometra plus haematosalpinx plus haematoperitoneum. The important point is to determine under evipan or general anaesthesia by rectal and abdominal examination whether a haematometra exists with or without haematosalpinx, for if such is the case and the ordinary vaginal incision of the occluding membrane is effected there is a grave risk of organisms growing on a perfect medium, spreading upwards, and invading the tubes and peritoneum, leading to fatal peritonitis. Unfortunately I have seen this occur in six cases where the membrane was, shall we say, haphazardly cut for drainage. Therefore if one suspects this condition it is better to open the abdomen. If the tubes are full of blood they may be clamped at the uterine end, and then an assistant incises the membrane from below, and slow drainage occurs, which can be aided by intra-abdominal pressure; when the uterus has been emptied the sponge-holding clamps are removed and the tubes are milked empty into the uterus.

The whole object of this technique is to make sure that the tubes are completely empty of blood, for if they are perchance distended and the uterus alone is evacuated it is almost a certainty that the fluid will become infected, giving rise to an acute pyosalpinx, with infection of the peritoneum should a leak have occurred through the fimbria to the peritoneum, possibly resulting in death. There is just one more point, and that is that should the occluding membrane be merely opened from below, every care should be taken that no pressure on the abdomen is made, for should such a pressure be made and relaxed there is danger of suction of air into the cavity, perhaps carrying organisms. No douching should be permitted in any circumstances. In this country these cases of major degree are not so often seen as in the Tropics, as mothers more readily seek early advice. During the last four years I have had only five cases in hospital, and in one only was there haematometra present.

Should there be great distension of the tubes it is probable that conception will never occur, and some writers have advocated salpingectomy.—I am, etc.,

V. B. GREEN-ARMYTAGLE.

London, W.1, Jan. 4.

Treatment of Psychoneuroses

SIR,—The thanks of those interested in psychotherapy are due to Dr. E. Fretson Skinner for his handsome acknowledgment (*Journal*, January 1, p. 42) that his first letter (December 11, 1937, p. 1196) did contain some exaggerations. I agree with him that it is undesirable that this correspondence should become a debate on the merits of rival methods of treatment, and that it should, if possible, be confined to the two questions which he has set forth—namely, how to prevent undue pressure on the staff of the neurosis clinic, and how the general practitioner can be induced to deal with at least some of his neurotic patients. He will do this only when we have demonstrated to him that a large proportion of these patients are not difficult to treat, while at the same time

January 1 dealt with purely educational matters; but the present problem is economic as well as educational, for it has been shown that financial difficulties are a greater bar to men obtaining their M.B., B.S. degree than are intellectual difficulties. These economic matters are of no interest to the Universities of Oxford and Cambridge, and for that matter they are really of no interest to the Royal Colleges and the Society of Apothecaries, who would doubtless rather be left alone. On the other hand the University finds that the relative ease with which their undergraduates can obtain a qualification by way of the Conjoint Board affects materially the number who obtain a degree and, therefore, consultation with the Royal Colleges seems advisable. Your correspondents object to this on the grounds that these colleges are not teaching bodies and "can make little contribution to the solution of an educational problem." It would be interesting to know how they differ from the External side of the University of which Sir Ernest is the champion. Perhaps in Professor Greenwood's objection one can get a glimpse of the Academic Jekyll in the rather cynical External Hyde.

I venture to suggest, Sir, that the position in London is most uneconomic. We have two sets of final examinations conducted on more or less parallel lines, both of which cost a lot of money; we have two sets of examiners, busy men who often find that long hours of examining interfere seriously with their work and their teaching; we have the majority of London students sitting for the same type of examination twice over; and we have their parents paying for a double set of examinations. I believe personally that these two examinations should be merged into one, the standard being different for the Conjoint and University students. I cannot but believe that if some such scheme were introduced most of our difficulties would be surmounted. If Sir Ernest Graham-Little's and Professor Greenwood's view prevails we shall still see half our students without their degree, and the Royal Colleges will continue to increase those profits to which Professor Greenwood takes such objection.—I am, etc.,

London, W.1, Jan. 8.

A. M. H. GRAY.

SIR,—This matter has interested me intensely for many years. As a member of the Standing Committee of Convocation (in the Faculty of Medicine) since 1927, and more recently as Bedell of Convocation, I have maintained close touch with my "alma mater" since graduating in 1924.

I have read with great interest the letters in your issues of December 25 and January 1 by Dr. A. M. H. Gray and Professor M. Greenwood; also the articles in the *Lancet* of October 23, and in *St. Bartholomew's Hospital Reports* (referred to by the *Lancet*) by Mr. W. Girling Ball. May I also remind your readers of the valuable correspondence on the same subject which appeared in your columns in November and December, 1934, in which Sir Ernest Graham-Little took part. When it is realized that of all the matriculated medical students in the University of London who pass their second M.B., Part II (equal to the Oxford and Cambridge B.A. and M.A.), only some 54 per cent. ever actually become graduates in medicine and secure the valuable M.B. degree, surely that is a scandal? After six years of study more men should actually become university graduates, with graduates' privileges, as opposed to mere diplomates. If possible, all should be graduates. The great majority of men who enter the medical schools of the London hospitals do so in order to get qualified, be able to practise, and earn a living, not merely in order to fulfil various academic

regulations and to satisfy the academic pundits. There can be little doubt that the final M.R.C.S.Eng. examination is as sound a final qualifying test on the surgical side as anyone could wish for. I believe the M.R.C.S.Eng. is as good as any B.Ch. in the world. The London B.S. is a little harder on the surgical pathology side. It can scarcely be denied that there is a great difference between the standard of the men who just scrape through the Conjoint Board final and the men who satisfy the examiners at the M.B., B.S. Lond. final, and it would be impossible to hand out the London degrees to men who just passed the Conjoint. But surely it is absurd to be running two completely different final examinations in London—the Conjoint Board and the University—putting men to the double expense of 40 guineas for the Conjoint diplomas and 28 guineas for the University degrees?

My proposal is that a wide view should be taken of the whole matter: I believe the Colleges would recognize the cause of education and the needs of the student to be above that of mere money-making. I suggest that there be *one final examination in medicine* in London, with an extra part for the degree men. Students who had passed all the earlier Conjoint Board examinations would be pure Conjoint men, and in passing the new final examination would get their M.R.C.S., L.R.C.P. diplomas; on the other hand, the matriculated University of London students, who had only passed the second M.B., Part II, would get the Conjoint diplomas upon passing the ordinary new final examination, but would have to pass an extra part, in medicine and pathology, in order to get the M.B., B.S. degrees. It is in medicine and pathology that the main difference lies between the degree and diploma standards. Thus, three-quarters of the final test would be the same for all. An arrangement as to fees would have to be reached by the two bodies. It is the fact that, even when the Conjoint diplomas have been secured, an entire new final examination has to be taken in order to secure the M.B., B.S. degrees that causes many men to give it up altogether. Many men are by then doing house appointments. If when the Conjoint final had been passed three-quarters of the London final was also disposed of the great majority would complete the M.B., B.S. final by taking the extra quarter.—I am, etc.,

Lincoln, Jan. 3.

CHARLES A. H. FRANKLYN, M.D.,
B.S., M.R.C.S.

West London Hospital Medical School

SIR,—In your issue of December 25 (p. 1305) "Cambridge Woman Graduate" puts forward a plea for the undergraduate members of her own university who find themselves at a disadvantage, compared with their London sisters, in obtaining entry into the London medical schools. At the present moment we have had some twelve applications from Cambridge women, and all of these have been accepted. As this represents practically half a normal year's entry, I think we can plead not guilty to any charge of discriminating against Cambridge women; moreover, we have also accepted a number of women from that older and more enlightened university which admits women to all the privileges of membership.

In the *Journal* of January 8 Dr. Eva McCall draws attention to the paucity of hospital appointments open to women medical graduates. The West London Hospital will, before long, be in a position to offer at any rate a partial solution to this difficulty. In the article which appeared in the *Journal* on December 4 (p. 1124) it was pointed out that both resident and honorary appointments

morning to 99.4° F. in the evening. On the fifteenth day his spleen could no longer be felt. On the seventeenth day his evening temperature rose to 100.4° F., but after the nineteenth day, when his spleen again became just palpable, it did not rise above normal. I continued to record it night and morning until December 31. He was allowed up on the twenty-fourth day, and has now resumed his work.

Dr. Manson-Bahr, writing in Hutchison's *Index of Treatment* (tenth edition, p. 954) of infections by *Brucella abortus* and *Brucella melitensis*, says: "Treatment is essentially symptomatic. Quinine, salicylates, and antipyretics are often used, but have no action beyond the temporary relief of the symptoms in some instances, and as the disease runs a most protracted course the use of such drugs cannot be persisted in." The case I record is an instance of a heavy infection in which the fever settled down in nineteen days after one abortive relapse on the seventeenth day. There are many possible ways of explaining the shortness of the illness of this young man, but I would suggest that sulphonamide be given a trial in such cases of infection by those who meet them more often than I do.—I am, etc.,

Llandilo, Jan. 4.

J. H. LLOYD.

Treatment of the Common Cold

Sir,—During the past seven years I have experimented with every new treatment in an endeavour to find a cure for the common cold. I long ago came to the conclusion that for a remedy to be of value in the treatment of this condition it must (1) be simple to administer; (2) act within twenty-four hours; (3) not restrict or inconvenience the patient; and (4) prevent the unpleasant sequelae of nasal catarrh, cough, and expectoration. It occurred to me that prontosil album might have some beneficial effect on such a mixed infection as the common cold. Consequently I began to try out the treatment some three months ago on members of my own family. The results were dramatic, so I proceeded to treat patients in my practice, and have to date just over 100 cases treated within the first forty-eight hours of developing a cold. The infections were of a varied nature—rhinitis, laryngitis, cough, etc.—some with slight pyrexia and some with gastric disturbances. In all cases the results were swift, positive, and, in those cases treated in the prodromal stage, most dramatic. The colds were aborted and sequelae prevented. I have not one failure to record so far. The only unpleasant effect noted was that about half the patients complained of slight general malaise while taking the drug, but all agreed that this lasted but a few hours and was infinitely to be preferred to the cold.

I give one 7½-grain tablet of prontosil album at 6 p.m. and two more tablets on retiring on the first day of the cold. Usually this is all that is necessary, especially if the cold is in the prodromal stage. This treatment is given fasting from two hours before the first tablet is taken until two hours after the next two tablets. In the case of a well-developed cold one further tablet is necessary the following night, and should be taken two hours after a meal. In any event a maximum of thirty-six hours usually sees the patient perfectly well. The dose that I have found well tolerated by children weighing over 5 stone is one tablet at night and one the following morning. For children over 3 and under 5 stone half a tablet night and morning, once only, is given. I have not treated any child smaller than this. I feel that my results at least justify further investigation.—I am, etc.,

London, W.7, Jan. 4.

MICHAEL ELYAN.

The Problem of the Final M.B., B.S. Lond.

Sir,—I felt sure that Mr. Mitchiner was not himself responsible for the publication of my name on the document issued by the London Graduates Association and willingly accept his assurance that no discourtesy was intended to anyone who, like myself, might disagree with the association's manifesto.

Sir Ernest Graham-Little has raised a number of points in his letter which require an answer. It is perfectly true that I told him that I intended to support Mr. Mitchiner, even though his views differed from mine. I can still pray for his conversion, an exercise which would be waste of time in Sir Ernest's case. His memory is at fault, however, when he states that I made no protest to him regarding the inclusion of my name in the list of nominations.

I must thank him for correcting one of my statements. I should have said Court instead of Universities Grant Committee. I have, of course, no official knowledge of how the Court's attention was drawn to the small number of students in medical schools who take a university degree. I am, however, indebted to Sir Ernest for quoting the statement of the Court to the Senate, for it makes the position clear, but I would demur to the suggestion that the Board of the Faculty had "flouted the advice of the Court." The Court did not "advise" the Senate, it merely expressed a hope. It is because this "hope" is unlikely to be fulfilled that the Board of the Faculty recommended the Senate to consider other methods.

Sir Ernest accuses me of wishing to degrade the final University examination to the level of the Conjoint diploma. What I have done is to support the report of the Board of the Faculty of Medicine, which reads as follows:

"The Faculty Board agreed that it is desirable that a greater number of students should obtain the M.B., B.S. degrees than has been the case in the past, but that the standard of the degrees must be firmly maintained." (The italics are mine.) "They think, however, that the possibility of devising an alternative mode of approach to the degrees should be explored, and that with this end in view the University might co-operate with the Royal Colleges of Physicians and Surgeons."

I should have thought it would be obvious that the "hope" of the Court could only be realized, under present conditions, by making the new syllabus of a standard comparable to that of the Conjoint diploma, and this the Board of the Faculty cannot recommend.

Sir Ernest states that the "competition of a lower qualifying examination (that is, the Conjoint Board) has become less serious in the last few years." It would be interesting to know on what grounds he makes this statement. It has been shown that only about 8 per cent. of London University students who have passed the second M.B. qualify by the M.B., B.S. examination only. This does not suggest much lessening in competition. To support his statement he quotes figures to show the increased entry of London University students into the medical schools. What bearing this has on his argument is difficult to see. On the other hand, it makes it imperative for those who induce students to enter for the University course to see that they have a reasonable chance of obtaining a degree in the long run.

No one can be more severe on anyone who introduced an irrelevant matter into a discussion than Professor Greenwood, and no one can be more skilled than he in obscuring an issue by the introduction of matters only very faintly relevant to the subject under discussion. The Council Conference to which he refers in his letter published in

"If it had not been essential for the dairy trade of to-day (a series of large combines collecting milks of various ages over a wide area) to find some system whereby they could ensure delivery to the consumer in a sweet condition, it would appear doubtful that general pasteurization of milk would ever have come to the fore. There are many types of pasteurizing plants in operation to-day, both under licence and otherwise, but it seems doubtful whether every pint of milk treated is pasteurized in the true meaning of the word. Under the Special Designations Order the milk has to be held at a temperature of not less than 145° F. and not more than 150° F. for a period of half an hour. This gives a temperature range of five degrees. Actually in practice there is not this margin, as the trade problem of the 'cream line' causes strong opposition from the average dairyman to a temperature exceeding 148° F. Thus in practice the margin is three degrees. Some plants have a heat loss of two and a half degrees. Under these conditions the plant has to be truly efficient and the human element almost perfect to achieve true pasteurization. In checking the temperatures recorded, the fact that thermographs are exceedingly delicate instruments must not be lost sight of. Unless the thermographs are constantly and regularly corrected the temperatures recorded will be found to be misleading. Most systems of pasteurization involve the use of comparatively long lengths of pipe lines. Unless these can be effectively sterilized the milk becomes contaminated after pasteurization."

Under these circumstances it would appear that the day of universal pasteurization has not yet arrived, and that if a compulsory scheme were put into operation there would undoubtedly be a false sense of security.—I am, etc.,

Letchworth, Jan. 5.

NORMAN MACFADYEN.

Correct Footwear

SIR,—The considerable correspondence on this subject in recent numbers of the *Journal* emphasizes its importance in the treatment of many disabilities. In a letter which you published nine years ago (March 30, 1929) I mentioned that nearly thirty years previously I had purchased boots of the correct shape from the firm of Holden Brothers, whose business then had been transferred to Messrs. Holland and Son of London. As Dr. T. Hare has stated, socks and stockings also need supervision as to size and shape, and especially is this the case with children, whose socks, shrunk by frequent washing, become so small that the effort required for their removal is very evident, and the result of their use that of a tight bandage with distorting compression of the bones of the toes. Allow me to add that I have no financial or other interest in the firm mentioned above.—I am, etc.,

W. W. SHRUBSHALL, D.P.H.

Work of the R.M.B.F.

SIR,—I am extremely grateful for the most generous response which has been made this year towards our Christmas gift fund. The amount subscribed, £979 3s. 8d., has enabled us to give a Christmas gift of 30s. to every one of our regular beneficiaries.

My thanks are due to you, Sir, for bringing the appeal before your readers, and to all who responded we desire to express our very sincere thanks. The committee is equally indebted to the many secretaries of medical societies, panel committees, hospital staffs, and Divisions and Branches of the British Medical Association who brought the Christmas gift appeal to the notice of their members and who arranged for collections to be made at meetings or donations to be voted. No fewer than 115 cheques from the above-mentioned secretaries, amounting to £511 15s. 8d., have been received.

We are particularly impressed by the spirit of good will and friendship shown towards the work of the Royal

Medical Benevolent Fund in the letters received from many contributors. Practically all "wish every success to the appeal"; others refer to the object of the appeal as "being most deserving." It is clearly shown that it is the desire of members of the medical profession to extend sympathy and practical help through the agency of the Royal Medical Benevolent Fund to those members or their dependants who are living in adversity. The extent to which such help is appreciated may be gathered from this extract from one of many letters of thanks from beneficiaries. The writer is a widow, aged 63, suffering from asthma and bronchitis:

"Will you please give my sincere thanks to the committee for the generous and unlooked-for Christmas gift. It came as a most timely gift. A month ago my doctor ordered me to bed and said that the fire must be kept going night and day, so instead of a 2s. 8d. bag of coal I was able to get a quarter of a ton. I felt it was being very extravagant, and yet on Christmas Eve, after the light was turned out, it was lovely to lie in bed and think of all the blessings one was enjoying through the kindness of unlooked-for friends."

My committee is confident that it is the wish of all that the Royal Medical Benevolent Fund should be worthy of the traditions of our great profession—to be able to give adequate help to those in need. Great advance has been made since the early days and much has been done. We look now to those who have not yet become annual subscribers to join in with us during 1938.

I wish all a happy New Year, and I thank you for the generous co-operation extended by you and your readers to the Royal Medical Benevolent Fund.—I am, etc.,

THOS. BARLOW,
President.

11, Chandos Street, Cavendish Square,
W.1, Jan. 5.

Obituary

R. D. HELM, M.D.

Consulting Physician, Cumberland Infirmary

The death of Dr. Robert Dundas Helm at his residence in Carlisle on January 4 following a short illness has removed a physician with a widespread reputation in the North-West, and one who was, in other respects, a valuable and esteemed member of the community.

A native of Fifehire and born in 1863, Dr. Helm graduated M.B., C.M. of Edinburgh University at the age of 21, and took his M.D. four years later. After graduation he held the appointments of house-physician to the Edinburgh Royal Infirmary and to the Royal Hospital for Sick Children, Edinburgh, and of house-surgeon at the Royal Maternity Hospital, Edinburgh. Following this he came in 1885 to Carlisle as assistant in an extensive county practice. He succeeded to this practice in 1889 and carried it on till the time of his death. In 1896 he was appointed honorary assistant physician to the Cumberland Infirmary, and a year later, on the retirement of Dr. Lockie, he became full physician, serving in this capacity till 1922, when he was appointed consulting physician to that institution. The governors further honoured him by electing him a vice-president. Another institution with which Dr. Helm was long associated and which was dear to his heart was the Border Counties Home for Incurables, Strathclyde House, Carlisle. He served there as honorary physician from 1921, and on the death of Sir Frederick Chance in 1932 he succeeded

will eventually be available for suitably qualified women. It is, however, an interesting commentary on Dr. McCall's complaint that we have recently advertised a vacancy for an honorary paediatrician without receiving a single application from a woman.

Dr. D. E. Barton (January 8) has, I think, read into the article to which he refers a significance which was never intended. I should have hoped that he would welcome the fact that there is not at present—and I hope there never will be—any statutory exclusion of men from our school. This does not mean, as he seems to fear, that the women will gradually be elbowed out to make room for men. But it does mean that there will be the possibility for the ultimate development of a true mixed school with absolute equality for students of both sexes—a type of school which does not exist in London at the present time. There is already an excellent school for women only, but I have gained the impression that there is a keen demand among women of all generations for a mixed school of the type I have indicated. The West London Hospital Medical School is committed to the service of women students, and their interests must naturally come first. But it does not appear that they share the prejudice of men students against co-education in medicine.

The reason why the future "cannot be foreseen" is that we do not know how many women will be applying for admission, nor how long this prejudice of the men will persist.—I am, etc.,

MAURICE E. SHAW,
Dean.

West London Post-Graduate College,
London, W.6, Jan. 8.

Applying for Hospital Posts

SIR,—The letters of "Gamma" (*Journal*, December 25, p. 1305) and others on applying for hospital appointments recall to many of us our own rueful experiences in similar circumstances. The fetish, albeit a lucrative one, of a hospital appointment has introduced methods and morals savouring more of the common gangster than those of a learned and honourable profession. The method of appointment to the staff of certain provincial hospitals has degenerated into what amounts to a racket, and is far worse than any system of fee-splitting so rightly frowned upon by men of honour. Most of the appointments to the junior staff of such provincial hospitals go by favour to the man who has bought himself in, either as a junior partner of some member of the existing staff or by purchasing the practice of such a member. It is common knowledge that professional qualifications and experience count for very little; what matters is a friend at court, and for this the lay members of the hospital committee lay themselves open to influence when it comes to votes. Hospital committees continue the farce of advertising staff appointments and candidates go to trouble and expense to produce testimonials and applications, while all the time some one candidate has been earmarked for the post. Again and again men suitable from every point of view as regards professional and personal qualifications are turned down for some junior partner not half so well qualified. The question arises, What, if anything, can be done to alter a state of affairs so lowering to the profession and harmful to the service of the public? The answer is nothing—unless we care to adopt the only fair and reasonable system of "open" hospitals, such as they have in many parts of Canada. Take, for instance, the General Hospital, Vancouver, which contains about twelve hundred beds and is one of the finest hospitals in the West. It has no honorary staff, and any man on the Medical Register has the right to take his patients into

this hospital and treat them there himself. If he finds the case beyond his powers he calls into consultation one of the specialists he believes in, unlike his British colleague, who has to make his choice from some member of the honorary staff in whom he may not have the slightest confidence. However, in England the system of honorary staffs is so well dug in and so surrounded by the barbed-wire entanglement of vested interest that nothing but the advent of high explosive in the shape of the coming corporate State is likely to break down its smug security.—I am, etc.,

Bournemouth, W., Jan. 5.

VINCENT NORMAN.

Pasteurization of Milk

SIR,—The idea that medical opinion is in favour of pasteurization of all milk is being so cunningly inserted into the mind of the public that I am moved to give you some of our experience. The council to which I have the honour to belong has for years now taken great interest in improving the quality of the milk supply. This it does by taking frequent samples from all the purveyors of milk in the district, and, where a sample is not good, the sanitary inspector takes it up with the producers. The result has been very satisfactory. We have among our producers one by whom the milk is pasteurized. The equipment is absolutely the most modern and the methods used are entirely up to date. Now let me give you an extract from our annual report for 1936.

Pasteurized Milk (Number of bacteria per ml.): Average count, 23,196; lowest count, 60; highest count, 112,000.

<i>B. coli</i> present in 1 ml.	2 samples
" " " 1/10 ml.	2 samples
" " " 1/100 ml.	2 samples
" " " 1/1000 ml.	1 sample

Certified Milk and Tuberculin-tested (Certified Milk): Average count, 9,880; lowest count, 900; highest count, 24,800; *B. coli* absent.

The following is a copy of a report given at our last council meeting. As *B. coli* was present in only one sample of ordinary milk, simply the number of bacteria per millilitre is recorded.

Ordinary Milk Sample No.	Bacteria per ml.	Ordinary Milk Sample No.	Bacteria per ml.
80	56,000	83	49,000
81	72,000	84	61,000
82	48,000	85	25,000
T.T. Milk .. ..	.. ..	Sample 89	45,000
Accredited Milk .. ..	.. ..	" 90	20,000
Sterilized Milk .. ..	.. ..	" 86	27,000
Pasteurized Milk .. ..	.. ..	" 85	25,500
T.T. Certified Milk .. ..	.. ..	" 87	5,000

These results are good and show that pasteurized milk, in spite of all the elaboration and expense entailed in its production, has nothing to boast about. The great need to-day is for an abundant supply of fresh, pure milk at as cheap a price as possible, and I believe that if our Government and local authorities were really determined that the people should have this many difficulties would disappear and a natural supply would become available. Pasteurization is a second best, and may easily become a dangerous second best. We have definite evidence that our certified T.T. milk has produced better results than any other milk. It seems to me very probable that the pasteurization campaign may very easily seriously retard the campaign for pure milk and healthy cattle in this country.

May I add a few notes from our sanitary inspector, Mr. Jump, because we really have gone into this matter pretty thoroughly.

We regret to announce the death at Margate of Dr. WILLIAM WATSON GRIFFIN, who before his retirement practised at Brighton as an ophthalmic surgeon. His medical education was at Otago, New Zealand, and the London Hospital. He graduated M.B., B.Ch. in New Zealand, and held the post of assistant house-surgeon at Dunedin Hospital, later taking his F.R.C.S. in England. He was appointed ophthalmic surgeon to the Royal Sussex County Hospital and also to the Worthing Hospital. He had previously held the posts of senior clinical assistant at the Royal London Ophthalmic Hospital and clinical assistant in the ophthalmic department of the Middlesex Hospital. During the great war he was appointed ophthalmic specialist in the R.A.M.C.(T.), holding the rank of major, and served in that capacity throughout the duration of hostilities. At the Annual Meeting of the Association in Brighton in 1913 he was a vice-president in the Section of Ophthalmology. His fellow practitioners in Brighton have the most pleasant recollections of his work as an eye specialist. He was a colleague on whose opinion they could always rely and unfailingly courteous in all his dealings. It can be said of him that he had a delightful personality, and Brighton doctors will regret the loss of a very distinguished member of our profession.

The following appreciation of Dr. A. COWAN GUTHRIE is by a Glasgow practitioner who acted in consultation with him: From his first days in the study of medicine Guthrie's mind turned to pathology, and after a time in general practice he gave himself up to the study of disease by the specialized methods of laboratory work, bacteriology, histology, and microscopy. He brought to bear on his cases an acute mind in advance of his time, a careful clinical observation, and an originality of thought and action, which made him as a consultant an unusually interesting and helpful guide to both patients and doctors. Those who experienced his attention could not fail to be impressed by the combination of great clinical skill, keen scientific acumen, and freedom from the fetters of convention and tradition that distinguished all his work.

We announce with regret the death of Dr. FREDERICK VAUDREY CANT at the age of 46. Dr. Cant died in the Vaudrey Royal Hospital on January 2 as a result of injuries received in a motor accident on New Year's Eve. He was educated at Cambridge and at the Victoria University, Manchester, taking the Cambridge B.A. in 1912 and going on to the M.R.C.S. and the L.R.C.P. diplomas in 1915. During the war he held a commission in the Royal Army Medical Corps. In 1920, after proceeding to the M.A., he went to Bath, becoming honorary anaesthetist at the Children's Orthopaedic Hospital and senior medical officer to the Ministry of Pensions Hospital. While there he took the D.P.H. at the University of Bristol. He went to Manchester about three years ago, and was appointed chief medical officer to Manchester Collieries Ltd. He had been a member of the British Medical Association for the last twenty years.

Dr. LAWRASON BROWN, resident physician at the Trudeau Sanatorium, Saranac Lake, U.S.A., from 1900 to 1912, died on December 26, 1937, at the age of 66. He had been ill for several months after an attack of pneumonia.

The following well-known foreign medical men have recently died: Professor ERICH LEXER, the master of restorative surgery and director of the Munich University surgical clinic, aged 70; Dr. FERNAND LALESQUE, an eminent physiotherapist and author of numerous works on the treatment of tuberculosis and creator of Arcachon as a health-resort, aged 84; Dr. FERNAND CURTIS, for thirty-five years professor of morbid anatomy at the Lille Faculty of Medicine and author of works on insulin and on cancer, aged 80; and Dr. VAN ROEY, rector of Amsterdam University and professor of gynaecology.

Medico-Legal

A DOCTOR'S DAMAGES FOR LIBEL

Sabapathi v. Huntley

A planter named G. Huntley and his wife had a serious motor-car accident when driving by night in Ceylon. They were taken to a Government hospital, and at once attended and treated by Dr. C. Sabapathi, a senior medical officer of the Government of Ceylon with British and Indian qualifications, who was in charge of the hospital. He visited them next day, and the day after that they left the hospital. Mr. Huntley wrote him a note two days later asking for the accounts, and saying that he and his wife were both very much better and grateful for the way in which they had been looked after. About a week afterwards they consulted a specialist in Colombo, and the x-ray examination made on his advice showed that both patients had fractures. They were accordingly treated in a nursing home. Shortly after entering the home Mr. Huntley wrote to the Director of Medical and Sanitary Services, Colombo, a strong complaint against Dr. Sabapathi for negligence and incompetence, alleging that the doctor, after a very perfunctory examination, had pronounced definitely that no bones were broken, had not suggested an x-ray examination, had actually intimated that the patients might leave on the following morning, and had made no examination of any sort while they were in his hospital except the first examination of two or three minutes, after which he had merely prescribed lead lotion and the usual liniments and had left everything to the acting matron. Mr. Huntley also sent a copy of this letter to the chairman of the Planters' Association, which passed a resolution endorsing its terms. The letter, the discussion, and the resolution were published in several newspapers. Dr. Sabapathi was given no opportunity of explaining or justifying his conduct.

The doctor complained to the Director of Medical Services, and Mr. Huntley said in an interview with the Director that the doctor had examined him and his wife while they were still in the car, and each examination had lasted only half a minute. Dr. Sabapathi then, with the consent of the Government, brought an action for libel and slander against Mr. Huntley. This was tried by the district judge. The doctor gave evidence that he had not examined either patient in the car, but had made a careful and complete examination of both in bed, and had immediately recorded on their bed-head tickets the injuries which he had observed and the opinion "No evidence of fracture." Mr. Huntley, on the contrary, said in evidence that the doctor had examined him and his wife in the car, had felt and moved their arms and assured them that no fractures were present, and when he examined them in the hospital had looked only for cuts and bruises, and had not touched or re-examined their arms and shoulders for fractures. The district judge found in favour of the doctor, accepting his evidence and disbelieving that of Mr. Huntley and his witnesses. He also held that Mr. Huntley's communication to the Planters' Association was not made upon a privileged occasion, and that, if he were wrong in so holding, Mr. Huntley had in making it been actuated by malice so that he could not claim the benefit of privilege. Mr. Huntley appealed to the Supreme Court of Ceylon, who reversed the judge's decision and found in his favour. They agreed that the occasion was not privileged, but found that Mr. Huntley had not made the communication maliciously and that he had proved the truth of his statements.

The Judgment of the Judicial Committee

Dr. Sabapathi then appealed to the Judicial Committee of the Privy Council, who delivered judgment on December 21, 1937. They pointed out the difficulties which hindered Mr. Huntley, like any plaintiff, in proving that he was justified in making his defamatory statements. His first obstacle was to overcome the judgment of the district judge, who saw and heard the witnesses and was thus better able than the Supreme Court to judge of their demeanour and credibility on a pure question of fact: *Powell v. Streatham Manor Nursing*

to the presidency of the institution. When the British Medical Association held its Annual Meeting in Carlisle in 1895 Dr. Helm acted as honorary local general secretary, and at the Edinburgh Meeting in 1898 he was honorary secretary of the Section of Pharmacology and Therapeutics. He was also a past president of the Carlisle Medical Society. During the great war he acted as medical officer in charge of the military hospital at Carlisle Castle. He was appointed a magistrate for Carlisle in 1896, and had been the city's senior magistrate since 1936.

Dr. Helm was a physician of the old school. For many years in Carlisle he had an extensive general practice among the upper classes, and his services were soon widely sought in consulting medicine throughout Cumberland and the neighbouring counties. He had a great natural charm of manner and was friendly and courteous with all, in whatever class, and his passing will be deplored by his many patients and by his colleagues, each one of whom will remember him as a true gentleman in every sense of the word.

EDWARD MAGENNIS, M.D.

Formerly President, Irish Medical Association

Dr. Edward Magennis sen., who represented the Apothecaries Hall of Ireland on the General Medical Council for twenty years and was elected to the Irish Free State Medical Council in 1927, died on January 3 at the age of 82 at his home in Harcourt Street, Dublin. He made a lifelong study of ophthalmology; took a deep interest in public health affairs, especially those relating to the welfare of children in schools; and was the author of books and papers on these subjects.

Edward Magennis was a native of Co. Down, and received his medical education at Queen's College, Belfast, and at King's College, London. He obtained the L.R.C.P. and S.Ed. in 1880, the M.D. of the Royal University of Ireland in 1884, and the D.P.H. of the Irish Royal Colleges in 1891. In early professional life he was for a time clinical assistant at the Royal London Ophthalmic Hospital; then, returning to Ireland, he was appointed ophthalmic and aural surgeon to St. Michael's Hospital, Kingstown. He took the licence of the Apothecaries Hall, Dublin, in 1908 and represented that body on the General Medical Council continuously from 1914 to 1934, and was also for many years a member of its Court of Governors. He had been a justice of the peace for Counties Down and Armagh, president of the Irish Medical Association before its reorganization, and held important positions in other public bodies.

T. K. WHEELER, M.D., M.Ch.

Consulting Surgeon, Royal Victoria Hospital, Belfast

The death on December 29, 1937, of Dr. Thomas Kennedy Wheeler in his ninetieth year has removed from Belfast life a figure who provided a link with past generations, for he obtained his M.D. in the Royal University of Ireland in 1879. The Wheeler family has had an outstanding place in the medical life of Belfast for many generations. The late Dr. Wheeler was the son of a doctor well known and much esteemed by the older inhabitants, and he himself was the father of four doctors. He maintained his faculties until the last, but increasing physical infirmity became manifest during the past few weeks. Even his interest in his beloved pastime of bowls was sustained up to last summer.

Dr. Wheeler had a long, active, busy professional life. His patients were numerous and every one he could consider his friend. He was a member of the surgical staff of the Royal Victoria Hospital, and for some years had been one of its consulting surgeons. A unique record was created some years ago when his son, James R. Wheeler, F.R.C.S., was elected assistant surgeon to the eye and ear department of the hospital, two generations thus holding appointments on the honorary staff. He was also a former surgeon to the Ulster Hospital for Children and Women, and did valuable service there in the surgical department. To his other professional activities were added those of medical officer to the Methodist College, Belfast. In sport he always found a congenial subject of conversation, and in the distinguished place occupied by his sons in Rugby football he took a great pride. His only daughter, Eleanor, who was also a doctor, succumbed to illness some ten years ago, and her death was a blow to her parents, which was borne with a fortitude won from life and experience. Three of his four sons are in the medical profession: Donald R., assistant surgeon to the aural department of the London Hospital; Arthur R., in practice in Wiltshire; and James R., who specializes in ophthalmology in Belfast.

Dr. FLORENCE ROBINSON of Manchester died at her home on December 27, 1937, aged 65. Dr. Robinson received her early education at the Manchester High School for Girls, and since at that time women students were not admitted to the Manchester Medical School she went to the London (Royal Free Hospital) School of Medicine for Women, taking the L.S.A. in 1900 and the London M.B. degree in the following year. After brief periods of residence as house-surgeon in the St. John's Hospital, Lewisham, and the Clapham Maternity Hospital, she returned to Manchester. Together with Dr. Catherine Chisholm she was to a large extent responsible for the foundation of the Babies' Hospital, which has since become the Duchess of York's Hospital for Babies, Burnage, to which she was appointed an honorary physician. Dr. Robinson had been a member of the British Medical Association from 1905 up to her retirement from practice about two years ago.

By the sudden death of Dr. JOHN COWAN WILSON on January 7, at the age of 75, Lanarkshire lost one of its ablest general practitioners who had been a member of the British Medical Association for thirty-two years. He graduated in medicine at Glasgow University in 1883 and took the D.P.H. of Cambridge in 1890. After a short term as house-physician in Greenock Infirmary he started practice in Blantyre, the birthplace of David Livingstone, who would certainly have respected him both for his character and his work. It is not an attractive spot, but there for fifty-three years Wilson gave of his best, and it was a good best—better than most of his patients could readily appreciate, for he kept in close touch with recent developments in medicine and surgery and was himself an excellent surgeon. It was largely due to him that the cottage hospital and the nursing association at Blantyre came into being. His service to the miners and to the poor was as painstaking as to the rich and was never stinted. This was recognized three years ago when the folk of Blantyre celebrated his jubilee among them and publicly honoured him. It was characteristic of him that though he knew he had angina he was at work two days before he died. Always a gentleman, courteous in manner, kind but determined, Cowan Wilson was in the true line of succession to the grand type of family doctor of whom Scotland has had many, and to whom "R. L. S." and "Ian Maclaren" bore witness last century. And, before his polish, he might have sat for the portrait of "The Auld Pairish Doctor" so ably drawn by our contemporary Dr. John F. Fergus. The sympathy of the whole community goes to the widow and her two sons.—J. A.

surgeon on July 27, 1887, became colonel in the long war promotion list of March 1, 1915, and retired on September 10, 1919. He served in the Nile campaign of 1898, when he was present at the battle of Khartum, receiving the medal, also the Egyptian medal with a clasp; and in the war of 1914-18 he was mentioned in dispatches in the *London Gazette* of February 17, 1915, January 4, 1917, and December 24, 1917, and received the C.B.

Colonel T. E. L. BATE, whose military career was briefly recorded in this column on December 18, 1937, studied at Trinity College, Dublin, and shortly after qualifying as a doctor worked for a year as assistant to a general practitioner in Sheffield. On being appointed to the Indian Medical Service he was posted to the Punjab, and shortly afterwards found himself at Peshawar during the progress of the Afghan War of 1879-80. He was later given the post of medical officer to the Lieutenant-Governor of the Punjab, and in that position had opportunities of travelling all over the Province and becoming acquainted with numerous officials and problems outside his own service. Later on he became civil surgeon of Delhi, and from Delhi was transferred to the Provincial headquarters as Inspector-General of Prisons, a post which he held for fourteen years (1891 to 1905). During absences on leave he visited many prisons both in the British Isles and on the Continent, gaining a mastery of his subject which enabled him to introduce many valuable reforms and secured for him in 1902 the C.I.E. After retirement he travelled in various parts of the world, including Canada and South Africa. When the great war broke out he undertook important duties in connexion with Red Cross work in London, and these services were recognized by the conferment in 1918 of the C.B.E.

Colonel DOUGLAS WARDROP, C.B., C.V.O., late R.A.M.C., died at Camberley on December 25, 1937, aged 83. He was born at Barnsburry on February 11, 1854, and was educated at Aberdeen, where he graduated M.B., C.M. in 1875. He entered the Army as surgeon on March 6, 1880, attained the rank of colonel on August 14, 1907, and retired on February 11, 1911. He served as civil surgeon in South Africa in 1879, taking part in the operations against Seku Kuni and in the Zulu War (medal and clasp), and in the Nile campaign in 1898, when he was present at the battle of Khartum, was mentioned in dispatches in the *London Gazette* of September 30, 1898, and received the medal with clasp and the Egyptian medal. From 1902 to 1911 he was commandant of the Royal Army Medical College at Millbank, London, and after retirement he was appointed governor of King Edward VII's Convalescent Home for Officers at Osborne, Isle of Wight. He received the C.V.O. in 1909 and the C.B. in 1917.

Major HERBERT OWEN MARSH BEADNELL, R.A.M.C. (ret.), died in a nursing home at Cardiff on December 15, aged 58. He was born on July 27, 1879, the son of the late Major C. E. Beadnell, R.A., J.P., of Llandinam, and was educated at Guy's Hospital. He took the M.R.C.S.Eng., L.R.C.P.Lond. in 1904, and on July 30 in that year he entered the R.A.M.C. as lieutenant. He became major on July 16, 1916, and retired on April 15, 1919. After the war of 1914-18 he was medical officer in charge of the electrotherapeutic department of the Ministry of Pensions Convalescent Centre at Saltash. He had been a member of the British Medical Association for twenty-five years.

Surgeon Captain ROBERT DUNDONALD JAMESON, C.M.G., R.N. (ret.), died at Fleet, Hants, on January 2. He took the Scottish triple qualification in 1893 and entered the Navy soon afterwards. He attained the rank of surgeon commander on May 10, 1908, and retired with an honorary step of rank as surgeon captain on January 1, 1922. He served throughout the war of 1914-18, receiving the medals, also the C.M.G. and the Legion of Honour, as Chevalier.

Surgeon Captain GEOFFREY CARLISLE, R.N. (ret.), died on January 2. He was the son of the late Paymaster-in-Chief John Carlisle, R.N. He took the M.R.C.S.Eng., L.R.C.P.Lond. in 1904, after which he entered the Navy. He attained the rank of surgeon commander on November 10, 1919, and retired with an honorary step of rank as surgeon captain on September 14, 1928. He served through the war of 1914-18, receiving the medals.

Lieut.-Colonel CHARLES BRIMHALL, R.A.M.C. (ret.), of Warash, Hants, died in London, after a long illness, on December 25, 1937, aged 60. He was born on February 20, 1877, educated at the London Hospital, and took the M.R.C.S. Eng., L.R.C.P.Lond. in 1902. He entered the R.A.M.C. as lieutenant on January 31, 1903, after filling the post of house-

surgeon at Bolingbroke Hospital, and became lieutenant-colonel after the end of the war. He served in the war of 1914-18, and received the Order of Officer of the Crown of Italy in 1920. He joined the British Medical Association in 1922. He served as adjutant in the R.A.M.C., Territorial Force, from November 1, 1911, to July 15, 1915.

Lieut.-Colonel WILLIAM HAMILTON BROWN, R.A.M.C. (ret.), died at Higher Woodway, Teignmouth, on December 26, 1937, aged 83. He was born at Pembrey, Carmarthenshire, on July 19, 1854. His surname was originally Briggs, which he changed to Brown by deed poll dated October 8, 1894. He entered the Army as surgeon on September 20, 1875, was promoted to surgeon major for services in Egypt on June 15, 1885, and retired with a gratuity on November 8, 1890. He was restored to the establishment, and his retirement cancelled, in 1893, promoted to surgeon lieutenant-colonel on September 30, 1893, and retired on December 20, 1893. He served in the Afghan War of 1879-80 (medal) and in the Indian campaign of 1885 (Egyptian medal with clasp and Khedive's bronze star). He was surgeon to the Governor of Madras from November, 1886, to March, 1889.

Lieut.-Colonel JOHN BERESFORD CHRISTIAN, I.M.S. (ret.), died in a nursing home in London on December 31, 1937, aged 64. He was born at Tenterfield, New South Wales, on April 2, 1873, was educated at St. George's Hospital, and took the M.R.C.S.Eng., L.R.C.P.Lond. in 1900. He entered the Indian Medical Service as lieutenant on June 27, 1901, became lieutenant-colonel on December 27, 1920, and retired on June 27, 1928. After eight years' service in the Army he entered civil employ in May, 1909, was again in military employ during the war, from 1914 to 1918, when he rejoined his civil post, and finally reverted to military employ on December 1, 1924. After retiring he settled at Coonoor in the Nilgiri Hills in Southern India.

Universities and Colleges

UNIVERSITY OF LONDON

A course of six public lectures on "Chemical Structure and Pharmacological Action" will be given by Dr. H. R. Ing at University College, Gower Street, W.C., on Mondays, January 17, 24, and 31, and February 7, 14, and 21, at 5 p.m. Mr. H. S. Perera of Colombo will deliver a public lecture on "Phonetics and Psychology" at University College on Wednesday, January 26, at 5.30 p.m. A course of three public lectures on "Surface Chemistry and Biology" will be given by Dr. J. F. Danielli at University College on Mondays, February 28 and March 7 and 14, at 5 p.m. All the above lectures are open to the public without fee or ticket.

Recognition of Teachers

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

Guy's Hospital Medical School: Dr. P. M. F. Bishop (Physiology); Dr. E. R. Boland (Medicine); Mr. K. Hooper, M.R.C.S., L.R.C.P. (Dental Surgery); Dr. A. D. Marston (Anaesthetics); Mr. H. L. Messenger, M.R.C.S., L.R.C.P. (Dental Anatomy); Dr. C. K. Simpson (Forensic Medicine); Mr. T. T. Stamm (Orthopaedics).

Middlesex Hospital Medical School: Mr. P. B. Ascroft (Surgery).
King's College Hospital Medical School: Dr. T. Tennent (Physiological Medicine).

At a meeting of the Senate, held on December 15, 1937, the note in regard to gold medals at the M.D. and M.S. examinations (*Red Book*, 1937-8, pp. 288 and 294; *Blue Book*, September, 1937, pp. 832 and 837) was amended by the addition of the words "or instruments" after the word "books" in the two places in which it occurs.

Dr. A. E. Clark-Kennedy has been appointed Governor of Queen Mary College.

Lectures

A lecture on physiology will be given by Professor A. P. H. de Kleijn of the University of Amsterdam at University College, Gower Street, W.C., on Tuesday, March 15, at 5 p.m.

Professor V. H. Mottam will give a series of ten lectures on dietetics and nutrition at the Kingsway Hall, W.C., on Mondays at 6 p.m., from January 17.

The Services

DEATHS IN THE SERVICES

Home. [1935] A.C. 243. Moreover, Mr. Huntley's statements were antecedently improbable. The evidence showed that Dr. Sabapathi had been in the Government service for twenty-two years, but had never before been accused even of inattention, far less of incompetence and negligence; that members of the Planters' Association were not slow to complain of medical inattention on the smallest provocation; and that Mr. Huntley suggested no motive or explanation at all to account for the negligence he attributed to the doctor. Moreover, the sweeping character of the allegations made them difficult to justify. Lastly, their Lordships said, the plea of justification almost necessarily postulated that the doctor was guilty of perjury and conspiracy, for if Mr. Huntley were right the doctor and his acting matron must be regarded as parties to a plot to bolster up the plaintiff's claim, to deceive the court, and to frustrate the ends of justice. On the other hand, Mr. Huntley was his own main witness, and it was not only charitable but indeed probable to suppose that the accident and shock might have impaired his recollection. He had stated in evidence that he was quite clear on some points and not on others. Their Lordships, in assessing the truthfulness of the evidence, remarked that the Supreme Court of Ceylon had found Mr. Huntley to be wrong in saying that there was an examination in the car and not in the ward, and that if the alleged examination in the car were not only an afterthought but also an untruth, that conclusion cut very deep into Mr. Huntley's case.

They considered the bed-head tickets to be even more significant. These disclosed a course of normal, competent, and careful treatment, and a diagnosis, not of no fracture, but of no signs of fracture—a very different thing. They also disclosed that the doctor visited Mr. and Mrs. Huntley on the morning before they left the hospital—a visit which Mr. Huntley denied.

Duty to Advise X-Ray Examination

The Judicial Committee found it clear that until the x-ray examination was made it had not occurred to Mr. Huntley to make any charge against the doctor. He had actually said in evidence that until the fractures were discovered he had thought the doctor's examination an ample one. The charge which the Supreme Court affirmed against the plaintiff, and upon the affirmation of which they regarded his negligence and incompetence as established, was his failure to advise an x-ray examination. The proposition affirmed by the Supreme Court would seem, said the Judicial Committee, to run thus: after a motor-car accident the attending physician must advise resort to a radiologist, and if he omits to do so he displays both incompetence and negligence. This proposition, said their Lordships, is far too wide. The x-ray examination must always depend on the circumstances, such as the condition of the patient, the character of the injuries, and the accessibility of the apparatus. They thought that Dr. Sabapathi's position had been clear and consistent throughout. He found no evidence of fracture; he allowed the patients to go home, instructing them to let him know how they progressed. If their pain and other symptoms had continued unabated for a week he would no doubt have advised an x-ray examination. When he received the letter saying that they were much better it was not surprising that he concluded that the worst was past. No witness said that to await developments for a week before advising an x-ray examination *per se* constitutes negligence or incompetence in a physician.

Their Lordships therefore found that Mr. Huntley's plea of justification failed. They agreed with both the lower courts that the occasion was not privileged; they agreed with the trial judge that Mr. Huntley was actuated by malice when he wrote the letter, and must have known that its terms were false. They pointed out that the finding of the trial judge on the question of malice was a finding of fact, and saw no reason for disturbing it. The state of a man's mind, they remarked, is as much a fact as the state of his digestion. They thought that the verbal statements made to the Director of Medical Services were made on a privileged occasion, but were not protected because they were made maliciously. They therefore allowed the doctor's appeal, and with it the damages awarded by the trial judge—Rs.10,000.

Surgeon Rear-Admiral Sir DANIEL JOSEPH PATRICK McNABB, K.B.E., C.B., R.N. (retired), died in Deal Hospital on December 25, 1937, aged 75. He was born at Greenock on October 11, 1862, the eldest son of the late Mr. Thomas McNabb of Newcastle-on-Tyne and Southsea. He was educated at St. Cuthbert's College, Ushaw, at Durham University College of Medicine, and at the London Hospital, and took the L.R.C.P. and S.Ed. in 1884, and the M.R.C.S.Eng. in 1886. Entering the Navy in 1886, he became staff surgeon in 1898, fleet surgeon in 1902, and served on the staff of Sir John Jellicoe in 1912. In 1914 he became Deputy Surgeon-General, and was in charge of the transport of Belgian wounded after the fall of Antwerp. For this work he received the Order of Commander of the Crown of Belgium. His rank was changed to Surgeon Captain in 1918. From 1916 to 1919 he was Deputy Director-General of the Medical Department of the Navy, and afterwards was in command of the Royal Naval Hospital at Plymouth, retiring in 1922. He was a naval member of the Medical Consultative Board in 1920. He received the C.B. in 1918 and the K.B.E. in 1919.

Surgeon Rear-Admiral THOMAS TENDRON JEANS, C.M.G., R.N. (ret.), died at Southsea on January 4. He was educated at Manchester, and took the M.B.Lond. in 1893 and the M.R.C.S., L.R.C.P. in the same year. After filling the post of clinical assistant at the Manchester Cancer Hospital he entered the Navy as surgeon in 1894, became staff surgeon in 1902, fleet surgeon in 1910, surgeon captain on June 30, 1922, and retired as surgeon rear-admiral on January 19, 1926. He served in the South African War of 1899-1900, in the Orange Free State (medal), and in the war of 1914-18, serving on the Dardanelles and on the Suez Canal, receiving the medals, and in August, 1919, the C.M.G. During the latter part of the war he was senior medical officer at Portsmouth Barracks, and later in the hospital ship *Soudan*. From 1919 to 1922 he was in charge of the naval hospital at the Cape of Good Hope, and from 1922 to 1926, as surgeon captain, at the head of the naval hospital at Plymouth. He was editor and part-author of *Naval Brigades in the South African War, 1899-1900*. Before the war of 1914-18 he wrote several stories of sea life in the Navy, including *Ford of H.M.S. Vigilant*, *Mr. Midshipman Glover, R.N.*, *On Foreign Service*, or the *Santa Cruz Revolution*, and *John Graham, Sublieutenant, R.N.*, the last being published in 1913. After retirement he published an autobiography, *The Reminiscences of a Naval Surgeon*, in 1927.

Surgeon General THOMAS MAUNSELL, C.B., LL.D., Army Medical Services (ret.), died at Hillingdon Court, Uxbridge, on December 29, 1937, aged 98, probably the oldest member of any of the public medical services. He was born in Dublin on July 1, 1839, the son of Thomas Maunsell, was educated at the Catholic University, Dublin, and took the L.R.C.S.I. in 1859 and the L.R.C.P.I. in 1860. He entered the Army as assistant surgeon on October 1, 1860, was on half-pay from July 24, 1861, to January 14, 1862, attained the rank of surgeon colonel on March 10, 1892, of surgeon general on November 24, 1895, and retired on July 1, 1899. He served in Burma in 1886-7, was mentioned in dispatches G.G.O. No. 864 of 1887, and received the frontier medal; and in the Chitral war on the North-West Frontier of India in 1895 as principal medical officer of the relief expedition, was mentioned in dispatches in the *London Gazette* of November 15, 1895, and received the medal with a clasp and the C.B. In the old regimental days he served in the 48th Foot, now the 1st Battalion of the Northamptonshire Regiment, and in the Royal Artillery. There can be few medical officers left who served in the R.A.M.C. under the regimental system. His university conferred on him the LL.D. He was a founder of the Guild of St. Luke, St. Cosmas and St. Damien, which has already celebrated its silver jubilee. In 1872 he married Mary Eleanor, daughter of the late Major F. W. Lane of the 4th Foot, and had one son and one daughter.

Colonel ANTHONY JOHN LUTHER, C.B., late R.A.M.C., died suddenly at Camberley on December 11, aged 73. He was born at Donnybrook, Co. Dublin, on May 17, 1864, the eldest son of the late Canon Luther of Co. Limerick. He was educated at Trinity College, Dublin, and took the L.R.C.S.I. in 1884 and the L.R.C.P.I. in 1885. He entered the Army

EPIDEMIOLOGICAL NOTES

Typhoid Fever.—At the time of going to press 292 cases have been notified in the Croydon typhoid outbreak with 39 deaths. During the week ended January 8, 1938, there were no new cases but 5 deaths. Of the 24 cases of enteric notified in Northern Ireland 23 occurred at the Antrim Mental Hospital, near Belfast, while one case was reported from Irvinestown. The hospital outbreak is confined to a women's ward which was originally occupied by nearly fifty patients; two of the patients were fairly ill, but the others are progressing well. There have been no deaths. In the borough of Kensington one case of paratyphoid fever occurred in a nurse on the staff of the Princess Beatrice Hospital. The hospital has been placed in quarantine with suspension of admission, while the work of the out-patient department has been transferred to a welfare centre in the vicinity. There has since been one further case.

Dysentery and Infective Enteritis.—In England and Wales the number of cases notified has dropped from 270 to 247 and in Scotland from 58 to 53, but in London itself there is an increase of 5 cases for the week. The numbers notified are greatly in excess of those during the corresponding week last year. The numbers of deaths from enteritis have increased appreciably in the large towns of the British Isles and are about double those for the corresponding week last year.

Measles.—Measles appears to have taken a firm hold in Manchester, where the numbers notified have been rising for the last few weeks. For the week ended January 1, 1938, 707 cases were notified (first case in each household), with 7 deaths, the same number of deaths as in the previous week. In Salford there were 172 cases and 2 deaths, against 1 death for the previous week. The public health authorities have offered a free supply of immune globulin to practitioners in order to secure for measles contacts the benefit of temporary protection or modification of attack. In Edinburgh 174 cases were notified, as compared with 135 in the previous week, while the deaths increased from *nil* to 2. In Belfast the number of deaths from measles has dropped from 6 in the week ended December 25, 1937, to 2 in the week ended January 1, 1938, but the number of cases notified has risen from 292 to 406. The services of additional health visitors have been secured to assist in the domiciliary care of patients with measles. In London the measles epidemic is slowly gathering force. The deaths have risen from 1 in the previous week to 7 during the week under review.

Medical News

The annual meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, January 19, at 5.30 p.m., when Dr. R. S. Clay will deliver his presidential address on "A Review of the Mechanical Improvements of Microscopes in the Last Forty Years."

The next meeting of the Society of Radiotherapists will be held at 11, Chandos Street, W., on Friday, January 21, when a discussion on "Impressions of the Chicago Congress and of Radiotherapy in America" will be opened by Dr. N. S. Finzi and Dr. J. E. Roberts.

A meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held at 11, Thornhaugh Street, W.C., on Friday, January 21, at 8.30 p.m., when a discussion on "Eugenics and Maternity and Child Welfare Work" will be opened by Dr. Stella Churchill. A meeting of the Fever Hospital Medical Service Group will be held at 11, Thornhaugh Street on Friday, January 28, at 4 p.m., when a discussion on "The Prevention and Treatment of the Enteric Diseases" will be opened by Drs. E. W. Goodall and A. Topping.

The Royal Sanitary Institute, in conjunction with the Northern Branch of the Society of Medical Officers of Health, has arranged a discussion on "The National Campaign for Physical Fitness," to take place at Darlington Town Hall on Friday, January 21, at 4.45 p.m. The discussion will be opened by Dr. G. A. Dawson, and will be followed by several short contributions on different aspects of the subject.

A meeting of the Chelsea Clinical Society will be held at Hotel Rembrandt, Thurlow Place, S.W., on Tuesday, January 18, at 8.30 p.m., when Dr. James Davidson, director, Metropolitan Police Laboratory, Hendon, will open a discussion on "The Work of a Forensic Science Laboratory." The meeting will be preceded by dinner at 7.30 p.m.

An address entitled "The Rational and Empirical Elements in Physics" will be given by Mr. H. Dingle on Tuesday, January 18, at 8.15 p.m., at University College, Gower Street, W.C. Cards of admission may be obtained from the Director of Studies at University Hall, 14, Gordon Square, W.C.1.

The following meetings of the Eugenics Society have been arranged: January 18, 5.15 p.m., Dr. G. F. McCleary, "The Population Problems in the British Commonwealth"; February 16, 7.45 p.m., Galton dinner and lecture by Professor John A. Ryle, "Medicine and Eugenics"; March 22, 5.15 p.m., Miss Evelyn Fox, "Modern Developments in Mental Welfare Work"; May 24, 4 p.m., Annual general meeting; 5.15 p.m., Mr. D. V. Glass, "Population Policies in Scandinavia and Elsewhere"; June 14, 5.15 p.m., Miss Grace G. Leybourne, "The Cost of Education and its Relation to the Size of the Family." All the meetings will be held at the Rooms of the Royal Society, Burlington House, W., with the exception of the Galton dinner and lecture at the Waldorf Hotel.

A David Anderson-Berry Gold Medal, together with a sum of money amounting to about £100, will be awarded in July, 1938, by the Royal Society of Edinburgh to the person who, in the opinion of the council, has recently produced the best work on the nature of x rays in their therapeutical effect on human diseases. A similar award will be made every three years. Applications for this prize are invited. They may be based on both published and unpublished work, and should be accompanied by copies of the relevant papers. Applications must be in the hands of the general secretary, Royal Society of Edinburgh, 22, George Street, Edinburgh 2, by June 1, 1938.

According to the recently issued licensing statistics for 1936 the proceedings for drunkenness in 1936 were 52,988, as against 50,032 in 1932 (+5.9 per cent.), 35,407 in 1932 (+49.6 per cent.). The convictions for drunkenness reported as due to drinking methylated spirit were 746 (as against 802 in 1935), of which 634 were in men and 112 in women.

The Treasury has made an Order under Section 10 (5) of the Finance Act, 1926, continuing the exemption of radium compounds from Key Industry duty till August 31, 1938.

Volume XI, No. 1, dated January, 1938, of the *Summary of Current Literature on Water Pollution Research* has just been published by H.M. Stationery Office, price 2s. The annual subscription to these monthly abstracts is 24s., post free. They are prepared by the water pollution research staff of the Department of Scientific and Industrial Research.

According to the *Journal of the American Medical Association* of December 25 statistics from 183 American cities show that there were 14.4 deaths from appendicitis per 100,000 of population during 1936, a slight reduction from the rate of 1935, which was 14.7. The lowest rate on record is 13, which occurred in 1918.

The eleventh International Congress of the History of Medicine will take place from September 3 to 11 in Jugoslavia. The meetings of the congress will be held in Zagreb, Belgrade, Sarajevo, and Ragusa. The following will be the main subjects for discussion: botany and zoology in medicine; the minerals in medicine; medicine in poetry; mysticism and magic in medicine; psychological disorders and psychotherapy in medicine. The president of the congress will be Dr. Lujó Thaller and the secretary-general Dr. Vladimir Bazala. All communications should be addressed to Dr. Bazala, Vaska ulica 95, Zagreb, Jugoslavia.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 1, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Irish Free State. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in the Irish Free State. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	35	2	7	4	—	16	3	8	1	—		
Deaths		1	—	—	—		2	—	—	—		
Diphtheria	1,417	175	218	90	68	1,013	119	206	30	43	1,107	163
Deaths	43	8	3	7	1	40	7	8	4	—		
Dysentery	247	77	53	—	—	16	5	42	—	—		
Deaths												
Encephalitis lethargica, acute	1	—	—	—	—	4	—	—	—	—		
Deaths		2	—	—	—		—	—	—	—		
Enteric (typhoid and paratyphoid) fever	34	7	4	6	24	21	2	6	2	—	23	—
Deaths	7	1	—	—	—	2	—	—	—	—		
Erysipelas	—	—	105	10	8	—	—	74	7	7		
Deaths							2	—	—	—		
Infective enteritis or diarrhoea under 2 years..	72	17	10	7	5	33	8	8	3	1		
Deaths												
Measles	45	7	481	2	406*	1	—	52	1	4		
Deaths			4	—	2			—	—	—		
Ophthalmia neonatorum	104	6	30	—	—	40	3	15	—	—		
Deaths												
Pneumonia, influenzal§	1,648	175	24	9	14	832	104	26	2	10	1,080	14
Deaths (from Influenza)	59	10	13	1	2	97	25	8	2	2		
Pneumonia, primary	—	—	350	17	—	—	—	193	10	—		
Deaths		23	42	26	—		20	27	15	—		
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	—		
Deaths												
Poliomyelitis, acute	6	1	1	—	—	3	1	1	—	—		
Deaths		—	—	—	—		—	—	—	—		
Puerperal fever	†	5	13	1	1	22	1	13	1	1		
Deaths		1†	—	—	—		2†	—	—	—		
Puerperal pyrexia	158	12	23	—	1	72	6	16	—	3		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,383	188	523	91	67	1,636	130	325	62	35	2,059	237
Deaths	7	—	3	1	—	2	—	2	1	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough	—	—	22	—	4	—	—	203	—	9		
Deaths	19	3	1	4	1	11	4	4	—	2		
Deaths (0-1 year)	520	100	112	42	40	294	46	86	33	25		
Infant mortality rate (per 1,000 live births) ..	87	83	—	—	—	46	38	—	—	—		
Deaths (excluding stillbirths)	6,330	1,282	818	248	204	4,350	877	688	170	140		
Annual death rate (per 1,000 persons living) ..	15.6	16.1	16.7	16.9	18.1	10.3	10.9	14.1	11.8	13.4		
Live births	5,790	1,166	918	360	231	4,255	822	708	184	162		
Annual rate per 1,000 persons living	14.3	14.7	18.8	24.5	20.5	10.6	10.2	14.5	12.8	15.5		
Stillbirths	237	34	—	—	—	220	33	—	—	—		
Rate per 1,000 total births (including stillborn)	39	28	—	—	—	49	39	—	—	—		

(i) 122 great towns in 1936
(ii) 12 " " "
(iii) 9 " " "

* All cases in Belfast alone.
† All cases notified as puerperal pyrexia after October 1, 1937

‡ Deaths from puerperal sepsis.
§ Includes primary form in figures for England and Wales and London (administrative county). Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

41 Chronic Non-specific Ulcerative Colitis

C. W. MONROE (*Surgery*, October, 1937, p. 575) reviews 138 cases of non-specific ulcerative colitis. The group was made up of seventy-five females and sixty-three males, and in the majority of cases there was definite disease of the colon, in the form of ulceration or bleeding as seen on proctoscopic examination, or narrowing and loss of haustration revealed by x-ray examination. The most common symptom was the passing of blood, pus, or mucus in frequent soft or watery stools. The disease is most often seen in the third decade of life: the average age in Monroe's patients at the onset of symptoms was 30.7 years. Proctoscopic examination showed the rectum to be involved in 82 per cent. of cases, with narrowing of the rectum in eleven instances. X-ray examination showed that the majority of lesions were to be found in or near the sigmoid colon. A table is given showing the multiplicity of organisms found on culture. Emetine was administered in fifty-four cases, to combat a possible amoebic infection. The best results were obtained from acriflavine and bismuth subgallate in mucilage of acacia injected rectally as retention enemas. Vaccines were tried in sixteen cases. Ileostomy was performed in eleven cases, and other surgical measures were carried out in the remaining patients. Blood transfusion was effective early in the disease and was given in nine cases. Complications, particularly those affecting the rectum, were very common. Eleven patients died, spontaneous rupture of the colon with peritonitis being the most common cause of death. The results of treatment show that medical and surgical measures do no more than slow the progress of the disease in the majority of cases.

42 Blood Pressure in Diphtheria

P. v. KISS (*Klin. Wschr.*, October 23, 1937, p. 1493), in a paper based on observations on 404 patients, concludes that in the early stage of diphtheria measurement of the blood pressure is no guide to cardiac or vascular impairment, because the blood pressure during this stage shows an appreciable fall only in complete heart failure, which does not usually set in until twenty-four or at most forty-eight hours before death. A downward tendency of the blood pressure to below 70 mm. Hg is a very unfavourable sign, especially when the pulse frequency is very high or, on the contrary, very low. While severe cardiac disturbances, except in the first three days of the disease, are accompanied by a gradual fall in blood pressure, the hypotension associated with serum sickness is of sudden onset. In the later stage of the disease when the patient is at rest in bed, even in very severe myocarditis, the blood pressure does not fall, but remains normal or rather high.

43 Congenital Tuberculosis

D. PRICE (*Brit. J. Tuberc.*, October, 1937, p. 264) describes a case of congenital tuberculosis. The patient was a child who died aged 49 days; the mother suffered from pulmonary tuberculosis. At necropsy the child's liver and spleen were studded with miliary tubercles. A mass of glands lay round the portal vessels, and a smear from one particularly large gland showed tubercle bacilli. The lungs presented the appearance of bronchopneumonia, and a smear taken from the pneumonic area showed tubercle bacilli. Only one hilar gland was palpable. The congenital origin of the disease is suggested by the size of the portal gland, infection being carried by the maternal blood to the liver. The pulmonary foci might have been mis-

taken for exogenous lesions: but they were recognized as blood-borne by (a) transitional stages between miliary disseminations and large foci, and (b) the condition of the bifurcation gland, which was much smaller than would have been expected in the case of an exogenous lesion. This case shows that not only miliary but also large, solitary, caseous foci can be blood-borne. In contradistinction to this case that of an infant who died at the age of 8 weeks is described. The mother was ill with pulmonary tuberculosis, but nursed the baby for the first two weeks of his life, after which the two were separated. Post-mortem examination revealed a single tuberculous focus at the base of the right lower lobe near the periphery, and the corresponding inferior tracheo-bronchial gland was greatly enlarged. The lung focus showed a more advanced degree of degeneration than did the gland. No other focus was found in the body. Infection probably occurred through inhalation during the first two weeks of life. This case demonstrates the poor degree of resistance of the infant to the tubercle bacillus, death occurring in six or seven weeks' time from the date of infection.

44 Aseptic Meningitis and Anterior Poliomyelitis

J. SIEGL (*Wien. Klin. Wschr.*, October 1, 1937, p. 1357) records the history of a minor epidemic in a kindergarten in Vienna affecting seven children, three of whom suffered from anterior poliomyelitis, while in four the symptoms remained meningeal. He points out that aseptic meningitis and the prodromal stage of poliomyelitis are indistinguishable in their symptomatology, and the changes found in the cerebrospinal fluid are also impossible of distinction. This fact creates immense difficulties in the evaluation of specific therapy. It is impossible to assess whether the absence of paralytic symptoms following the administration of specific serum is due to its effects or to the fact that there had been an aseptic meningitis which would not, in any case, have been followed by paralysis. In two cases of anterior poliomyelitis occurring in uniovular twins, one untreated by specific serum died, whereas the other recovered following the administration of convalescent serum on the second day of his illness. Siegl believes that specific serum can only be of value when given early in those cases of poliomyelitis which have a long prodromal stage. The occurrence of a certain proportion of cases of aseptic meningitis must be borne in mind in epidemics of anterior poliomyelitis.

Surgery

45 Injection Treatment of Varicose Ulcers

S. HANSEN (*Hospitalstidende*, November 9, 1937, p. 13) considers as a great advance the abandonment of extensive operations for varicose veins and ulcers in favour of the injection of coagulants into varicose veins. A Danish study in 1925 of 376 patients operated on for varicose veins or ulcers showed that embolism occurred in twenty-one patients, of whom two died. Though the immediate recovery rate was over 75 per cent., the subsequent relapses were numerous, and most of the patients for whom a cure could be claimed were still obliged to wear bandages. Only twenty out of fifty-three cases of ulceration responded to the operation by recovery. On the other hand, experimental work and clinical observation have both shown that the fear of embolism as a sequel to the injection treatment is much exaggerated, and with an experience of thousands of injections the author has not seen a single case of embolism, let alone a fatal case.

Letters, Notes, and Answers

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QUERIES AND ANSWERS

Frumenty

A non-medical reader sends the following directions for preparing frumenty in answer to the inquiry published on January 1 (p. 53): Anyone who wishes to make frumenty must first buy a pound of wheat, which costs twopence, from his grocer. All grocers do not sell wheat that is clean enough for this use; many only sell it for cattle and hen food. Run cold water over about half of it on a colander to clean it, and then place the wheat in a baking dish with water to cover it, and as much sugar as is necessary, probably one or two tablespoonfuls, and a little nutmeg and a saltspoonful of salt. It needs a great deal of stewing. Even two days in a slow oven is not too much; but at any rate one day, in a moderate oven—that is, so that it simmers all the time—is necessary. It is best covered with a plate to keep it moist. These are the instructions I had from a countrywoman, and I have tested them. The wheat swells and absorbs the water, but it should have more water put in while it is cooking, not allowed to go dry until the end. It must become soft and rather jelly-like. Frumenty ought to be good for the teeth, as it needs a good deal of chewing. It is a "Wakes Week" dish in some Lancashire towns.

Dr. SEYMOUR W. DAVIES (Wallasey, Cheshire) writes: About fifty years ago frumenty (or furmetty, as we called it) was often served in our family at breakfast as a change from porridge, and we all liked it. It was made in the following way. Wheat, in a stone jar, is covered with water, allowing for expansion, which is considerable when the wheat swells. The jar is put in the oven and stewed gently for hours, until the grains have burst and have absorbed the water, leaving a soft mash. A tablespoonful or so of the mash is put into a pint basin, covered with plain white sauce, syrup added, the whole stirred well, and eaten with a spoon. We like a dash of powdered cinnamon. An excellent meal, but rather troublesome to prepare in these degenerate days of pre-cooked cereals.

Herpes and Varicella

Mr. L. A. RIDDELL, F.R.C.S. (Redruth), writes in reply to Dr. I. H. Lloyd-Williams (*Journal*, January 1, p. 54): One might almost say that herpes zoster is endemic in Cornwall, so common is it here. From time to time one certainly does see "chicken-pox in the little girl and grannie with zoster"; but with the majority of cases of either of the two diseases no such association is found. Moreover, varicella attacks healthy children, whereas I fancy that zoster prefers the debilitated, though it is difficult to separate cause and effect. To my mind the greatest argument against the identity of the two is the fact that varicella commonly

causes nothing but a little skin irritation, whereas zoster, even when it occurs in a child, nearly always causes severe pain as well, at least in the early stages. If they are caused by the same virus, then in chicken-pox it must be confined to the skin, while in zoster it must (as is usually believed) affect the cutaneous nerves directly. This is not difficult to believe seeing that both are ectodermal structures. But in this case, is the primary lesion in the dorsal root ganglia, as I believe I was taught?

Income Tax

Partnership Assessments

"L. s. d." has sent inquiries the purport of which will be clear from the replies below.

** (1) The income tax assessment is made on the firm as such and not on the individual partners, and the collector's receipt for the tax when paid is given accordingly, and a partner cannot claim to have an official receipt for his share of the firm's tax.

(2) The return or declaration of income, however, is made by each partner separately, including therein his share of the firm's liability, which should agree with the return made by the precedent acting partner stating the firm's liability.

(3) The official notice of assessment shows the personal allowances and reliefs aggregated, but the inspector of taxes will supply an individual partner on request with a note stating what he is personally entitled to and what is accordingly included in his account in the official notice.

LETTERS, NOTES, ETC.

Hire and Supply of Gas Apparatus

"GASSED" (London, W.9) writes: I would like to know the opinion of the profession on the hire and supply of gas and oxygen; also whether a less arbitrary form of charge would not be more satisfactory. I have recently had the following experience with a large supply firm. I hired a gas and an oxygen cylinder on the understanding that I paid for what I used in the first six months, afterwards at the rate of 6d. each cylinder a week. At the end of six months I returned the cylinders, and was charged 3s. for the gas and 2s. 4d. for oxygen. What I had actually used was one fill of the gas bag to my Clover apparatus and no oxygen at all. The firm state the valves were in perfect order, and I certainly saw the gas tap was off and tight after use. So that the whole affair is most unsatisfactory, which gives no encouragement to keep gas or oxygen in the house for emergencies. It would probably be better to pay a small hire charge from the start.

The Bicentenary of Parmentier

The *Canadian Pharmaceutical Journal* for December 15, 1917, includes an annotation on the French pharmacist, Antoine-Auguste Parmentier (1737-1813), who made France "potato-minded." While a prisoner of war in Germany—he had joined the French Army Pharmaceutical Service in Harcourt in 1757—he learnt to recognize the merits of the potato, then his chief article of diet. Returning to Paris, as *pharmacien-adjoint* at the Hôtel des Invalides, against popular indifference and prejudice he introduced the potato into every restaurant menu and was responsible for the cultivation of the plant on an extensive scale. To encourage him Louis XVI wore a sprig of potato leaves in his button-hole. In 1800, under Napoleon, Parmentier became general of the sanitary corps, and later prepared a pharmacopœia code, which was adopted by many hospitals. His publications are numerous and interesting, but betray the lack of a sound academic training in his early days. His hundredth anniversary was recently celebrated in his birth town, Montdidier, by a gastronomic pilgrimage to the house where he was born (the house itself was destroyed during the war of 1914-18) and by other ceremonies in which potatoes had a place of honour.

Vaccines and Sera

We have received from British Drug Houses, Ltd., Goshop Street, City Road, London, N.1, a booklet entitled *Vaccines and Sera*. Short notes are given on the preparation of employing various vaccines and sera, and a price list is included at the end of the booklet, which may be sent free to anyone who cares to apply.

Radiology

51 Effect of Thorotrast on Liver and Spleen

E. L. LANARI, M. E. JORG, and J. A. AGUIRRE (*Presse méd.*, November 6, 1937, p. 1562) condemn the use of thorotrast for the purpose of radiological investigation. They have been able to prove by experiments spread over a period of four years that thorotrast produces a combination of marked degenerative and regenerative changes in the liver and spleen, where the thorotrast is retained indefinitely in the reticulo-endothelial cells. They ascribe the effects partly to the radio-activity of thorotrast. The changes ultimately result in a slowly progressive cirrhosis of the liver and in a hyperplasia and fibrosis of the spleen. Ultimately other viscera, such as the kidneys, may be secondarily affected.

52 X-Ray Sickness

W. D. GERMAR (*Med. Welt*, November 20, 1937, p. 1642) discusses briefly the nature, symptoms, and mechanism of x-ray sickness. Exposure to sunlight after intensive x-ray treatment seems to aggravate the condition. The patients must therefore be protected against sunlight during the course of treatment. The different remedies suggested for x-ray sickness, such as cardiazol-ephedrin, sympatol, ephetonin, sea-sickness remedies, glucose, etc., have all proved of limited usefulness. The author has treated successfully one hundred cases of x-ray sickness with a liver preparation—hepatrat. In mild cases the patients received an intramuscular injection of 1 to 2 c.cm. of this preparation: the injection was repeated after one hour whenever necessary. In severe cases 5 c.cm. were injected at once.

53 Irradiation of the Pituitary

R. ZOLLINGER and W. W. VAUGHAN (*New Engl. J. Med.*, August, 5, 1937, p. 219) state that optimistic reports of the value of irradiation of the pituitary gland in the treatment of menopausal symptoms led them to use it in fourteen women. In two of these the menopause was of natural occurrence, in seven it followed castration, in four after x-ray therapy, and in one after the application of radium. A total of 1,600 r skin doses was given over a period of four days. The criterion of success or failure of the treatment was based on an accurate recording of the number of "hot flushes" experienced daily before and after it. Improvement occurred in only 35 per cent. of the authors' cases. Sham treatments to avoid psychic effect were unattended by improvement. Treatment appeared to have no effect on the basal metabolism, sugar tolerance curves, or the vaginal mucous membrane. The authors state that at present there is no method of determining beforehand which patients suffering from menopausal symptoms will benefit by irradiation of the pituitary.

54 L. DELHERM and H. FISCHGOLD (*Bull. Soc. Radiol. méd.*, Paris, October, 1937, p. 611) believe that certain cases of insulin-resistant diabetes can be influenced by irradiation of the pituitary. They assume that diabetes is a polyglandular disturbance and that irradiation of the hypophysis may be useful only in so far as this gland is involved in the endocrine disturbance. The pituitary seems to secrete a hormone which normally counteracts the pancreatic hormone. It is possible to depress this particular hormone by irradiating the pituitary with fairly large doses of x rays. The authors define the term "insulin-resistance" and cite two clinical cases in which irradiation of the pituitary had a markedly beneficial effect. There was no cure of the diabetes in either of these cases, but whereas before the irradiation very large doses of insulin had hardly any effect, after the

irradiation it was possible to reduce the doses of insulin to the usual level. The x-ray dosage varies according to the clinical course. In one case it was necessary to administer to the pituitary 12,000 r units within a year; in another case a dose of 3,600 r units had an immediate beneficial effect.

55 Tumour-like Shadows in Silicosis

M. CONROZIER and J. MAGNIN (*J. Radiol. Électrol.*, October, 1937, p. 433) describe thirty cases of silicosis of the lungs in which the pulmonary infiltration appeared as solid tumour-like masses, surrounded by clear, though more or less fibrosed, pulmonary parenchyma; the masses were usually not connected with the hila or with the thoracic walls. The shadows were mostly bilateral, but the right lung was usually more affected than the left. The shadows resemble sarcomatous metastases, but the latter are more rounded and the parenchyma which surrounds them is not sclerosed, as in silicosis. The authors believe that the shadows are caused by fibrotic tissues impregnated with silica. Some of the affected patients remained comfortable for about twenty-five years, but one-half of the patients under observation died within eight years. It seems that heavy dusts with a high content of silica are responsible for the tumour-like infiltration. Miners working underground are particularly prone to develop such massive infiltrations. Clinically the patients appeared healthy. They were apyretic: and auscultation alone revealed nothing abnormal in the chest. As a rule the heart remained unaffected, but dyspnoea was always pronounced. The sputum only rarely contained tubercle bacilli.

56 Diagnosis and Treatment of Syringomyelia

E. B. GUREVITCH, G. B. FOMIN, and P. B. SHKLOVSKAIA (*Amer. J. Roentgen.*, September, 1937, p. 415) describe the radiographic changes in bones and joints met with in syringomyelia and record the results of x-ray therapy in 137 cases of this disease. The most common change in the bones was an overgrowth of the distal phalanges. This was seen in 24.4 per cent. of cases; amputation of distal phalanges was met with in 16 per cent. The different joints were unequally affected, the most commonly affected being the phalangeal articulations (12.8 per cent.), and next to them came the wrist and elbow, each affected in 9.6 per cent. of cases. The authors used deep x-ray therapy and obtained good results from this treatment in 69 per cent. of cases. One case was made worse by the treatment, while 31 per cent. remained uninfluenced. In the successfully treated cases the sensation of pain was the first to return; next came the thermal sense, although in some instances the first improvement was in the motor disturbances. The authors do not believe that old-standing cases remain refractory to the treatment. As to the *modus operandi* of x-ray therapy in syringomyelia, they share the opinion of most workers that the x rays attack directly the glial hyperplasia; the nerve tissue is thus released from pressure.

Obstetrics and Gynaecology

57 Treatment of Abortion

F. HOLTZ (*Hygiea*, Stockh., October 31, 1937, p. 737) finds that opinions still differ as to what is the best treatment for abortion, and he has therefore attempted to clarify this subject by an investigation of the cases of abortion-treated in various Swedish hospitals in 1928 to 1930. During this period 2,718 abortions were dealt with on several different lines, the patients' ages ranging from 15 to 47. After an observation period of at least four

During the past three or four years, using as a coagulant a solution of sugar, he has not seen a single case of necrosis at the site of injection. The author's own experience is that, although objective signs of relapse are demonstrable in about 50 per cent. of cases from one to five years after injection treatment, the formation of new varicose veins does not necessarily imply subjective disturbances. Indeed, about 85 per cent. of the author's patients were symptom-free after an observation period of one to five years, and they still found bandages superfluous.

46

Pituitary Implantation

E. KYLIN (*Med. Klinik*, November 5, 1937, p. 1497) has now implanted an animal pituitary into the mesentery or peritoneum in sixty patients—including thirty-eight cases of Simmond's disease or "its subgroup, cachexia of late puberty," three of dystrophia adiposogenitalis, three of hypophyseal dwarfism, five of total alopecia, and six of psoriasis. The therapeutic effects described are superior to those attained similarly by others; Kylin attributes this to his technique, by which small pieces of a calf's pituitary, without having been frozen, are sutured in place within thirty to sixty minutes of the animal's slaughter. Many cases are too recent for assessment of results, but ten patients with Simmond's disease have had implantations done eighteen months or more ago. Six are working, one is improved, two have died of intercurrent disease, and one only has suffered recurrence. Lasting returns of menstruation and very great increases of weight have been noted. In total alopecia one case is very recent, and there have been three successes with one failure. Pituitary implantation was tried in psoriasis because this was regarded as due to an endocrine disturbance of fat-metabolism, and the gland is now known to secrete a fat-splitting hormone; five successes in six cases are recorded. Discounting the possibility that the good results are due to suggestion, Kylin holds that either (1) the implant functions as a transitory depot of the hypophyseal hormones which stimulate other endocrine glands or (2) it acquires vital connexions and continues to function—for which some evidence is forthcoming from investigations by the author and by Hill and Gardner, who proved survival for 120 days of mouse-to-mouse pituitary implants.

47

Regional Ileitis

P. VALDONI (*Policlinico, Sez. Chir.*, November 15, 1937, p. 595) records three cases of regional ileitis, two of which occurred in women, both aged 28; the other was in a man, aged 25. Two of the cases resembled each other in their previous history of intermittent attacks of abdominal pain and in their onset, simulating appendicitis, for which laparotomy was performed. In the first case drainage only was carried out, while in the second the appendix was removed, and a few days later a faecal fistula developed; a fistula between the caecum and small intestine was also discovered. The third case was a chronic form of regional ileitis, in which recovery followed resection of the caecum, ascending colon, and lower end of the ileum and the formation of an anastomosis between the ileum and transverse colon.

48

Hernia of Nucleus Pulposus

A. RUBINO (*Riv. Neurol.*, October, 1937, p. 491) describes a case of hernia of the nucleus pulposus of the fourth lumbar vertebra, which was diagnosed clinically and confirmed by x-ray examination. The patient was a man of 53 who, while lifting a heavy weight from a stooping position, suddenly felt a lancinating pain in the lumbar region so intense that he was unable to raise himself for several minutes. For three months he was unable to straighten his back or lift himself up in bed, and even two

months later the pain, though less severe, was still present, and was made worse by walking or by bending backwards or forwards. He also complained of paraesthesiae in the lower limbs and at times of pain along the course of the sciatic nerves. On examination nothing abnormal was discovered apart from tenderness on percussion over the spine of the fourth lumbar vertebra and a certain amount of rigidity of the trunk owing to limitation of flexion and extension of the lumbar spine on account of pain. In view of the history, the absence of any other positive findings, and the circumscribed area of pain and tenderness, the possibility of a hernia of the nucleus pulposus was at once considered. A radiograph taken two and a half months after the injury had shown only an early arthritis deformans limited to the third and fourth lumbar vertebrae, but later radiographs revealed an irregular circumscribed shadow on the superior aspect of the fourth lumbar vertebra near its posterior border, and apparently forming a hollow in the body of the vertebra. The author discusses at length the aetiology, pathogenesis, and symptomatology of hernia of the nucleus pulposus in its two forms of "Schmorl's intravertebral and Schmorl's intrarachidian nodules."

Therapeutics

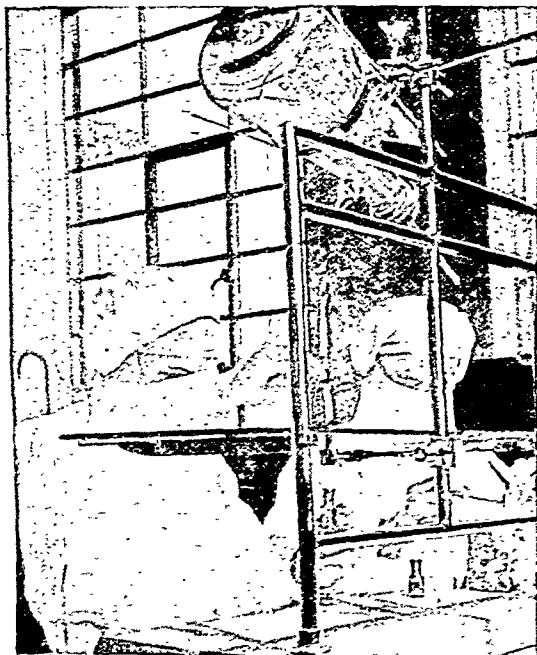
49 Leukaemic Blood for Agranulocytosis

T. DEGLMANN (*Dtsch. med. Wschr.*, November 5, 1937, p. 1694) was encouraged by Bock's recent experience in the treatment of agranulocytosis with the transfusion of blood from a case of myeloid leukaemia to repeat this experiment in an apparently desperate case of his own. His patient was a woman, aged 28, who on admission to hospital was partially unconscious and suffering from the high fever and a progressive necrotic stomatitis. The clinical diagnosis of agranulocytosis was confirmed by a blood count, which showed only 1,200 leucocytes per c.mm. There were no granulocytes, monocytes, or eosinophils, and only a few lymphocytes. The prognosis being very bad, 500 c.cm. of blood were transfused from a man, aged 39, who suffered from myeloid leukaemia and belonged to the same group as the recipient of his blood, which showed 200,000 leucocytes per c.mm. The transfusion was well tolerated except for an attack of shivering, and it was repeated after a short interval. 500 c.cm. being again injected, this time without any reaction. The leukaemic donor was compensated for the loss of blood by a transfusion of normal blood from the patient's mother. The author is inclined to attribute the patient's recovery to the receipt of 1,000 c.cm. of leukaemic blood of which the leucocyte content was equivalent to that of 40 litres of normal blood.

50

Lupus Erythematosus

According to H. T. SCHREUS and E. SCHWITZ (*Med. Klinik*, November 26, 1937, p. 1597) the results of gold and of bismuth treatment in lupus erythematosus are about equally good, giving cure in 32 to 42 per cent. of cases and improvement in 25 to 42 per cent. Bismuth, however, should be given the first trial, since it is less liable to induce toxic symptoms, manifested by nephritis, exanthemata, or stomatitis, or to reactivate latent tuberculous foci. They report twenty-two in-patient cases treated by bismogenol injections: of these, eleven were cured and the rest improved. The cases cured included eight of five to twenty years' duration. Two or three courses of fifteen injections of 1 c.cm. were required in more than half the patients; occasionally the treatment was combined with the application of carbon dioxide snow or irradiation therapy.



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years information was obtained from, or about, 1,370 patients. As many as 901 refused to give any information. It was found that 440—that is, about one-third of the patients traced and reported on—had succeeded in avoiding subsequent pregnancies, and just over half (52.6 per cent.) of those who gave information on this score associated the avoidance of pregnancy with coitus interruptus, whereas only 21 per cent. had achieved the same end by abstinence. In about one-quarter of the cases in which the influence of abortion on libido was investigated it was said to have been reduced since the abortion. In this matter age would seem to play an important part, the older the patient the greater the frequency with which abortion was followed by a diminution of libido. As for the best treatment of uncomplicated abortions to be adopted early in pregnancy, the author favours active intervention unless there is convincing evidence of the abortion having already been complete. He also recommends active intervention in abortions late in pregnancy, but only when the placenta is retained. In all other uncomplicated abortions late in pregnancy he recommends conservative treatment. For complicated abortions at all stages of pregnancy he recommends conservative treatment, the only contraindication to which is severe haemorrhage.

58 Curettage for Endometrial Hyperplasia

K. H. KÖSTER (*Hospitalstidende*, October 19, 1937, p. 1164) remarks that it may seem irrational to curette for the relief of irregular glandular hyperplasia of the endometrium, considering that its origin is now thought to be ovarian rather than uterine. Yet even if such treatment is only symptomatic, its practice may be justifiable if the good results are frequent and lasting. To throw light on these questions the author has investigated the subsequent fate of 135 patients for whom curetting was prescribed once or oftener for hyperplasia of the endometrium, between 1918 and 1936 in the gynaecological department of a Danish hospital. The curetting was followed by intra-uterine irrigation or painting with iodine. Nearly all the patients were between the ages of 30 and 50, only eleven being under 30 and fourteen over 50. Among the patients between 45 and 50 there were ten who were insane. As many as 101 had been confined once or oftener, and it would seem, judging from this study, that multiparae are more liable to develop hyperplasia of the endometrium than nulliparae or uniparae. The excessive uterine haemorrhage had in most cases followed a stage of amenorrhoea. After discarding from the analysis those patients in whom the issue had been confused by supplementary treatment with radium, x rays, etc., there remained 120 for whose intra-uterine condition only curetting had been performed. In thirty-two of these cases regular and normal menstruation was restored. One patient was subsequently irregular in her menstruation and became pregnant. There were also fifteen patients in whom the haemorrhage ceased altogether. A recurrence of the haemorrhage had to be recorded in as many as seventy-two cases. It would therefore seem that the restoration of normal menstruation or the complete cessation of any uterine haemorrhage may be anticipated in about 40 per cent. of cases as a result of curetting, once or oftener.

59 Scalp Forceps

E. SCHEHL (*Zbl. Gynäk.*, October 23, 1937, p. 2504) states that since 1931, at the Würzburg University clinic, for accelerated delivery in placenta praevia reliance has been placed (in case of failure of rupture of the membranes) on traction on the foetal head by serrated forceps grasping the scalp. This method seldom fails, and has been found preferable, in vaginal delivery, to version and traction by weight on a foot, as formerly used in these cases; it is simple, and reduces both the danger of maternal infection

and also the high foetal mortality—the latter by 66 per cent. Schehl warmly commends the method, and does not confine it to hospital practice. H. PANNKE (*ibid.*, p. 2508) uses a weight of 500 grammes only, and records successful application of the scalp forceps for the purpose of inducing labour in twenty cases in which medical measures had failed. Strong pains follow at once, and the average duration of application is six hours. The authors agree that no serious injury of the foetal scalp is produced.

Pathology

60 Hormonal Regulation of Red Blood Cells

W. JULIUS and F. MEYTHALER (*Folia Haemat.*, Lpz., 1937, 57; 4, 389) draw attention to the part played by various hormones in the regulation of the erythrocytes. An increase of erythrocytes in the blood up to 100 per cent. follows rapidly on the injection of adrenalin either subcutaneously or intravenously; it may persist for twenty-four hours. The amount of haemoglobin is not affected. This is not due to a specific hormonal effect on the erythropoietic system, but to a flooding out of the blood deposits in the body, notably the spleen. Thyroidin has the same action. In a patient with Graves's disease and polycythaemia the erythrocyte count was lowered from 14 millions to 7 millions following x-ray therapy, but rose to 15 millions on the administration of 0.1 gramme thyroidin. The occurrence of anaemia with hypofunction and polycythaemia with hyperfunction of the genital glands has been recorded in the literature. The authors believe that clinically and experimentally it has been proved that blood diseases may occur as the result of hormonal disturbances, and that hormones produce a physiological regulation of the circulating blood. In a series of experiments on healthy persons, diabetics, and patients suffering from hyperthyroidism, both in the fasting and non-fasting state, they were able to show that parallel oscillations of the blood sugar and erythrocyte count curves took place following the injection of insulin and the antagonistically released adrenaline.

61 Interrelationship of Liver and Spleen

B. HERHAUS (*Münch. med. Wschr.*, November 12, 1937, p. 1807) believes that the liver and spleen form a unit in the body not only as members of the reticulo-endothelial system but in their interdependence in carbohydrate metabolism, in their formation of bile pigments and salts, and in the metabolism of cholesterol and purine bodies. He describes in detail a case of haemolytic icterus which cleared up following splenectomy but in which a hepatic icterus occurred a few months later. Herhaus explains the hepatic icterus by assuming that splenectomy may produce a serious disturbance of the liver-spleen interdependence. The liver is flooded with fragile erythrocytes, which go on being formed in the bone marrow as before, and indeed are increased in number following splenectomy. Bilirubin is produced which appears in the urine. When the need for erythrocytes is less than the output of them by the bone marrow the liver cells are damaged owing to the imperfect excretion from them of bilirubin. Herhaus believes that the liver-spleen interdependence is disturbed in the so-called splenic crises, which are attended by anaemia, increase in size of the liver and spleen, hepatic pain, and the appearance of bilirubin in the urine. These crises have been thought to be due to collapse of the bone marrow, but against this is the fact that the blood picture is that of regeneration with an increase of embryonic cells in the blood. The crises are probably a result of sudden temporary cessation of splenic function.

DESOUTTER

CASE RECORDS

Case No. H2029. 1934

Mrs. B., a patient with a left Syme's amputation, came to see us in 1934 with an appliance that she had been wearing for two years which was ugly, heavy and ill-fitting, and causing her great discomfort. As a result of incorrect alignment the steel supports had caused pressure sores to develop at the inner side of the knee and outer end of the stump.

The end bearing, which should be the great asset of Syme's amputation, was taking practically no weight, by far the greater part of the weight being taken on a thigh corset with a bearing on the ischial tuberosity. Yet, in spite of this, the end pad of the stump was already showing signs of loosening due to the outward lateral movement which took place at every step (see Figure 1). If such end results are obtained, it is small wonder that many surgeons may regard Syme's amputation as unsatisfactory. In point of fact a Syme's can be as satisfactory an amputation as any other, when correctly fitted, as the case in question shows.

A plaster cast of the stump was taken, the positive copy of which was suitably modified to make use of the weight bearing points under the knee, and to ensure that the end bearing pad could expand without friction whilst taking a full share of weight. A leather glove was then moulded to the cast (see Figure 2) and encased in a light metal shin with a thin stainless steel cup forming the end bearing, giving great strength combined with lightness and a smooth outline, the mechanism for the ankle movement being a self-contained unit under the end bearing.

Owing to the fact that the lower end of a Syme's amputation is much larger than the leg above it, it is only necessary to allow the lower end of the leather glove to open; the fastenings to the metal shin are quick and simple and so firm that once the limb is on it cannot be pulled off. The result is a comfortable light limb of neat appearance (this of no small importance to a woman), taking the weight on the end bearing and below the knee (see Figure 3).

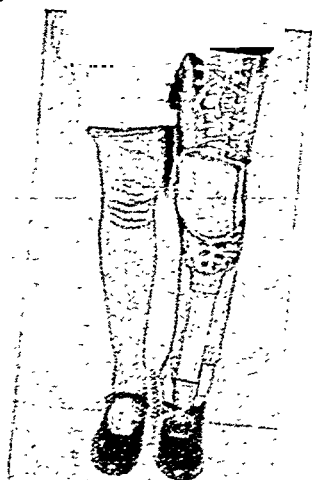


FIG. 1

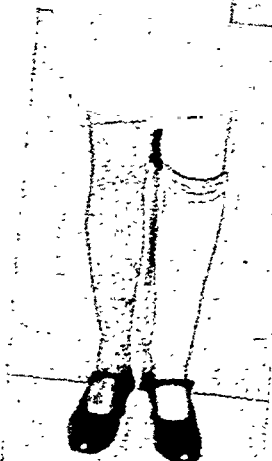


FIG. 3

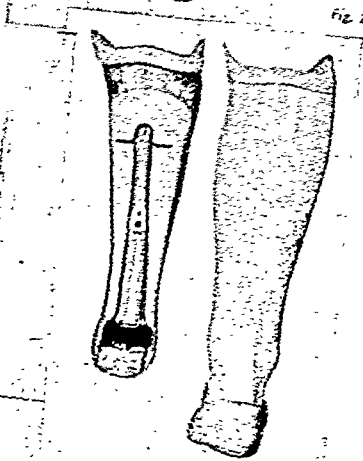


FIG. 2

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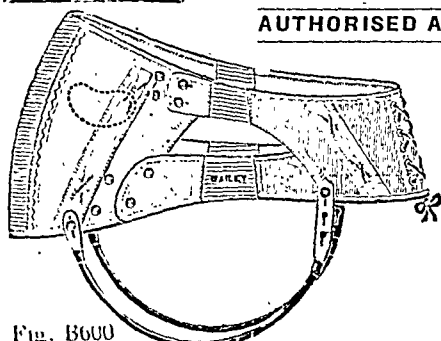


Fig. B600

BELT (Bailey's Patent) FOR
FLOATING KIDNEY.

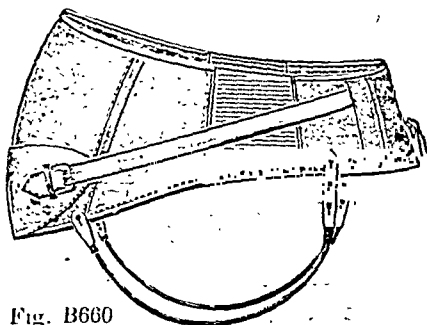


Fig. B660

BELT FOR ENTEROPTOSIS.

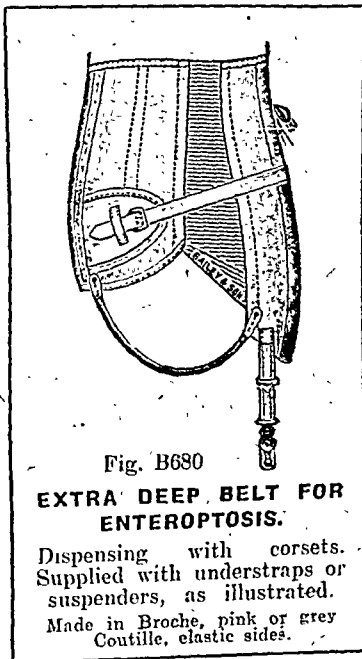


Fig. B680

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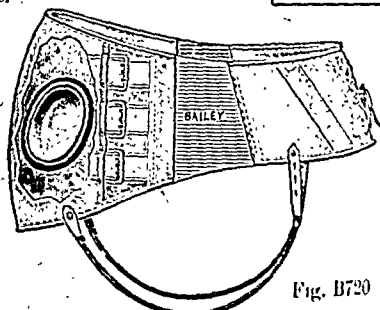


Fig. B720

(Showing Interior of Cup.)
SPECIAL BELT FOR AFTER
COLOSTOMY.

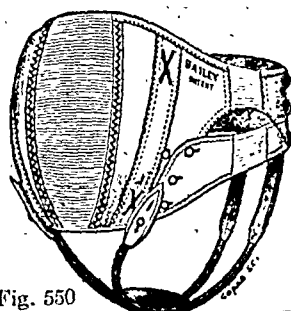


Fig. 550

BELT (Bailey's Patent) FOR
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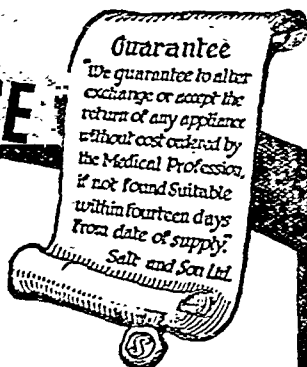
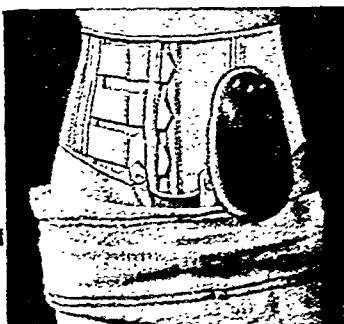
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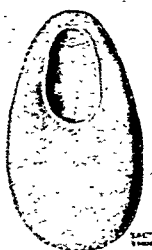
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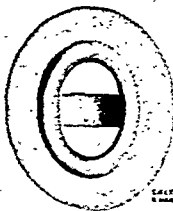
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 attached
 to
 receiver.

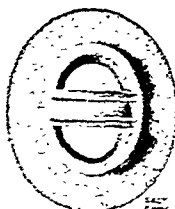


Showing
 attachment
 of receiver
 and bag to
 belt.



Showing other views
 of receiver.

See groove over which
 aperture in bag is
 stretched and curved
 bridge to hold open
 mouth of bag.



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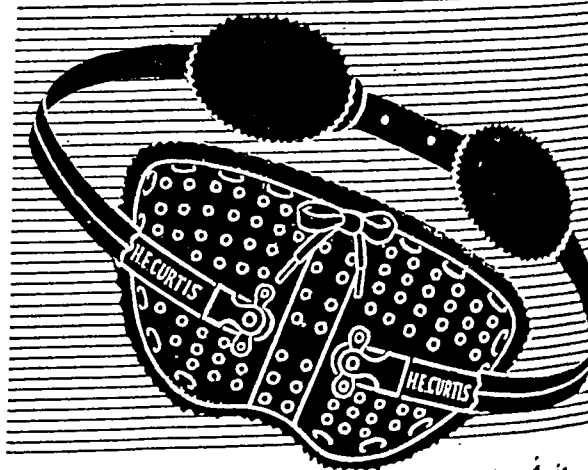
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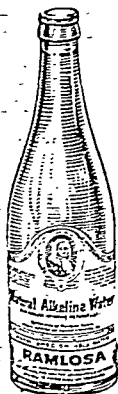
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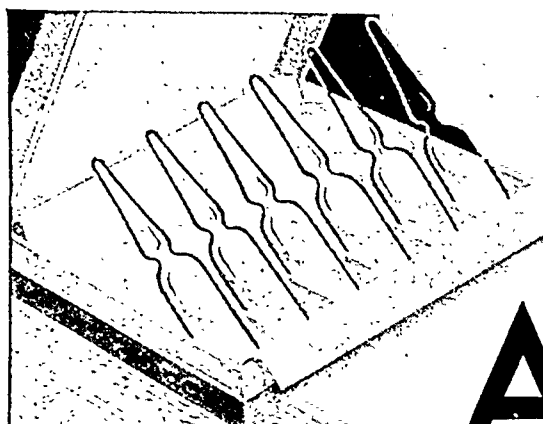
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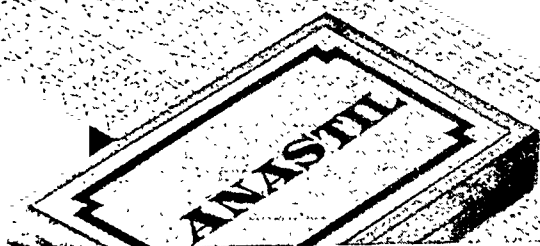
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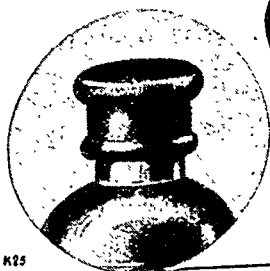
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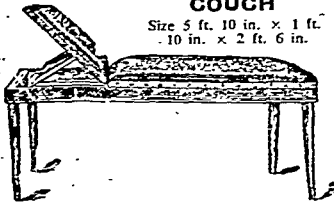
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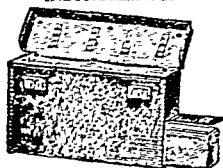
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A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness, Voluntary Patients, Temporary Patients, and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician. Apply to Dr. J. A. SMALL. Telephone: 80 Norwich. Telegrams: Small 80 Norwich.

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A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Large Mansion with 12 acres of grounds (See Medical Directory, p. 2312.) Apply, Resident Physician. Telephone: Tulse Hill 7181.

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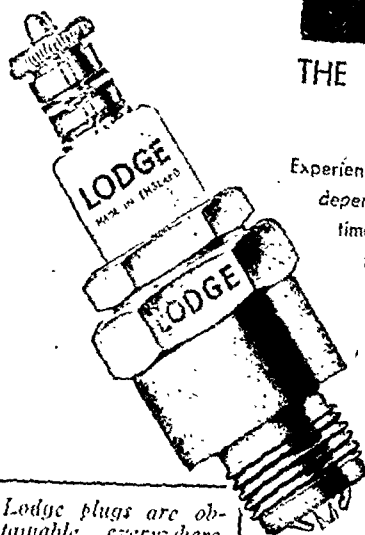
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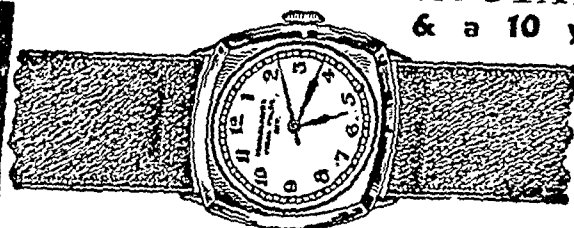
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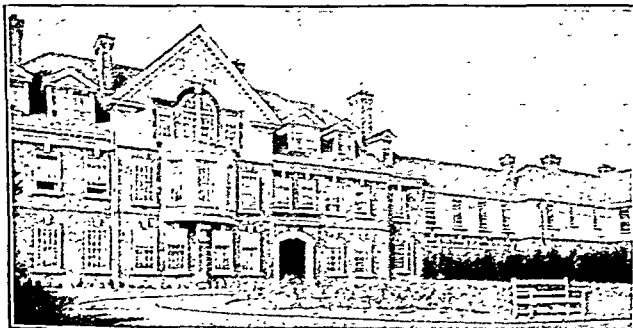
Rendlesham Hall has 45 bedrooms and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

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Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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Telegrams: "Psychic, London."

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Telephone: Rodney 4242 (2 lines)

Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre. Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. Illustrated prospectus giving fees, which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

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FOR THE UPPER AND MIDDLE CLASSES ONLY

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL

The seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres. Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate, a mile of sea coast forms the boundary. Patients may visit this Branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc. For terms and further particulars apply to the Medical Superintendent (Telephone Nos. 2356 and 2357 Northampton), who can be seen in London by appointment.

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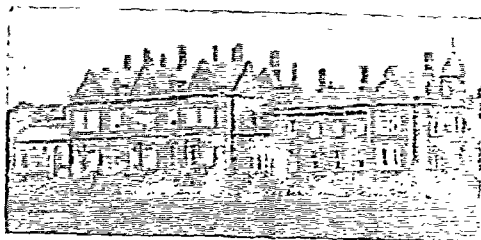
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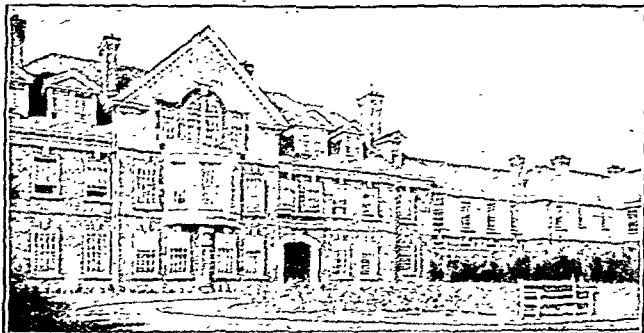
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FEES, including all necessities, except clothing, from THREE to FIVE GUINEAS A WEEK.

Brochure and information may be obtained from the MEDICAL SUPERINTENDENT.

Telephone: 157 Basingstoke.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

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CAMBERWELL HOUSE, 33, Peckham Road, London, S.E. 5.

Telegrams: "Psychiatric, London."

FOR THE TREATMENT OF MENTAL DISORDERS

Telephone: Rodney 4242 (2 lines)

Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. An illustrated prospectus giving fees, which are strictly moderate, may be obtained upon application to the Secretary.

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ST. ANDREW'S HOSPITAL FOR MENTAL DISORDERS NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

This registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or wish to prevent recurrent attacks of mental trouble, temporary patients, and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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COURT HALL, KENTON, near EXETER,

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CLIFFDEN, TEIGNMOUTH, for early and convalescent cases. A well-appointed house, with spacious balconies, and extensive views of the South Devon coast. Sub-tropical gardens, own dairy in 25 acres. Private road to beach.

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Resident Physicians: BERTHA M. MULES, M.D., B.S. Starcross 59
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A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Six acres of ground, highly situated, facing Finsbury Park. Voluntary and Temporary Patients received without certification. Occupational Therapy, Psychotherapy, and other modern forms of treatment.

Telephone: STAMFORD HILL, 2688

Telegrams: "SUBSIDIARY, LONDON."

Convalescent Home, KEARSNEY COURT, DOVER. For further particulars, apply to the Medical Sup.

THE COPPICE, NOTTINGHAM

HOSPITAL FOR MENTAL DISEASES

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Occupational Therapy. Voluntary and Temporary Patients received.

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HAYDOCK LODGE

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Tele. Street Ashton-in-Makerfield

Phone: Ashton-in-Makerfield 7311.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily, temporarily, or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

TYKLFORD ABBEY, NEWPORT PAGNELL, BUCKS. FUNCTIONAL NERVOUS DISORDERS, MEDICAL AND CONVALESCENT CASES.

The Home is a Mansion of Historical interest, standing in 15 acres of garden and grounds, and is situated 14 miles from Northampton, and 12 miles from Bedford on the main London to Northampton Road, fifty miles from London. Both sexes are accommodated. Psycho-therapeutic Treatment is used extensively in suitable cases. Radiant Heat X-Ray and Ultra-Violet Light, Diathermy and Foam Baths, Billiards, Tennis, etc.

Apply, Dr. D. E. M. DOUGLAS-MORRIS.
Telephone: Newport Pagnell 121.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS, (20 miles from London)

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Hospital. Convalescent or mild cases can be treated in a delightful country mansion with extensive grounds, known as

HIGHFIELD HALL,

situate about a mile away from the Hospital. FEES: TWO TO THREE GUINEAS PER WEEK.

For further particulars, apply to the Medical Supt., W. J. T. KIMBER, L.R.C.P., D.P.M., ST. ALBANS, HERTS.

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A REGISTERED HOSPITAL for the CARE and TREATMENT of MENTAL and NERVOUS DISORDERS. Within two miles of the city.

S. Railway easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 300 acres. Voluntary Patients of both sexes are also received for treatment. Special accommodation for Lady Voluntary Patients is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the Main Hospital. For particulars as to terms, etc., apply to G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M., Medical Supt. Telephone: No. 6207 Barnwood.

CHISWICK HOUSE, PINNER, MIDDLESEX.

Telephone: PINNER 231.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds. Fees from 10 guineas per week, inclusive. Cases under Certificate, Voluntary and Temporary patients received for treatment. Douglas Macanlay, M.D., D.P.M.

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A few vacancies in 1st and 2nd Class Houses. FEES: 1st Class (men only) from £3 p.w. upwards. 2nd Class (men and women) 32/- p.w.

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A HOUSE licensed for the reception of a limited number of Ladies suffering from Nervous and Mental Disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel. No. 40030 Ecclesfield. Res. Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S. Station: Grange Lane, L. & N.E. Rly.

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Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

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Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

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The scale of salary is £750 per annum, rising by annual increments of £30 to a maximum of £1,000. The appointments will be subject to the usual Civil Service conditions as to superannuation, etc.

Candidates must be registered medical practitioners of not less than five years' standing and have held House appointments in General (preferably teaching) Hospitals. Generally, preference will be given to those possessing University degrees in Medicine and Surgery.

It is desired that applicants should be not less than 35 years of age. Consideration will, however, be given to suitable candidates below this age, but if appointed, the entering salary in such cases would be proportionately reduced.

Successful candidates will be required to serve in the first instance in an unestablished capacity for a period of six months in a Ministry Hospital, at the expiration of which they will, if their service has been satisfactory, have to satisfy the Civil health, etc., before

of Parliament or in candidate liable to

disqualification. Applications must be made on forms which can be obtained from the Secretary (Establishments), Ministry of Pensions, 18, Great Smith Street, London, S.W.1.

The closing date for applications will be February 3rd, 1938.

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Successful candidates will, in the first instance, be given short service commissions for six years, at the end of which period they will retire with a gratuity of £1,000, unless they have been granted permanent commissions. Permanent commissions will be given to officers selected from among those who wish to make the Army their permanent career.

Particulars, including Regulations for Admission, pay and allowances, and forms of application may be obtained on request either in writing or in person to the Director, Army Dental Service, The War Office, London, S.W.1.

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The appointment will be subject to the provisions of the Asylums and Certified Institutions (Officers' Pensions) Act, 1915.

Applications are required to submit their applications on a form to be obtained from the undersigned and applications endorsed "Deputy Medical Superintendent" should be sent to or delivered at my office not later than 12 noon on Monday, February 7th, 1938.

Conveyance, either directly or indirectly, will be a disqualification.

GEORGE ETHERTON,
County Officer, Preston.
January, 1938

CITY AND COUNTY OF BRISTOL.

HAM GREEN HOSPITAL AND SANATORIUM.

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APPOINTMENT OF EAR, NOSE AND THROAT SURGEON.

The Health Committee of the County of Lancashire invite applications for the above appointment from a registered medical practitioner qualified to conduct a general practice and operative work at the Manor Hospital on a weekly salary of £200 per annum.

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January 15th, 1938.

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Free booklet "The M.R.C.P. and How to Obtain It" on application.

F.R.C.S. (Edin.)

EDINBURGH POSTAL CLASSES.

Full details of above and Oral Classes.—H.C. O'DONNELL, R.C.S. Surgeon's Hall, Edinburgh.

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, London, W.1.

CONJOINT BOARD EXAMINATIONS

Candidates taking the First, Second, or Final Conjoint Examinations should make sure of passing at the first attempt by enrolling for the short intensive Revision Courses of the College.

POSTAL, ORAL, PRACTICAL, CLINICAL COURSES, MICROSCOPE AND MUSEUM WORK.

Highly qualified Tutors with accurate knowledge of the special features of these examinations.

Write at once for booklet "How to Pass the Conjoint Board Examinations." Sent free on application.

Address: The Secretary

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, London, W.1

LONDON HOSPITAL MEDICAL COLLEGE

F.R.C.S.

A COURSE OF INSTRUCTION for the FINAL FELLOWSHIP EXAMINATION will begin on Monday, February 21st, 1938. Fees (exclusive of Operative Surgery), 25 guineas. Operative Surgery, 10 guineas.

Further particulars may be obtained from: Dr A. E. Clark-Kennedy, M.D., F.R.C.P., Dean, London Hospital Medical College, Turner Street, London, E.1

MIDLAND HOSPITAL, EASY ROW, Birmingham. (50 Beds.)

Applications are invited for the post of HOUSE SURGEON. Duties to commence January 1st, 1938. Salary £200 per annum, with board, residence, and laundry. Applications, stating when at liberty, age, and qualifications, together with copies of recent testimonials, to be addressed to the undersigned.

OLIVE FURNEAUX,
Secretary

BRITISH ASSOCIATION OF RADIOLOGISTS (FELLOWSHIP BOARD)

FELLOWSHIP EXAMINATION.

The second Examination for the Fellowship of the Association will be held in London during the period, November 28th to December 2nd, 1938.

The Examination is limited to Medical Practitioners who are duly registered in the country in which they practice, and who have held a recognised Diploma in Radiology for not less than two years. The Diplomas so far recognised are those granted by the following bodies: the Universities of Cambridge, Edinburgh, Liverpool, and London; the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England; and the American Board of Radiology.

The principal subjects of the Examination are:

I. RADIO-DIAGNOSIS.

II. RADIO-THERAPEUTICS.

Every candidate must pass, on an honours standard, the examination in either Radiodiagnosis or Radiotherapeutics. A candidate may, if he chooses, elect to take honours in both subjects. All candidates will also be examined in General Medicine, General Surgery, and General Pathology, but those who have passed examinations for higher medical or surgical qualifications may be exempted partly or wholly from this part of the Fellowship Examination. A thesis (or published work in lieu of a thesis) concerned with some aspect of their honours subject is also required from candidates. This thesis may be lodged with the Warden at any time after the expiration of two years from the taking of a radiological diploma.

In addition to passing the Examination, candidates must comply with the conditions for ordinary membership of the Association before they can be elected Fellows.

Practitioners intending to specialise in Radiology are invited to register their names with the Board, in order that they may receive information.

Entrance forms, which must be sent in before the end of August, 1938, and further particulars may be obtained from:

F. HERNAMAN-JOHNSON, M.D., D.M.R.E.,
Warden, Fellowship Board,
British Association of Radiologists,
32, Welbeck Street, London, W.1.
Telephone: WELbeck 6867.

AUCKLAND HOSPITAL BOARD, NEW ZEALAND.

THE AUCKLAND HOSPITAL BOARD INVITES APPLICATIONS FOR THE FOLLOWING POSTS:

1. RADIO-THERAPIST (X-Ray Therapy and Radium).

The successful candidate will be required to take full control of the Therapy Section of the Radiological Department.

The appointment is whole-time.

Salary will commence at £1,000 per annum, rising by annual increments of £100 to £1,200 per annum.

2. RADIOLOGIST (Diagnosis).

To take full charge of the Diagnostic Section of the Radiological Department.

The appointment is whole-time.

Salary will commence at £1,000 per annum, rising by annual increments of £100 to £1,200 per annum.

Preference will be given to candidates possessing the D.M.R.E. or equivalent qualification.

Full information and forms of application may be obtained at the office of the High Commissioner of New Zealand, 415, Strand, London, W.C.2

H. A. SOMMERVILLE,
Secretary.

Auckland, New Zealand
December 9th, 1937.

UNIVERSITY OF ABERDEEN. LECTURESHIP IN BACTERIOLOGY.

The University Court will shortly proceed to the appointment of a Lecturer in Bacteriology in the University of Aberdeen.

The salary proposed is £500 to £600 according to qualifications and experience.

Persons desirous of being considered for the office are requested to lodge their names with the Secretary to the University on or before February 18th, 1938.

The conditions of appointment and form of application may be obtained from the undersigned.

H. J. BUFCART,
Secretary to the University of Aberdeen
The University, Aberdeen.

LIVERPOOL DENTAL HOSPITAL, Pembroke Place, 3.

The Committee invites applications for the post of HON. ANAESTHETIST. Attendance, one half-day per week. Applicants must possess a medical qualification.

Further particulars may be obtained from the Hon. Director, by whom applications must be received not later than Wednesday, February 2nd 1938.

UNIVERSITY OF CAPE TOWN

SENIOR ASSISTANT IN ANATOMY.

The University of Cape Town invites applications for the post of Senior Assistant in the Department of Anatomy; salary £600 per annum, rising by annual increments of £25 to a maximum of £900 per annum.

Candidates must hold a medical qualification and should have had previous teaching experience. The successful candidate will be expected to undertake research work in addition to his teaching duties. Ability to teach in both official languages (English and Afrikaans) will be a recommendation.

Applications must reach the Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, London, W.C.2 (from whom forms of application (quadruplicate) and a memorandum giving the conditions of appointment may be obtained), not later than February 15th, 1938. Applicants, in addition to submitting copies of testimonials, must give the names of three referees, and must state the earliest date on which they would be able to assume duty.

GOVERNMENT OF BAHRAIN, PERSIAN GULF.

Qualified doctor required as GOVERNMENT MEDICAL OFFICER to take charge of new hospital, medical and surgical, village dispensaries and public health.

Age between 30-40, British born. Initial salary Rs. 1,400 per month, rising by triennial increments of Rs. 50 per month to Rs. 1,800 per month. (One rupee = 1s. 6d.) Provident fund Rs. 150 per month. Agreement in first place for five years. Leave after every two years' service at rate of 45 days for each year's service. Free passage on joining and once in every four years when proceeding on leave. Free furnished house and car.

Applications accompanied by copies of three testimonials to be sent by Air Mail to THE ADVISER, Bahrain Government, Bahrain, Persian Gulf.

CORPORATION OF KIRKCALDY. FEVER HOSPITAL AND SANATORIUM.

Applications are invited from registered medical practitioners for the post of RESIDENT MEDICAL OFFICER at the above hospital. The salary is £300 per annum, with board, residence and laundry. The successful candidate will be required to undergo a medical examination and to contribute to the Corporation's Superannuation Scheme.

Forms of application may be obtained from the Medical Officer of Health, Public Health Department, Kirkcaldy, to whom they should be returned, together with copies of three recent testimonials, not later than February 4th, 1938.

Kirkcaldy. WILLIAM HUTTON, Town Clerk.

LONDON COUNTY COUNCIL.

Applications invited from registered medical practitioners for inclusion in a panel for filling vacancies for temporary part-time assistant medical officers for school medical work. Rate of pay 30s. for a session of 22 hours.

Special experience of medical examination of children is necessary. Employment will depend upon the needs of the work, but ultimately candidates engaged will be expected to work three sessions a week during school terms.

Application forms (stamped addressed footsack envelope necessary) from Medical Officer of Health (S.D.S.), County Hall, Westminster Bridge, S.E.1, returnable by January 29th. Canvassing disqualified.

DERBYSHIRE COUNTY COUNCIL.

WALTON SANATORIUM, Near Chesterfield.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER (Male).

Applications are invited for the post of Junior Resident Assistant Medical Officer at the Derbyshire County Sanatorium. Candidates with previous institutional experience of tuberculosis will be preferred, and practical experience of artificial pneumothorax work will be considered an additional qualification. Candidates must be single.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, together with board, lodging, etc.

The successful candidate will devote the whole of his time to the duties of the Office.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before January 20th, 1938.

W. M. ASH, County Medical Officer.
New County Offices, Derby.
January 31st, 1938.

COUNTY BOROUGH OF ROTHERHAM.

Obstetric Medical Officer and Deputy Medical Superintendent, Alma Road Hospital.

Applications are invited from fully qualified medical practitioners for the post of Obstetric Medical Officer and Deputy Medical Superintendent at the Alma Road Hospital, Rotherham, at a salary of £750 per annum, less emoluments to the value of £85.

Candidates must be qualified registered medical practitioners and must have held previous resident appointments in maternity hospitals, and have had experience in ante-natal work.

The officer appointed will be responsible for the obstetric work at the Alma Road Hospital and at Ferham House Municipal Maternity Home, and in addition will be required to undertake duties in the ante-natal, post-natal and gynaecological services, organise the maternity emergency service and assist in the supervision of the district midwives service and other duties assignable to midwifery.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination as to physical fitness.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, experience and qualifications, accompanied by copies of not more than three recent testimonials and endorsed "Obstetric Medical Officer and Deputy Superintendent," should be sent to the undersigned not later than Tuesday, February 1st.

Forms of application can be obtained from the Medical Officer of Health, Public Health Department, Town Hall, Rotherham.

Municipal Offices, CHAS. L. des FORGES, Rotherham. Town Clerk.
January 11th, 1938.

CITY OF SHEFFIELD. CITY GENERAL HOSPITAL.

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men for the appointment of ASSISTANT MEDICAL OFFICER (Grade II) in the above hospital. There are two vacancies.

Candidates should have previous hospital experience and, in addition, for one appointment should have special experience in obstetrics.

For the other appointment special experience in surgery is required.

Salary, £350, rising by £25 to £450 per annum, with the usual residential allowances. The medical officers may be required for a time to live outside the hospital, and for this an allowance for subsistence will be paid.

These appointments are designated under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be sent to THE MEDICAL SUPERINTENDENT, City General Hospital, Sheffield, S.1, on or before January 25th, 1938.

GLOUCESTERSHIRE JOINT BOARD FOR TUBERCULOSIS.

Standish House Sanatorium, Stonehouse, Glos.

Applications are invited from registered medical men for the post of JUNIOR ASSISTANT MEDICAL OFFICER at the above institution. No previous professional experience is necessary.

There are at present 250 beds, including men, women and children. There is an orthopaedic block. The salary is £250 per annum, with board, furnished apartments and laundry in addition.

The appointment is for six months (with the possibility of extension for a further period of six months) and may be terminated within that period by one month's notice on either side.

Applications, stating qualifications and age, and accompanied by copies of three recent testimonials, should be received not later than January 26th.

Shire Hall, RICHARD L. MOON, Gloucester. Clerk of the Joint Board.
January 10th, 1938.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE.

(109 Beds)

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON, which post is now vacant on February 1st, 1938. The appointment is for six months, but a senior post at a higher salary may be given after that period if mutually agreed upon. Candidates must be duly qualified and registered Medical Practitioners, qualified and of British birth and nationality, and single, and of proved experience of refractions. Salary at the rate of £200 per annum, with board, residence and laundry. The Hospital is recognized by the Examining Board for the D.O.M.S.

Applications, stating age and qualifications, together with copies of not more than three testimonials, should be sent to the undersigned.

JOHN W. STRICKLAND, Secretary.

LANCASHIRE COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

WHISTON COUNTY HOSPITAL, NEAR PRESCOT.

RESIDENT MEDICAL OFFICER.

Applications are invited from Registered Medical Practitioners for the appointment of Resident Medical Officer at the above Institution (500 Beds). Candidates must be unmarried.

Preference will be given to candidates having previous hospital experience, particularly in Midwifery. Feelees are available for candidates desirous of qualifying for the D.C.O.G.

Salary at the rate of £350 per annum, together with the usual residential emoluments.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for reappointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials must be forwarded so as to be received not later than Thursday, January 25th, 1938.

GEORGE LITHERTON,

Clerk of the County Council.

County Offices, Preston.
January 4th, 1938.

ANCOATS HOSPITAL, MANCHESTER.

CASUALTY OFFICER (lady or gentleman). Twelve months' appointment. Salary £250 per annum, with luncheon and tea provided. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. The successful applicant will work for the Resident Surgical Officer on alternate week-ends and other scheduled times.

Applications, stating age, experience and qualifications, to be forwarded to the undersigned on or before January 26th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFORNE,
General Superintendent and Secretary.

ANCOATS HOSPITAL, MANCHESTER.

ASSISTANT PATHOLOGIST, lady or gentleman, whole-time appointment, no private work allowed. Salary £400 per annum, live out, luncheon and tea provided. The appointment is for twelve months and is renewable. During the first six months a certain amount of research work will be conducted.

RADIOLOGICAL OFFICER, lady or gentleman, whole-time appointment, non-resident, no private work allowed. Salary £400 per annum with luncheon and tea. The appointment is for twelve months and is renewable. Candidates must hold the D.M.R. diploma.

Applications for the above posts, stating age and particulars of qualifications and experience, to be forwarded to the undersigned on or before January 19th, 1938, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFORNE,
General Superintendent and Secretary.

BOOTLE GENERAL HOSPITAL, BOOTLE, LIVERPOOL, 20 (103 Beds).

ONE HOUSE PHYSICIAN

TWO HOUSE SURGEONS

ONE CASUALTY OFFICER

Applications are invited for the above posts, tenable for 6 months from April 1st, 1938. The salary attached to each post is £150 per annum with board, residence and laundry.

Applicants must be duly qualified and registered under the Medical Act.

Applications, with copies of testimonials, should reach me as soon as possible.

A. COOPER,
Secretary-Superintendent.

GRIMSBY AND DISTRICT HOSPITAL (164 Beds)

Applications are invited for the post of SENIOR HOUSE SURGEON (100 Beds) and JUNIOR HOUSE SURGEON (100 Beds). Remuneration at the rate of £12 and £10 per annum respectively, with board and laundry.

Candidates must be fully qualified and registered, and previous hospital appointment experience is desirable. Dates for interview February 1st, 1938. The successful candidates will be appointed for six months and may apply for re-election.

Applications, stating age, qualifications, experience, and not more than three recent testimonials, to be forwarded to the undersigned immediately.

January 4th, 1938. Secretary-Superintendent.

BOROUGH OF EALING.**ASSISTANT MEDICAL OFFICER OF HEALTH
RESIDENT ASSISTANT MEDICAL OFFICER**

Applications are invited for the above appointments from duly qualified medical men with a Public Health qualification.

Assistant Medical Officer (Man).—A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

Resident Assistant Medical Officer. (Man)—Single.—A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school children at schools and health centres in the borough of Ealing. The person appointed will reside at the Isolation Hospital where furnished rooms and board will be provided.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £350 per annum, rising by £25 per annum to a maximum of £550, plus board and residence as indicated above and valued at £150 per annum.

A deduction of 5 per cent. will be made from the salary in each case in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointments can be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom applications accompanied by copies of not more than three recent testimonials must be delivered not later than January 20th.

R. H. WANKLYN

Town Hall, Ealing W 5 Town Clerk

BOROUGH OF EALING.**OPHTHALMIC SURGEON**

Applications are invited from registered medical practitioners of recognised consultant and specialist status in ophthalmology for the position of Ophthalmic Surgeon in connection with the Council's Health Centres. The successful applicant will be required to attend on three sessions a week during 40 school weeks, or 120 sessions in the year, for the purpose of examining and advising patients referred to him by the medical staff of the School Medical and Maternity and Child Welfare Services. The remuneration will be £275 per annum. Canvassing will be a disqualification.

Forms of application and copies of terms of appointment may be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom applications, accompanied by three recent testimonials and endorsed "Appointment of Ophthalmic Surgeon," must be delivered not later than January 20th.

R. H. WANKLYN,

Town Hall, Ealing, W.5 Town Clerk.

COUNTY OF EAST SUFFOLK.**JOINT APPOINTMENT OF MEDICAL OFFICER
OF HEALTH FOR WOODBRIDGE URBAN
DISTRICT, MEDICAL OFFICER OF HEALTH
FOR DEBEN RURAL DISTRICT AND
ASSISTANT COUNTY MEDICAL OFFICER.**

Applications are invited from male registered Medical Practitioners holding the Diploma of Public Health for the combined post of Medical Officer of Health for the Woodbridge Urban and the Deben Rural Districts and Assistant County Medical Officer. The duties as Assistant County Medical Officer will include public health work, school medical inspection, and maternity and child welfare and tuberculosis work. The person appointed will be required to devote the whole of his time to the service of the three Councils.

The total commencing salary will be £776 per annum on the basis of a decision by the Advisory Committee set up under Section X of the Askwith Memorandum. Motor-car allowance will be paid according to the County Council's scale for the use of the Officer's car.

The person appointed will be required to pass a medical examination and to contribute to the Council's Superannuation Fund.

Applications must be made upon a form to be obtained, together with further particulars, from the County Medical Officer of Health, County Hall, Ipswich, to whom the completed forms should be returned not later than Saturday, January 20th.

C. C. CLARK, Clerk of the County Council.
Ipswich, January 15th, 1938.

METROPOLITAN BOROUGH OF ISLINGTON.**Appointment of ASSISTANT MEDICAL
OFFICER.**

The Council invite applications from members of either sex whose age must not exceed 40 years for the appointment of an Assistant Medical Officer, whose duties will consist mainly of maternity and child welfare work, to be carried out under the direction of the Medical Officer of Health. The duties will include certain administrative work in the wards of two voluntary Welfare Centres, clinical work at the Council's Day Nurse, artificial sunlight treatment, diphtheria immunisation clinics, and such other duties in connection with maternity and child welfare and public health as may be required by the Council.

Candidates must be registered medical practitioners, with the Diploma of Public Health or Degree of Sanitary Science. They must also possess special children's and infants' experience and knowledge of the treatment of nutritional disorders of infancy, and previous experience of maternity and child welfare work, ultra-violet light therapy and diphtheria immunisation.

The salary for the appointment will be at the rate of £600 per annum, rising by annual increments of £25 to £750 per annum. The candidate appointed will be required to devote whole time to the duties of the office, and will not be allowed to practise privately. The appointment will also be subject to the rules and regulations of the Council from time to time in force relating to their officers.

Applications, accompanied by copies of not more than three recent testimonials, on forms to be obtained from the undersigned, must be delivered at the address stated below not later than Wednesday, January 26th, 1938, endorsed "Appointment of Assistant Medical Officer."

Canvassing, directly or indirectly, will disqualify. W. ERIC ADAMS, Town Hall, Upper Street, N.1. Town Clerk.
December 30th, 1937.

CITY OF LEEDS.**ASSISTANT MEDICAL OFFICER**

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had not less than three years' postgraduate experience, including experience in General Medicine and Surgery, and special experience in Obstetrics and Ante-Natal work, and in the treatment of Children's Diseases and Disease of Women. Preference will be given to candidates possessing the D.P.H.

Under the present Grading Scheme of the Council, the commencing salary for the post is £500 per annum and the maximum salary £700, with annual increments of £25, subject to satisfactory service, and the first increment will take effect on April 1st following the completion of twelve months' service.

The person appointed will be required to pass a medical examination, and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the undersigned.

Applications, endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at the Health Department, 12, Market Buildings, Vicar Lane, Leeds 1, not later than 10.30 a.m. on Saturday, January 22nd, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification. J. JOHNSTONE JERVIS, Medical Officer of Health.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade 1).—Salary £350-£25-£425, with board, lodging and washing.

(a) LAMBETH HOSPITAL, Brook Drive, Kennington Road, S.E.11.—Obstetrical experience essential; general medical duties.

(b) ST. GEORGE-IN-THE-EAST HOSPITAL, Raine Street, Wapping, E.1.—Surgical duties, orthopaedic and gynaecological experience essential.

(c) ST. MARY ABBOTS HOSPITAL, Marlow Road, Kensington, W.8.—Surgical duties, fracture experience desirable.

(d) ST. MARY, ISLINGTON HOSPITAL, Highgate Hill, N.19.—General medical duties and anaesthetics.

(e) ST. PETER'S HOSPITAL, Fulbourne Street, Whitechapel, E.1.—Surgical and part medical duties.

* No accommodation for a woman. Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 24, County Hall, S.E.1, returnable by January 31st. Canvassing disqualifies.

CITY OF LIVERPOOL.**RESIDENT ASSISTANT MEDICAL OFFICER
(Male) for Orthopaedic Wards, Alder Hey Hospital.**

Applications are invited for the above appointment at the Alder Hey Children's Hospital (956 Beds), Liverpool, to take up duty on April 1st, 1938, for a period of 6 months at a salary of £200 per annum together with the usual residential allowances. 180 beds are set aside for Orthopaedic Diseases of Children and these include open-air wards for surgical tuberculosis. Also there is a large amount of fracture and other orthopaedic work of an acute nature. The person appointed, in addition to the Orthopaedic work, will be required to undertake other routine duties in the Hospital under the direction of the Medical Superintendent. Previous experience in Orthopaedic Work is desirable and the Hospital affords ample opportunity for gaining special experience in this work. Canvassing will be deemed a disqualification.

Applications, to be made upon forms obtainable from the Medical Officer of Health, Municipal Annexe, to be endorsed "Resident Assistant Medical Officer (Orthopaedic), and returned to the undersigned so as to be received not later than Monday, January 24th, 1938.

W. H. BAINES, Town Clerk.

Municipal Buildings, Liverpool, 2.
January, 1938.

CITY OF LIVERPOOL.**RESIDENT ASSISTANT MEDICAL OFFICERS
(Male and Female).**

Alder Hey Hospital (952 beds).

Applications are invited for the above appointments, which fall vacant on April 1st, 1938. The appointments are for a period of one year at a salary of £200 per annum, together with the usual residential allowances. Canvassing will be deemed a disqualification.

There is a large Ear, Nose and Throat Department in the Hospital, and one of the selected candidates will be given the opportunity of working in this special branch.

Applications to be made on forms obtainable from the Medical Officer of Health, Municipal Annexe, Liverpool, to be endorsed "Resident Assistant Medical Officer," and returned to the undersigned so as to be received not later than January 25th, 1938.

Municipal Buildings, W. H. BAINES, Town Clerk.
Dale Street, Liverpool, 2.
January, 1938.

CITY OF LIVERPOOL.**RESIDENT ASSISTANT MEDICAL OFFICERS**

Walton Hospital (1,837 Beds).
Smithdown Road Hospital (1,220 Beds).
Mill Road Infirmary (762 Beds).

Applications are invited for the above appointments which fall vacant on April 1st, 1938.

The appointments are for a period of one year at a salary of £200 per annum, together with the usual residential allowances. Canvassing will be deemed a disqualification.

Applications, to be made on forms obtainable from the Medical Officer of Health, Municipal Annexe, Liverpool, 2, to be endorsed "Resident Assistant Medical Officer," and returned to the undersigned so as to be received not later than January 31st, 1938.

Municipal Buildings, W. H. BAINES, Town Clerk.
Dale Street, Liverpool, 2.
January, 1938.

COUNTY BOROUGH OF HUDDERSFIELD.**ST. LUKE'S HOSPITAL.****RESIDENT MEDICAL OFFICER.**

Applications are invited from registered medical practitioners for above appointment, which is for one year. Salary £230 per annum, with board, residence and laundry.

Applications, stating age, training, qualifications and experience, should be forwarded to the Medical Officer of Health, Huddersfield, so as to reach him not later than January 19th, 1938.

Town Hall, SAMUEL PROCTER, Town Clerk.
Huddersfield.
January, 1938.

RURAL DISTRICT COUNCIL OF DARTFORD**PART-TIME MEDICAL OFFICER.**

The Council invite applications for the appointment of a Part-time Medical Officer at a salary of £250 per annum. The successful candidate will be under the general direction of the Medical Officer of Health, but the duties will be mainly in connection with the Council's Maternity and Child Welfare work.

Applications, on forms to be obtained from the undersigned, should reach me by not later than January 24th, 1938, endorsed "Medical Officer."

Council Offices, EUSTACE J. HOBBS, Clerk to the Council.
West Hill, Dartford.
January 5th, 1938.

(Add. info. omitted) continued on p. 26

BERKSHIRE MENTAL HOSPITAL.
Wallingford.**MEDICAL SUPERINTENDENT.**

The Committee of Visitors of the above Hospital are prepared to consider applications from duly registered medical men for the post of Medical Superintendent. Candidates, who should not be more than forty years of age, must have had previous experience in the administration of a Mental Hospital and the treatment of nervous and mental disorders. Preference will be given to those holding a degree or diploma in psychological medicine.

Salary £950, rising by annual increments of £50 to a maximum of £1,200, together with unfurnished house, fuel, light, laundry, milk and garden produce valued at £200 per annum. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, giving full details as to qualifications and experience, together with copies of three recent testimonials, should reach the undersigned not later than February 1st, 1938.

Canvassing in any form will disqualify.
Berks Mental Hospital, W. T. MORLAND,
Wallingford. Clerk to the Visiting Committee.

A NON-RESIDENT MEDICAL OFFICER IS required for the ROYAL HOSPITAL AND HOME FOR INCURABLES, Putney Heath, to attend the patients (some 250 in number) and the resident staff (some 130). He should reside within reasonable distance of the Institution. He is expected to visit the Hospital on every weekday from 11 a.m. to 1 p.m., and also to attend in urgent cases when summoned. Commencing salary £100 a year, rising to £350. Apply for application form to Secretary, Royal Hospital and Home for Incurables, Putney, Bond Court House, Walbrook, E.C.4. All forms should be completed and returned not later than Saturday, January 29th.

COUNTY MENTAL HOSPITAL.
Rainhill, near Liverpool.

Wanted.—**ASSISTANT MEDICAL OFFICER** (female) Locum Tenens required for 2 to 3 months. Seven guineas per week, with board, lodging and laundry.

Apply immediately, giving full particulars of experience, etc., to the Medical Superintendent, County Mental Hospital, Rainhill, near Liverpool.
January 11th, 1938.

EAST SURREY HOSPITAL.
Redhill, Surrey.

JUNIOR HOUSE SURGEON (Male or Female) required on February 18th next. Salary at the rate of £100 per annum, with board, residence and laundry. Candidates must be fully qualified and registered. Appointment for six months and further six months as Senior at salary £150 per annum. Applications stating full particulars, and copies of recent testimonials, to be sent to the Secretary.

EAST SUFFOLK AND IPSWICH HOSPITAL.
(350 Beds, 7 Residents.)

Wanted, February 1st, **CASUALTY OFFICER** (male, British). Salary at the rate of £144 per annum, with board, apartments and laundry.

Applications, stating age, qualifications and experience, to be sent to the undersigned, together with copies of three recent testimonials.

The Hospital, ARTHUR GRIFFITHS,
Ipswich. Secretary.
January 15th, 1938.

HORTON GENERAL HOSPITAL.
Banbury, Oxon. (60 Beds.)**RESIDENT MEDICAL OFFICER**

Applications are invited for the post of Resident Medical Officer (female). Salary £150 per annum, with board and laundry. The appointment is for a period of six months, commencing February 12th, 1938. Candidates must be duly registered.

Applications, stating age and accompanied by copies of any testimonials, to be sent to the undersigned not later than Thursday, January 20th, 1938.
By Order,

RICHARD H. PRESCOTT,
Secretary and House Governor.

JEWISH MATERNITY HOSPITAL.
Underwood Street, London, E.1.

RESIDENT MEDICAL OFFICER required, to take up duties on February 1st. Board, residence and laundry provided, with salary at the rate of £50 per annum. The appointment is for four months, with option of extension to six months. Applicants may be male or female.

Applications, accompanied by copies of three testimonials, should be sent to the Secretary immediately.

NEWCASTLE THROAT, NOSE AND EAR HOSPITAL.

HOUSE SURGEON required to commence duties early February. Salary £150 p.a. with board, residence and laundry. Applications, with three recent testimonials, to be sent to the undersigned not later than January 31st.—S. COOPER, F.R.C.S., Secretary, Ryehill, Newcastle-on-Tyne, 4.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.**APPOINTMENT OF RESIDENT ANAESTHETIST.**

The Board of Management invite applications from Lady Doctors with special experience of, or holding a Diploma in, the administration of anaesthetics for the post of Resident Anaesthetist.

The appointment in the first instance will be for a period of six months, at a salary at the rate of £200 per annum, with board, residence and washing. Afterwards the appointment may be extended by agreement for a further period of service, at a salary at the rate of £250 per annum, with board, residence and laundry.

Applications, stating age, qualifications and particulars of experience, together with copies of testimonials, should be addressed to the undersigned on or before the 21st instant.

JOHN GIBSON,
Superintendent and Secretary.

January 10th, 1938.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL (85 Beds.)

Applications are invited from registered Medical Practitioners for the following appointment:—

SENIOR HOUSE SURGEON (male and unmarried). Salary £150 per annum, with board, apartments, and laundry. Appointment to commence immediately, for a term of six months, renewable. Previous experience is essential, and applicants must have had practical experience in the administration of anaesthetics.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, to be sent to me.

FRANK H. TOONE,
Secretary.

9, Leicester Road,
Loughborough.

LEICESTER ROYAL INFIRMARY.
(500 Beds.)**RESIDENT ANAESTHETIST.**

Applications are invited for the above post, for a period of six months in the first instance.

Salary £150 per annum for the first six months, £200 per annum for the second six months, and £225 for the third six months, together with board, residence and laundry.

Applications, giving full particulars, accompanied by copies of three recent testimonials, should be forwarded to the undersigned forthwith.

GEO. W. COOLING,
House Governor.

January 3rd, 1938.

MANCHESTER NORTHERN HOSPITAL.
(General Hospital, 113 Beds.)
Cheetham Hill Road, Manchester, 8

Applications are invited for the posts of **RESIDENT HOUSE PHYSICIAN** and **RESIDENT HOUSE SURGEON**. Salary £100 per annum, with board and residence.

The appointments are for six months from mid-February, 1938 (successful candidates are eligible for reappointment for a further six months).

Applications, stating age, qualifications, and nationality, with copies of not less than three recent testimonials, should be sent to Mr. JAMES C. DANIELS, Secretary, 38, Barton Arcade, Manchester, 3, by January 20th.

MANCHESTER ROYAL INFIRMARY.**MEDICAL REGISTRAR TO OUT-PATIENT DEPARTMENT (Non-resident).**

The Board of Management of the Manchester Royal Infirmary invite applications for the above post. Applicants must hold a Medical and Surgical qualification and be registered, and also have held a hospital appointment.

The appointment (mornings only—9.0 a.m. to 1.0 p.m., Sundays excepted) is for six months, renewable for further periods of six months, subject to the provisions of the Bye-laws as to notice, etc. Salary £150 per annum.

Applications, stating age, with testimonials, to be sent to the Chairman of the Medical Board not later than January 24th, 1938.

By Order,
A. L. YOUNG,
Asst. Secretary.

SOUTHEND-ON-SEA GENERAL HOSPITAL.
235 Beds. 8 Residents.

Hon. Specialist Staff of 19 members.

Applications are invited for the post of **FIRST HOUSE SURGEON**. Duties to commence on February 1st, 1938. The appointment is for six months, salary at the rate of £100 p.a., with board, residence and laundry. Candidates must be registered (male) practitioners. The hospital is recognized by the Royal College of Surgeons in respect of this post.

Applications, together with copies of two recent testimonials, should be sent to the undersigned not later than January 17th.

P. H. CONSTABLE,
Secretary.

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL.
Yorkshire (West Riding).
(124 Beds.—Two Residents.)

Appointment of **SECOND RESIDENT MEDICAL OFFICER**. Duties to commence if possible, February 14th, 1938.

Applications are invited from registered Medical Practitioners (female) for the above appointment. Proof of registration to be furnished before appointment. Salary £120 per annum, together with full residential emoluments. Term, six months, renewable.

Applications, with particulars of age, experience, nationality, together with copies of two recent testimonials, to be sent to the undersigned not later than Wednesday, January 26th, 1938.

J. YOUNG,
Secretary-Superintendent.

KENT COUNTY MENTAL HOSPITAL.
Maldstone.

ASSISTANT MEDICAL OFFICER (male) required. Commencing salary, inclusive of emoluments, £509 per annum, rising by annual increments of £25 to £659 per annum. Excellent facilities for working for higher examinations and for attending lectures for the Diploma in Psychological Medicine, for which Diploma an additional £50 per annum is paid. Previous experience not essential. The appointment is pensionable under the Asylums Officers' Superannuation Act, 1909. Candidates must be fully qualified, registered, single, and not more than 35 years of age.

Applications, giving full particulars, with copies of three recent testimonials, and endorsed "A.M.O." on envelope, should be sent to the Medical Superintendent of the Hospital at an early date.

Applications for Locum Tenens would also be considered at the same time.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

The Board of Management invite applications for the post of part-time **MEDICAL OFFICER** to the Venereal Diseases Department. Candidates should have had special experience in the treatment of the above diseases. Minimum fees, £350 per annum. The appointment will be subject to the approval of the Ministry of Health.

Particulars of the duties and terms of appointment may be obtained from the undersigned, to whom applications should be forwarded on or before the 21st instant.

JOHN GIBSON,
January 10th, 1938. Superintendent and Secretary.

PRINCESS ALICE HOSPITAL, EASTBOURNE.

(Voluntary General Hospital, 120 Beds.
Two House Surgeons.)

RESIDENT HOUSE SURGEON (male) required on February 7th, 1938. Salary at the rate of £120 per annum, with board and laundry.

Applications from registered practitioners, accompanied by copies of three recent testimonials, should be delivered to the undersigned by the first post on Thursday, January 27th, 1938.

W. RUSSELL RUDALL,
January 10th, 1938. Secretary.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor, Isle of Wight.

SECOND ASSISTANT RESIDENT MEDICAL OFFICER (male), unmarried, required for six months commencing February 15th, 1938. Salary at the rate of £200 per annum with board, residence and laundry allowance. The successful candidate will be eligible for promotion to First Assistant Resident Medical Officer for a further six months at a salary at the rate of £300 per annum with similar emoluments. Candidates must be fully qualified in Medicine and Surgery and previous experience in Tuberculosis and Bacteriological work will be an advantage.

Applications, in candidates' own handwriting, stating age, qualifications and experience (with one copy of three recent testimonials), to be sent to the Medical Superintendent, Royal National Hospital for Consumption, Ventnor, Isle of Wight, not later than Friday, January 28th, 1938.

VACANCY.—RESIDENT PHYSICIAN AT Ruthin Castle, North Wales. Must have held House Office. Salary £200 per annum with board and lodging. Quarters provided in or near the Castle. Appointment may be renewed at the end of six months. Apply, stating age, experience and giving personal references, to Secretary, Ruthin Castle, North Wales.

BEDFORD COUNTY HOSPITAL.

Wanted, an **HONORARY PATHOLOGIST** for Bedford County Hospital. Facilities given for private work. Applications to be sent to the Secretary.

MEDICAL POSTS, DISPENSERS

WANTED, IMMEDIATELY, YOUNG, WELL qualified MEDICAL PRACTITIONER for copper mine in Namaqualand, Union of South Africa. Operative experience necessary. Salary £85 per month with 1st class passage out and home. Three-year contract, renewable. For particulars apply—Address, No. 3036, B.M.A. House, Tavistock Square, W.C.1.

A Course of Training in Dispensing and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: LUSTON 3930.

LADY DISPENSER BOOKKEEPER SUP- plied immediately on request, qualified with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or phone (Bayswater 0699) Secretary, 7, Westbourne Park Road, W.2.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chemist-Dispensers, are invited to write, wire, or phone Temple Bar 5553, THE DISPENSER'S BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR, RETIRING, HIGHLY RECOM- mends his HOUSEKEEPER-RECEPTIONIST, with daughter 16, business all day, and small, well-trained house-dog. Domesticated, drive car, efficient, cheerful, used to maid.—Address, No. 3023, B.M.A. House, Tavistock Square, W.C.1.

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THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

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WANTED TO PURCHASE, BY GENERAL Practitioner, PRACTICE in London Suburbs or in the country towards W. or S.W., with income of about £1,000. Quite private.—Address, No. 2817, B.M.A. House, Tavistock Square, W.C.1.

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WANTED BY M.B., CH.B., CANTAB. PRACTICE OR PARTNERSHIP producing between £1,000 and £2,000 p.a. Country or country town preferably Suffolk or Norfolk. Capital available up to £5,000.—Address, 1591, PRINCIPAL TURNER, Ltd., 4, Adam Street, W.C.2.

WANTED—GOOD-CLASS PRACTICE IN Scotland. Income over £1,000. Suitable house. Capital available. Apply in confidence to MAURICE KIDD and Co., W.S., 15, Melville Street, Edinburgh, 3.

A NUMBER OF SMALL PRACTICES AT LOW premiums. Excellent opportunities for practitioners wishing to get a practice with scope.—Apply, PEACOCK and HADLEY, Ltd., 67/68, Chandos Street, Strand, W.C.2.

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FOR DISPOSAL, ATTRACTIVE OLD- established PRACTICE, London N.W. suburb, taking approximately £1,200 per annum. Scope for increase. See Panel Card. Attractive house, 10 bedrooms.—Address, No. 3048, B.M.A. House, Tavistock Square, W.C.1.

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LONDON, W.—OLD-ESTABLISHED NON- Panel PRACTICE. Receipts average £700 to £800 p.a. Matter of house to be arranged. Premium £500.—Apply, PEACOCK and HADLEY, Ltd., 67/68, Chandos Street, Strand, W.C.2.

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WANTED, INDOOR MALE ASSISTANT in North London. English or Scotch. Unmarried, under 30. Salary £300. Time for reading. Full particulars to.—Address, No. 3018, B.M.A. House, Tavistock Square, W.C.1.

WANTED QUICKLY.—OUTDOOR ASSISTANT, young, male, single, Protestant, preferably with hospital experience. Mixed practice in Cheshire. Salary £450.—Address, No. 3041, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—SCOTCH GRADUATE.—PREFERRED, ASSISTANT in General Practice, 30 miles from London.—Salary £300 per annum, all found.—Address, No. 3017, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT in a mining practice in South Wales. A Dispenser kept. Salary £350 per annum. Apply, giving age, references, etc., to.—Address, No. 3013, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT. Young, single, protestant, British. Salary £320, plus £52 car allowance and liberal commission on midwifery.—Address, No. 3039, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG SINGLE ASSISTANT, outdoor. British general Practice. Seaside and Rural, West Wales. £400 and £50 car allowance.—Address, No. 2609, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE (BRITISH) ASSISTANT for industrial practice. Hospital experience preferred but not essential. Own car, petrol free. Salary £365 p.a., all found.—Address, No. 2831, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT, ENGLISH, in West Midlands country practice with view. Age about 30. Experienced. Salary commencing £350. Car allowance £50.—Address, No. 3030, B.M.A. House, Tavistock Square, W.C.1.

WANTED, SINGLE MALE ASSISTANT FOR Liverpool. Salary £400 per annum, with rooms, attendance and extras. Apply with references.—Address, No. 3016, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANTSHIP, LONG LOCUM or Management of Branch Surgery by medical man, British, experienced, married. Own car. County or Seaside.—Address, No. 3024, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP BY LADY doctor, M.B., B.S., aged 32, single; late House Physician; six years' general practice experience. Coast or country preferred; view to partnership later.—Address, No. 3002, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP BY RECENTLY married doctor. Belfast graduate. Ex-H.S. and H.P. Three years' general practice experience. Own car. View to partnership.—Address, No. 3026, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—SHORT ASSISTANTSHIP WITH view to Partnership, M.B., Ch.B., D.P.H. Married, 14 years' experience Hospital and G.P. Capital available. Free now.—Address, No. 3033, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP BY M.B., B.Ch., H.S. experience. West coast, near Liverpool, preferred. Free March 1st. Single.—Address, No. 3001, B.M.A. House, Tavistock Square, W.C.1.

INDIAN, M.B. Edin., WITH CONTINENTAL degree, 2 years' State Hospitals, surgical and medical internship; G.P. 4 years; experienced in surgery, anaesthetics and casualties, seeks APPOINTMENT or ASSISTANTSHIP in England or abroad. Highly recommended.—Address, No. 3029, B.M.A. House, Tavistock Square, W.C.1.

M.B., Ch.B. (EDIN.), SCOT, 40, RECENTLY sold own Practice, desires temporary ASSISTANTSHIP, 2-3 months, or long locum, London area.—Address, No. 3004, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, LOCUMS OR ASSISTANTSHIP by Anglo-Indian M.R.C.S., L.R.C.P. (St. Mary's). Motorist. Experienced General and Panel Practice, Midwifery and Anaesthesia.—Address, No. 3025, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PART TIME WORK, LOCUM OR SHORT ASSISTANTSHIP in London or area, by experienced ex-H.P., H.S. and R.O.O. London Teaching Hospital.—Address, No. 3014, B.M.A. House, Tavistock Square, W.C.1.

LOCUM WORK WANTED BY SCOT, single, experienced G.P. and Panel. Ex. ref. Free now in London. Dr. M., Euston 5111.—Address, No. 3043, B.M.A. House, Tavistock Square, W.C.1.

APPOINTMENTS.—Contd.

THE HOSPITAL FOR SICK CHILDREN,
Great Ormond Street, London, W.C.1.

Applications are invited for the post of ASSISTANT PATHOLOGIST (male).

Candidates, who must possess a legal qualification to practise, are required to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials, given specially for the purpose, before 12 o'clock on Monday, January 31st, 1938.

The appointment is made for one year, and is non-resident.

Salary £400 per annum, with facilities for Private Pathological Practice.

The selected Candidate will be required to take up his duties not later than February 16th, 1938, preferably earlier.

All Candidates must be in attendance to appear before the Joint Committee on Wednesday, February 2nd, 1938, at 4.45 p.m.

Forms of application, copy of the rules, and details of the appointment will be supplied on application to the undersigned.

HERBERT F. RUTHERFORD,
Secretary.

December, 1937.

THE HOSPITAL FOR SICK CHILDREN,
Great Ormond Street, London, W.C.1.

There are vacancies for two ANAESTHETISTS. Candidates must be registered medical practitioners and be prepared to take up their duties at an early date.

The appointment is for one year, but is renewable and carries with it an honorarium of £15 15s. per annum, and an allowance of £6 6s. to provide a substitute during annual leave.

Candidates are invited to send in their applications, addressed to the Secretary, with copies of not more than three testimonials written specially for the purpose, before 12 o'clock on Monday, January 31st, 1938, and must appear personally before the Joint Committee at their Meeting on Wednesday, February 2nd, 1938, at 4.45 p.m.

Forms of application and copies of the rules are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
Secretary.

January, 1938.

THE MIDDLESEX HOSPITAL, W.1.

DEPARTMENT OF PSYCHOLOGICAL
MEDICINE.

A vacancy is hereby declared for an HONORARY PHYSICIAN in charge of the Department of Psychological Medicine. Candidates must be Fellows or Members of the Royal College of Physicians of London, and should be both psychiatrists and have had experience of the modern treatment of Psycho-neuroses.

Applications (30 copies) must be submitted to the undersigned by February 12th, 1938.

By Order of the Board.

S. R. C. PLIMSOLL,
Secretary-Superintendent.

NATIONAL HOSPITAL, QUEEN SQUARE,
W.C.1.

HOUSE SURGEON.

Applications are invited for the post of House Surgeon. The work is concerned almost entirely with the surgery of the central nervous system, and it is desirable that candidates should have had previous experience of general surgery. Applications, accompanied by three recent testimonials, should be sent to the undersigned not later than Monday, January 24th. The salary is £100 per annum, with board and lodging.

GODFREY H. HAMILTON,
Secretary.

THE HOSPITAL FOR SICK CHILDREN,
Newcastle-upon-Tyne.

Applications are invited for the posts of: HOUSE PHYSICIAN and HOUSE SURGEONS (male or female) for six months as from February 1st, 1938. Salary at the rate of £100 per annum, together with board, residence and laundry.

Applications, stating age and qualifications, together with copies of testimonials, to be sent to the Secretary, Mr. NEIL BROOME, 18, City Road, Newcastle-upon-Tyne, 1 on or before January 21st, 1938.

TAUNTON AND SOMERSET HOSPITAL,
TAUNTON.

HOUSE SURGEON (male) required end of January. Salary, rate of £125 p.a., board, residence and laundry, and retention of certain fees.

Applications, with copies of not more than three recent testimonials; to F. J. I. Stacey, Secretary.

ROYAL VICTORIA INFIRMARY,
Newcastle-upon-Tyne.

The House Committee by Resolution declare vacant the office of HONORARY SURGEON.

According to statutory provision every candidate must be a registered Graduate in Surgery of any University recognized by the General Council of Medical Education and Registration of the United Kingdom, or a Registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner.

Applications must be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than Thursday, January 27th, 1938. The appointment will be made on February 3rd, 1938.

Personal canvassing will be considered a disqualification for office.

S. DUNSTAN,

January 10th, 1938. House Governor and Secretary.

ROYAL HALIFAX INFIRMARY,
(250 Beds.)

RADIOLOGIST.

Applications are invited for the above appointment from fully qualified registered Medical Practitioners who have had experience in diagnostic and therapeutic radiology, and who possess a recognized Diploma in Radiology.

The salary will be £700 per annum, and a private practice is to be purchased. Particulars and conditions can be obtained from the undersigned.

Applications, stating age, qualifications and experience, accompanied by the originals of not more than three recent testimonials, must be received by the undersigned not later than Thursday, January 20th, 1938. Special application forms are not required.

A. MIDDLETON,

January 10th, 1938. Secretary.

SWINDON AND NORTH WILTS VICTORIA
HOSPITAL.

Applications are invited for the post of HOUSE SURGEON, male, British or Irish, unmarried. Salary £125 per annum, with board, residence and laundry.

Appointment is for six months in the first instance. There are two residents. The hospital is fully equipped for general work and the specialties. Private beds; no obstetrics. The post is suitable for a recently qualified man, and there is time for reading. Applicants must be registered under the Medical Act.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by January 25th.

KENNETH N. KNAPP,
Secretary.

THE GLOUCESTERSHIRE ROYAL
INFIRMARY AND EYE INSTITUTION,
GLOUCESTER. (225 Beds—Five Residents.)

Applications are invited for the post of RESIDENT SURGICAL OFFICER (male), salary at the rate of £200 per annum, with board, residence and laundry. Candidates must be fully qualified and unmarried and have held previous house appointments. The appointment is for twelve months, which may be extended.

Applications, stating age, qualifications and nationality, together with not less than three recent testimonials, should be received by the undersigned not later than Wednesday, January 26th.

The elected candidate will be required to enter upon his duties on Thursday, February 3rd next.

F. J. SYMONS,

January 6th, 1938. Secretary.

ST. ANNE'S HOME, ALTRINCHAM,
Cheshire.

Wanted, a RESIDENT SURGICAL OFFICER for the above Hospital (50 beds). Must be fully qualified. Salary £200 per annum, with board, apartments, etc. This Hospital is the Ear, Nose and Throat Department of the Manchester Hospital for Consumption and Diseases of the Ear, Nose, Throat and Chest, and duties include attendance on two mornings a week at the Out-Patient Dept., Manchester.

Applications, with copies of testimonials, to be sent not later than January 22nd to W. HUNT, Secretary, 45, Hardman Street, Manchester 3.

THE LONDON CHEST HOSPITAL,
Victoria Park, E.2.

(Bus, Tram and Rail, Cambridge Heath L. and N.E. Railway).

A vacancy for a HOUSE PHYSICIAN (male) will occur on March 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence and laundry provided.

Applications, with copies of testimonials (three), should be sent to the Secretary on or before Monday, January 21st, 1938.

THE ROYAL PORTSMOUTH HOSPITAL,
PORTSMOUTH.
(Six Resident Medical Officers.)

Applications are invited for the posts of:

(1) HOUSE PHYSICIAN (Male),
(2) HOUSE SURGEON (Male) to the Orthopaedic and Fracture Department.

(3) CASUALTY OFFICER (Male).

Salaries £139 per annum each with Board, etc. All to commence on March 1st.

Six months' appointments and enable on completion of term for extension or other resident posts. Applications, stating age, nationality and full details, with copies of three testimonials, to be sent to the undersigned on or before February 14th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,

Secretary.

TORBAY HOSPITAL TORQUAY
(165 Beds.)

HOUSE PHYSICIAN (male) required immediately. Salary £175 per annum with board, residence and laundry. Candidates must be fully qualified, registered and unmarried.

Applications, stating age, nationality, qualifications and experience, to be received as early as possible by the undersigned, with copies of not more than three recent testimonials.

January 10th, 1938. E. L. GRIST,
Secretary.

LOCUM TENENS.

Owing to illness, applications are invited for a Locum Tenens in respect of the above.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON required (General Surgery). Duties to commence forthwith. The hospital contains 300 beds, includes the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice. Candidates must be registered under the Medical Act, and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum. Board, furnished rooms and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned.

Wolverhampton. W. H. HARPER,
January 10th, 1938. House Governor.

THE BUCHANAN HOSPITAL,
ST. LEONARDS-ON-SEA.
(103 Beds.)

HON. SURGEON.

Applications are invited for the post of Hon. Surgeon to the above Hospital.

The appointment will be made subject to the statutes and rules of the Hospital, copies of which may be obtained from the undersigned.

Any candidate occupying any member of the Executive Committee shall be disqualified.

Applications, together with twelve copies of three recent testimonials, must be sent to the undersigned on or before Friday, February 4th, 1938.

FRANK HART, Secretary.

THE JESSOP HOSPITAL FOR WOMEN,
SHEFFIELD. (151 Beds.)

The Board of Management invite applications for the post of RESIDENT ANAESTHETIST (female), for a period of six months, commencing immediately.

Salary, £100 per annum, together with board, residence and laundry.

The candidate appointed will be expected to carry out other House Surgeon duties.

Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.

DAVID OSWALD,
Superintendent and Secretary.

WEST KENT GENERAL HOSPITAL
(Incorporated)
 Maidstone (175 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN who must be a male of English nationality and unmarried. He will have charge of 30 Medical beds and 16 Maternity beds. Experience in maternity is essential.

Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess required qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before February 2nd, 1938. The successful candidate will be required to take up residence on February 14th, 1938.

EDWARD J. GREGG,
House Governor and Secretary.

Date

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4. **DEVON**.—Unopposed country. Panel 300. £720 last year. Premium £1,380. House, rent.
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6. **BRISTOL**.—Panel 1,360. Receipts £1,260. Premium £2,700. House, rent.
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8. **LANCS**.—Panel 745. £1,200 p.a. Premium £1,350. House, sale or rent.
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12. **S. WALES**.—Country. £400 p.a. Good scope. One year's purchase. House, sale or rent.
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SOMERSET.—DEATH VACANCY. Country. About £350 p.a. Panel 318. Visiting fees 5/-. Detached house, 4 bed., etc. 1 acre. rent £75 p.a.—3.

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ESSEX SUBURB.—ABOUT £750 P.A. Panel approx. 450. Fees 3/6 to 7/6. Premium 2 years' purchase or offer. Convenient house, 4 bed., garden, etc.—7.

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EVELINA HOSPITAL FOR SICK CHILDREN,
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Applications are invited for the post of **HOUSE PHYSICIAN (male)** for six months from February-12th, 1938 (first two months in the Casualty Department). Salary at the rate of £120 per annum, with board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained, not later than first post on January 19th.

W. H. SIDNELL,
House Governor.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, **JUNIOR HOUSE SURGEON (male)**. Salary £150 per annum with board, residence and laundry. No out-visiting. Candidates must hold registered qualifications in medicine and surgery. The appointment will be terminable by one month's notice. Applications, stating age and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER,
Secretary.

KING'S COLLEGE HOSPITAL.

The Committee of Management invite applications for the post of **ASSISTANT PHYSICIAN**. Applications, with copies of three testimonials, should be sent before February 8th, 1938, to the House Governor, King's College Hospital, Denmark Hill, S.E.5, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

LONDON HOSPITAL, E.1

Applications are invited for the post of **SURGICAL FIRST ASSISTANT AND REGISTRAR**. Candidates must be Fellows of the Royal College of Surgeons. The appointment is for one year, but is renewable annually, on application, for two further periods of one year. Salary £330 per annum payable by the Hospital and Medical College jointly. Applications should arrive at the Hospital not later than by the first post on Saturday, February 12th.

ARTHUR G. ELLIOTT,
House Governor.

METROPOLITAN HOSPITAL,
London, E.8.

Applications (male) are invited to fill a vacancy on the **HONORARY ANAESTHETISTS STAFF**. The duties will be to attend the hospital each Wednesday morning for an Ear, Nose and Throat Session. There is an honorarium of £25 per annum attached to the post.

Applicants should apply to the undersigned by January 19th next, giving such evidence of their fitness for the post as they care to submit.

FRANK JENNINGS,
House Governor and Secretary.

POPLAR HOSPITAL FOR ACCIDENTS
East India Dock Road, Poplar, E.14.

The Committee invites applications for the appointment of **SECOND RESIDENT OFFICER (male)** at a salary at the rate of £175 per annum, all found. Candidates must have held appointments as House Surgeon at a Hospital.

Applications must be accompanied by a statement of the candidate's qualifications and forwarded to the Secretary, with three recent testimonials, not later than Tuesday, January 18th, 1938. The appointment is for a period of six months.

ROYAL MASONIC HOSPITAL,
Ravenscourt Park, W.6.

A post of **RESIDENT SURGICAL OFFICER (male)**, one of three Residents, will be vacant on March 1st, 1938. Salary at the rate of £250 per annum, with board, residence and laundry. The appointment is for six months. Candidates must be registered, and must have held recent appointments at a general hospital. The Institution (145 beds at present, but to be increased) is primarily for paying patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment, etc.

Applications, stating full particulars, to be sent on or before 24th inst., to the Honorary Secretaries, from whom further information may be obtained.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of **HOUSE SURGEON (Two, male, unmarried)** at this hospital's Country Branch at Brockley Hill, Stanmore, Middlesex. 278 beds (160 cases of surgical tuberculosis).

Salary £150 per annum, with board, quarters and laundry. The appointments are for six months. Duties to commence, one on February 1st and one on March 1st.

Applications, with copies of testimonials, should be sent to the Secretary, 234, Great Portland Street, London, W.1, not later than January 15th.

THE HOSPITAL FOR SICK CHILDREN,
Great Ormond Street, London, W.C.1.

Applications are invited from registered medical practitioners for the post of **CASUALTY MEDICAL OFFICER**. Salary £175 per annum. Duties to commence on February 7th, 1938.

The appointment is a half-time one and non-resident, tenable in the first instance for six months.

Applications must be received by noon on Monday, January 31st, 1938, and candidates must be prepared to attend for interview at the Hospital on Wednesday, February 2nd, 1938, at 4.45 p.m.

Full details of the appointment and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
January, 1938. Secretary.

THE NATIONAL TEMPERANCE HOSPITAL,
Hampstead Road, London, N.W.1.

Applications are invited for the post of **HONORARY ANAESTHETIST**. The successful candidate will be required to attend on Thursday mornings and in cases of emergency.

Thirty copies of application, giving full particulars, together with copies of not more than three recent testimonials, should be sent to the Secretary by January 19th.

Candidates will be required to call upon members of the Honorary Staff.

THE NATIONAL TEMPERANCE HOSPITAL,
Hampstead Road, London, N.W.1.

Applications are invited for the post of **MEDICAL REGISTRAR**, which will become vacant on February 1st, 1938. Candidates must be Graduates in Medicine of a University of the United Kingdom, or a Member of the Royal College of Physicians of London. Honorarium 40 gns.

Applications, accompanied by not more than three testimonials, to be addressed to the Secretary by January 19th.

THE QUEEN'S HOSPITAL FOR CHILDREN,
Hackney Road, London, E.2.

HOUSE SURGEON required March 1st, 1938. **CASUALTY OFFICER** required March 1st, 1938. Some Ophthalmic work additional.

Six months' appointments. Salary at the rate of £100 per year, with board, lodging and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before February 4th, 1938.

CHARLES H. BESSELL,
January 1st, 1938. Secretary.

THE BELGRAVE HOSPITAL FOR CHILDREN,
Clapham Road, S.W.9.

The Committee of Management invite applications for the post of **ASSISTANT PHYSICIAN**. Candidates must be graduates in medicine of an English University and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of 50 guineas per annum attached to the post.

Applications, with copies of testimonials, must be delivered to the undersigned by Tuesday, February 1st, from whom further information may be obtained. By order,

THOMAS CLAPHAM,
Secretary.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.

JUNIOR HOUSE SURGEON (male) required. Salary at the rate of £120 per annum, with board, residence and laundry. Medical and Surgical qualifications required. Eligible for Senior post at £150 per annum after a period of satisfactory service.

Applications, together with copies of three recent testimonials, to be sent to the Honorary Medical Superintendent.

MAIDENHEAD HOSPITAL, BERKSHIRE.
(56 Beds.)

Applications are invited for the post of **RESIDENT MEDICAL OFFICER (female)**, vacant February 1st, for a period of six months. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, with copies of testimonials, should be received by the undersigned by January 26th, 1938.

R. J. FANNING,
January 5th, 1938. Superintendent-Secretary.

NORTH ORMSBY HOSPITAL,
MIDDLESBROUGH.
(192 Beds)

RESIDENT SURGICAL OFFICER (male, and unmarried) required. Salary £175 per annum, with board, residence and laundry. Applications, stating age, qualifications, experience (if any), with copies of three recent testimonials, should be sent to the undersigned.

GEORGE WATTS,
Secretary-Superintendent.

PENDYFFRYN HALL, PENMAENMAWR.

Wanted, **ASSISTANT PHYSICIAN (male, unmarried)** to commence duty immediately. Salary £250, with board, residence and laundry. Experience in pneumothorax work, etc., essential. Apply to Medical Superintendent, stating age and experience, and enclosing testimonials.

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GOOD MIDDLE AND WORKING-CLASS PRACTICE.—URBAN DISTRICT, near HALIFAX.—Panel patients 944. Average receipts £802 p.a. Distinct scope up to £1,300 p.a. House, rental £52 p.a. Premium £1,500, including Surgery fittings.—No. 2811.

BRADFORD.—MIDDLE AND BETTER WORKING-CLASS PRACTICE.—Old-established, held by vendor six years. Average receipts for last three years £1,460. Number of panel patients 947. Corner house, rental £75 p.a. Premium 14 years' purchase. Receipts for current year showing an increase.—No. 2793.

PARTNERSHIP, WITH SURGICAL SCOPE, IN MIDDLE AND UPPER-CLASS PRACTICE. near LEEDS.—Held by vendor for 24 years. One-third share is offered at two years' purchase with view to relinquishing practice in about a year. Receipts average £1,961 for past three years. Panel patients 450. Good house for sale £2,000. Good garden, tennis court and two garages.—No. 2816.

YORKSHIRE, WEST RIDING, WORKING-CLASS PRACTICE.—Average receipts last three years £927. Number of panel patients about 770. House, rental £52. Purchase price 14 years. Surgery fittings and drugs £50.—No. 2815.

NEAR LANCASTER, OLD-ESTABLISHED PRACTICE.—BEAUTIFUL COUNTRY DISTRICT. Held by vendor 21 years. Average receipts £1,611. Panel patients 847. Detached house at valuation, 3 entertaining rooms, 6 bedrooms, electric light. Garden 3 acres. Orchards, paddock and plantation, about three acres in all. Two loose boxes, two garages.—No. 2818.

MIDLANDS.—COUNTRY PRACTICE.—Sited in good hunting district and near golf course. Average receipts £1,100 p.a. Panel patients 260. Freehold house £1,100. Premium 14 years' purchase, but £1,500 would be acceptable.—No. 2813.

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Practices and Partnerships for Disposal (continued).

25 S. COAST.—PARTNERSHIP in mixed PRACTICE, averaging £2,800 p.a. in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one-half share two years' purchase.

26 W. OF ENGLAND Inland Watering Place.—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.

27 LONDON, E.1.—Old-established PRACTICE of about £800 p.a., including appointments about £150 p.a. and panel 1,300. Good house (6 bedrooms, etc.), to rent or purchase. Very good scope for increase. Premium £1,500, to include contents of surgery and waiting room, etc.

28 NORTHERN IRELAND.—Middle and working-class PRACTICE in suburb of important seaport. Receipts past year, £963. Panel nearly 1,200. Well-situated house (5 bedrooms), garage, etc., to rent. Practice capable of expansion. Premium £1,400.

29 HOME COUNTY.—PARTNERSHIP in country town Practice, averaging over £4,000 p.a. (increasing), within 25 miles of London. Good appointments and panel about 2,000. Suitable house obtainable. Incoming partner should be aged about 30, must possess F.R.C.S. and have had one year's P.G. work. Good hospital. One-fourth share at first at two years' purchase.

30 MIDLANDS.—Unopposed country PRACTICE in very pleasant hunting district. Cash receipts last year, £1,097, including good appointments and panel about 500. Well-built house (5 bedrooms, etc.), with good garden and garage. Main electric light and water supply. Price £1,100 freehold. Golf, etc. Premium £1,600.

31 S. COAST, popular seaside resort.—Small good middle-class non-dispensing PRACTICE, £350/£400 p.a. No panel. One appointment worth £50 p.a. Maisonette (3 bedrooms, etc.), to rent at £160 p.a. Premium £500.

32 MIDLANDS.—Easily worked PRACTICE in very attractive village about 70 miles from London. Cash receipts, 1937 (to November 25th), £696. Panel 500. Detached modern house (4 bed and dressing-rooms), gas, electricity and main drainage, garden over an acre. Price freehold, £1,500. Premium one and a-half years' purchase, to include stock of drugs.

33 AUSTRALIA.—PRACTICE in small township in Victoria. Receipts last year, £880. Specially built house to rent at £80 p.a. Good climate. All kinds of sport. Premium £500 English currency, including drugs and dispensary fittings.

34 YORKSHIRE (N.R.).—Steadily increasing country PRACTICE between £1,400/£1,500, including appointments and panel worth £400 p.a. Extremely attractive house (5 or more bedrooms), garage and small garden, for sale. Good schools and sport. Premium one and a-half years' purchase.

35 SURREY.—PARTNERSHIP in sound old-established, and steadily increasing Practice averaging £4,445 p.a. in outlying residential suburban district. Panel 2,000. Visits 3/6 to 21/-. Suitable house obtainable. Premium for share of 11/39ths £2,500.

36 LONDON, E.—Middle-class PRACTICE over £2,400 p.a., in outlying district. Panel 2,870. House (4 bedrooms), in excellent repair, with garage and garden, for sale. Premium two and a-quarter years' purchase.

37 S. COAST.—PARTNERSHIP in Ophthalmic Practice, about £1,700 p.a. One-half share would be sold to suitable man (who must possess the D.O.M.S.) at two years' purchase. Good scope.

38 N.E. COAST.—Old-established and easily worked middle-class PRACTICE, over £1,150 p.a., in seaport town. No panel. Residence facing sea, for sale. Premium (to include furnishings and fittings of consulting rooms, small X-ray plant, etc.), £1,000.

39 ITALIAN RIVIERA.—Small good-class non-dispensing season PRACTICE. Further details on application.

40 BRISTOL.—PARTNERSHIP in increasing practice in growing suburb. Cash receipts past 12 months, £2,125. Panel £200. House, with 4 bedrooms and surgery accommodation, to rent at £60 p.a., also branch surgery. Scope. Premium one-half share £2,000, to include share of drugs, etc.

41 S. MIDLANDS.—PARTNERSHIP in Practice between £2,300/£2,400 p.a., in county town. Panel about 2,000. House (6 bedrooms), large garage and garden, for sale or rent. One-third share (after preliminary Assistantship) at one and three-quarter years' purchase, or near offer.

42 S. WALES.—Steadily growing middle-class PRACTICE doing about £500 a year in residential village, easy distance of large town. Modern semi-detached house (5 bedrooms), garage and garden. Price £1,350 leasehold. Scope. Premium one year's purchase.

43 SEASIDE TOWN, under an hour from London.—PARTNERSHIP (one-half share) in chiefly middle-class Practice, over £4,000 p.a. Panel 650. Corner house (5 bed and dressing-rooms), on main road, for sale. Scope for increase. Premium two years' purchase.

44 E. MIDLANDS.—Country PRACTICE, averaging nearly £650 p.a., in pleasant village. Panel 500. Charming stone-built house (6 bedrooms), central heating, electric light, power and main water, garage, and garden, about one and a-half acres, for sale. Scope. Premium two years' purchase.

45 LONDON, S.W.—Well-established Medical Woman's PRACTICE in outlying suburban district. Receipts average £960 p.a. No panel. Purchaser could have use of surgery premises, living accommodation and services by arrangement. Premium one and three-quarter years' purchase.

46 EASTERN COUNTIES.—PARTNERSHIP in good middle-class Practice, £2,450 p.a., in county town. Panel 1,200. Good house (5 bedrooms), in perfect condition, to rent. Premium one-half share two years' purchase.

47 N. WALES BORDER.—PARTNERSHIP (with early succession) in old-established County Practice, about £2,500 p.a., in important town. No panel. Surgery premises could be purchased or rented. The private residence is available if required. A share up to one-half would be sold at first with early succession. Premium two years' purchase.

48 S.W. OF ENGLAND.—PARTNERSHIP in steadily increasing Practice, averaging over £1,500, in beautiful country district near coast. Panel 1,050. Nice house (7 bedrooms), garage and garden. Rent £120 inclusive. Good sport. Premium one-half share two years' purchase.

49 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICE, run by two men in partnership. Receipts about £1,300 and £700 respectively. Premium two years' and one and a-half years' purchase respectively. Or either would be sold separately.

Purchasers can raise additional capital for the purchase of approved practices or shares. Particulars will be forwarded on application.

All communications to be addressed to The Manager.

Manager:
W. M. SCOBIE.

SCOTTISH BRANCH, 21, Alva Street, Edinburgh, 2

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Edin-21 2101

FOR DISPOSAL.

A. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,300.

B.—NORTHUMBERLAND—County Town.—

Middle working-class non-dispensing PRACTICE, averaging £700 per annum. Panel 640. Suitable house, garden and garage. Low premium will be accepted for practice for early purchase. Lease of house will be arranged.

For further details apply The Manager, 21, Alva Street, Edinburgh.

Terms on which the business of the Branch is transacted will be submitted on application to the Branch Manager, to whom all communications should be addressed.

British Medical Bureau

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1 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

2 MIDLANDS.—Old-established middle and upper-class non-dispensing PRACTICE, about £1,200 p.a., in prosperous town. No panel. Visits 7/- . House with 3 bedrooms, etc., for sale or rent. Scope. Premium one and a-half years' purchase.

3 N. WALES.—Sound old-established PRACTICE, about £1,500 p.a., in industrial village with beautiful surrounding country. (Appointments and panel return about £1,000 p.a.). Detached house (4 bedrooms), garage and garden. Price freehold, £2,000. Premium two years' purchase.

4 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 300. House (5 bedrooms), with large garden and garage. Price freehold, £3,250, or rent £150 p.a. Scope. Premium two years' purchase.

5 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year, £2,277. Expenses light. Premium £2,460 cash or £2,600 terms (English currency). Purchaser should be at least 30 years of age with experience.

6 SEASIDE TOWN, within an hour of London.—Very old-established PRACTICE about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), with large garage and garden, for sale or rent. Good scope. Premium £1,000.

7 DEATH VACANCY.—SOMERSET.—Old-established PRACTICE in village situate at foot of the Mendips. Cash receipts, 1937, £345; including £30 from clubs, etc., and panel of 318. Newly built detached house in acre of ground, with 4 bedrooms, etc. Large garage. Central heating. Electricity. Rent £75 p.a.

8 S. MIDLANDS.—Country town PRACTICE of over £1,100 p.a. Small club and panel, 775. Visits 4/- to 10/6, medicine extra. House with main water, gas and electricity, 4 bedrooms, garage and garden. £40 p.a. on lease. Premium one and three-quarter years' purchase.

9 EASTERN COUNTIES.—Very old-established PRACTICE, averaging £2,600/£2,700 p.a., in market town in agricultural district. Panel over 2,350. Large well-built modern residence with garage and good garden, to let. Premium two and a-quarter years' purchase.

10 DEATH VACANCY.—LEYTONSTONE.—Old-established mostly working-class PRACTICE, doing about £600, in populous district. No panel, but ample scope in this direction. Nine-roomed house for sale.

11 BRITISH WEST INDIES.—Increasing PRACTICE in first-rate town. Receipts last year, £1,750. Good house with ample accommodation, garage and good garden, for sale or rent. Ideal climate. Good society and sport. Scope for surgery or V.D. Premium £1,500, to include drugs, etc.

12 LONDON, S.W.—Medical Woman's PRACTICE in outlying suburban district. Receipts past year, £200. Capable of increase by one residing on premises. Panel 110. Rent of consulting and waiting rooms, £30 p.a.

13 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937,

about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

14 E. MIDLANDS.—Non-dispensing PRACTICE, averaging £1,550 p.a., in good town. Small panel. Visits 6/- to 10/6. Convenient house with garage and small garden, to rent. Premium one and a-half years' purchase.

15 S. WALES.—Old-established PRACTICE, £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Prem. one and a-half years' purchase.

16 S.E. LONDON.—Old-established middle and working-class non-panel PRACTICE, averaging £1,730 p.a., including appointments worth about £100. Good house (5 bedrooms), garage and fair-sized garden, to rent. Scope. Premium one and a-half years' purchase.

17 INDUSTRIAL TOWN in the WEST OF ENGLAND.—Old-established and steadily increasing PRACTICE, averaging over £1,800 p.a. Panel about 560. House to rent. Premium £1,600.

18 LONDON, S.E.—Medical Woman's PRACTICE doing about £300 p.a., in suburban district. No panel. Plenty of scope. Semi-detached corner house. Price £750 or might be let. Could be increased by one giving more time to practice. Premium one and a-half years' purchase.

19 S.W. OF ENGLAND.—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.). Large house (3 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting, golf, etc. Premium one and three-quarter years' purchase.

20 W. OF ENGLAND.—Old-established middle-class PRACTICE, about £1,400 p.a., in good town. Selected panel about 300. Visits 5/- to £1 1s., medicine extra. Very convenient and well-situated detached non-basement house (7 bedrooms), with nice garden and large garage, to rent. Premium one and a-half years' purchase.

21 WESTERN AUSTRALIA.—Non-dispensing PRACTICE in chiefly dairy farming district. Receipts average £1,815 p.a. House containing 6 main rooms, etc., and about four acres of grounds. Price £1,000 cash, or rent £100 p.a. Excellent climate. District rapidly progressing. Local hospital. Premium £1,250.

22 S. OF ENGLAND, Important Town.—PRACTICE averaging £1,000 p.a., exclusively physio-therapy. Fees 10/6 to £1 1s. Scope for X-ray work. Prospect of appointment on hospital staff. Premium to include certain equipment, £1,250.

23 EASTERN COUNTIES.—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 2½ acres) with 7 bedrooms, etc., garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.

24 LANCS.—Well-established non-panel PRACTICE, averaging over £4,000 p.a., in manufacturing town. House with 5 bedrooms and surgery premises with separate entrance, large garage and good garden, for sale. Price £2,500 freehold. Premium £6,000 or near offer.

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LIVERPOOL.—Very old-established middle-class PRACTICE in residential district. Cash receipts £1,100 p.a. Panel 599. Good scope for energetic man. Excellent house, 3 reception, 5 bedrooms, etc. Price £700. Premium—£1,600. Vendor retiring.—No. 1046.

YORKS COAST.—Well-established mixed Panel and Private PRACTICE in Seaside town. Cash receipts last year £884. Panel 755. Scope, as district developing. Excellent house, with modern conveniences, 2 reception, 4 bedrooms, 2 Professional rooms, garage and small garden. Rent on lease. Premium—1½ years' purchase.—No. 1054.

MANCHESTER.—PARTNERSHIP in mixed Panel and Private Practice. Average cash receipts £2,875 p.a. Panel over 2,500. Scope. Excellent house, 3 reception, 4 bedrooms, small garden. Rent £52 p.a. Premium—one-half share—2 years' purchase.—No. 1038.

NEAR BUXTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £740 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 989.

MANCHESTER.—Well-established mixed Panel and private PRACTICE, offering scope for increase. Cash receipts last year £1,222. Panel 800. Good house, 2 reception, 5 bedrooms, 2 Professional rooms. Premium—1½ years' purchase.—No. 1009.

YORKSHIRE (W.R.).—Old-established mixed PRACTICE, averaging £860 p.a. Panel 701. Scope for increase. Good house, with excellent garden, to rent at £30 p.a. Premium—£1,350 (to include drugs and fittings).—No. 1037.

LANCS TOWN.—Old-established mixed-class PRACTICE capable of increase owing to ill-health of Vendor. Cash receipts over £600 p.a. Formerly doing over £1,200 p.a. Panel 620. Good house (freehold), 2 reception, 5 bedrooms, garage and garden. Premium—Practice and house—£2,100.—No. 1019.

NORTH-WEST COAST.—Old-established middle-class PRACTICE in Seaside town. Cash receipts £1,100. Panel 350. Nice house, garage and garden. Premium—1½ years' purchase.—No. 961.

MANCHESTER.—Middle-class PRACTICE in residential suburb: in present hands 44 years. Average cash receipts £1,328 p.a. Select panel of 470. Scope for energetic man. Nice detached house, 3 reception, 4 bedrooms and maids' room, 3 Professional rooms, garage and garden. Rent £80 p.a. Premium—1½ years' purchase. Vendor retiring.—No. 1049.

BEDFORDSHIRE.—Small Country PRACTICE, capable of great increase. Cash receipts £400 £500 p.a. Panel 120. Good house, with ample accommodation. Garage and garden. Rent £56 p.a., or would sell for £800.—No. 1055.

LANCS TOWN.—Old-established PRACTICE with scope for increase. Cash receipts £1,050 p.a. Panel 900. Good house, 2 reception, 5 bedrooms, garage. Rent £70 p.a. Premium—£1,650 (to include book debts, drugs and fittings).—No. 1034.

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SATURDAY JANUARY 22 1938

PRINCIPAL CONTENTS

Diet in General Practice .. p. 157	Leading Articles p. 177
Coal-tar Naphtha for Destruction of Bed-bugs .. 160	Surgery in General Practice: Treatment of Wounds .. 183
Recovery Period in Anterior Poliomyelitis 164	Correspondence 199
Treatment of Poliomyelitis .. 168	Weekly Table of Infectious Diseases 210
Atropine in Post-traumatic Parkinsonism 170	Standardization of Praecordial Leads 187
Retention of Urine after Excision of Rectum 171	Ophthalmological Congress .. 188
	Reviews 174

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BRITISH MEDICAL JOURNAL

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

Diet in General Practice. LESLIE COLE, M.D., F.R.C.P.	157
Coal-tar Naphtha for the Destruction of Bed-bugs. S. A. ASHMORE, B.Sc., and A. W. McKENNY HUGHES	160
The Recovery Period in Anterior Poliomyelitis. NORMAN M. HARRY, M.S., F.R.C.S. (With Chart)	164
Treatment of Acute Poliomyelitis. F. H. MILLS, M.B., B.S.	168
Post-traumatic Parkinsonism and the Effect of Atropine. T. F. MAIN, M.D.	170
Retention of Urine following Excision of the Rectum. H. T. SIMMONS, Ch.M., F.R.C.S.	171

SURGICAL SERIES

Treatment of Wounds—II. W. H. OGILVIE, F.R.C.S.	183
---	-----

CLINICAL MEMORANDA

Abortion with Broad Ligament Cysts and <i>B. welchii</i> Infection. R. RUTHERFORD, F.R.C.S.	173
Pregnancy with Ovarian Dermoid. J. P. HASTINGS, M.D., M.R.C.P.	173

REVIEWS

Surgery of the Chest	174
Radiology and the Law	174
Professor Dreyer	175
Clinical Chemistry	175
Operations on the Eye	175
Motor Alimentary Functions	176
Notes on Books	176

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE:	
Nutrition during Pregnancy	191
Cardiazol Convulsion Therapy	192
The Asthma Problem	193
SOCIETY FOR THE STUDY OF INEBRIETY: Addiction	195
WEST LONDON MEDICO-CHIRURGICAL SOCIETY: Sterility	195

GENERAL ARTICLES AND NEWS

International Health	185
Praecordial Leads	187
Cairo Ophthalmological Congress	188
Croydon Typhoid Inquiry	189
Psychiatric Research Bureau	190
ROYAL MEDICAL BENEVOLENT FUND	190
UNIVERSITIES AND COLLEGES	209
MEDICAL NEWS	212

LEADING ARTICLES

Bug Destruction	177
Dietetic Therapeutics	177

ANNOTATIONS

Treatment of Poliomyelitis	178
Opto-chiasmic Arachnoiditis	179
Artificial Lighting and Weavers	180
A Pioneer in Tuberculosis	180
Action of Coronary Arteries	181
New York Health Records	181
Civil Casualties in Air Raids	182
Irish Dishes	182

SUPPLEMENT

Future of the Family Doctor :
Lord Horder's Address

The PEP Report

PUBLIC HEALTH NOTES	
DISTRIBUTION OF PRACTITIONERS IN SOUTH AFRICA	
B.M.A. AND PUBLIC HEALTH PRACTITIONERS OF PHYSICAL MEDICINE	
CANADIAN HOSPITAL POLICY	
LEEDS MATERNITY SCHEME	
NOTES OF THE WEEK	
OPHTHALMIC PRACTITIONERS	
CORRESPONDENCE	
POSTGRADUATE NEWS	
DIARY OF SOCIETIES	
Association Notices: Vacancies and Appointments; Diary	

LOCAL NEWS

ENGLAND AND WALES—	
Tuberculosis in Wales	196
L.C.C. Mental Health Services	196
Research on Mental Defect	197
The Welfare of Cripples	197
SCOTLAND—	
St. Andrews Institute	197
Scottish Universities By-election	197
Training in Psychiatry	198
The Nursing Problem	198
FRANCE—	
Freak Deaths	198
Hospitalization of Children	198
Professor René Leriche	199
The Forty-hour Week	199

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS	210
EPIDEMIOLOGY NOTES	211
VITAL STATISTICS, ENGLAND AND WALES, 1937	212

CORRESPONDENCE

Pasteurization of Milk	R. J. MAULE HORNE, M.B., C. O. HAWTHORNE, M.D.	149
Gastro-enteritis due to <i>Esch. coli</i>	C. O. STALLYBRASS, M.D.	203
Use and Abuse of Anti-epileptics	C. H. BROWNING, M.D., F.R.S.	203
Early Diagnosis of Diphtheria	HAROLD J. FARDON, M.D.	203
Lymphangioplasty	W. SAMPSON HANDLEY, F.R.C.S.	201
Lower Abdominal Pains of Cervical Origin	T. F. TODD, F.R.C.S.	201
Shortage of Calcium in the Diet	IAN MURRAY, M.D.	202
Treatment of Burns	RICHARD BELL, M.B.	202
Rehabilitation Centres	W. J. EASTWOOD, M.Ch.	202
Insulin for Local Sepsis	O. LEYTON, M.D.	203
Lymphoid Tissue of the Alimentary Canal	ERNST PHILIPP, M.B.	203
Treatment of Pneumonia	HERBERT W. NOTT, M.R.C.S.	203
Correct Footwear	DOROTHY E. MASON, M.R.C.S.	203
The Problem of the Final M.B.	B.S. LOND. MAJOR GREENWOOD, D.Sc., F.R.S.; Sir E. GRAHAM-LITTLE, M.D.	204
Who Owns X-Ray Negatives?	R. BOLLTON MYLES, M.B.; N. S. FINZI, M.B.; C. H. DALTON, M.D.; D. HARCOURT KITCHIN	205
Applying for Hospital Posts		206
Autophytic Dermatitis	FRED H. JDD, M.B.	207
Cataract Extraction during Narcosis	D. V. GIRI, L.R.C.S.	207
Treatment of the Common Cold		207
Large Lipoma simulating Goitre	H. KENRICK CHRISTIE, F.R.C.S.	207

OBITUARY

Douglas Garnett Stoute, M.B., Ch.B.	208
Robert Cross, L.R.C.P.	208
W. Holcroft Cam, M.B., B.Ch.	208
W. L. M. Gabriel, M.B., D.P.H.	208
A. V. Bernays, M.B., M.R.C.S.	208
David M. Barcroft, M.D.	208

THE SERVICES

The Army Dental Corps	209
(For Naval, Military, and Air Force Appointments see SUPPLEMENT)	

LETTERS AND ANSWERS

Position in Defaecation	213
The Development of Obstetrics	213
Angiospasm and Head Injuries	213
The Cause of Acute Rheumatism	214
Care of Hypodermic Syringe	214
Osler in 1877-8	214



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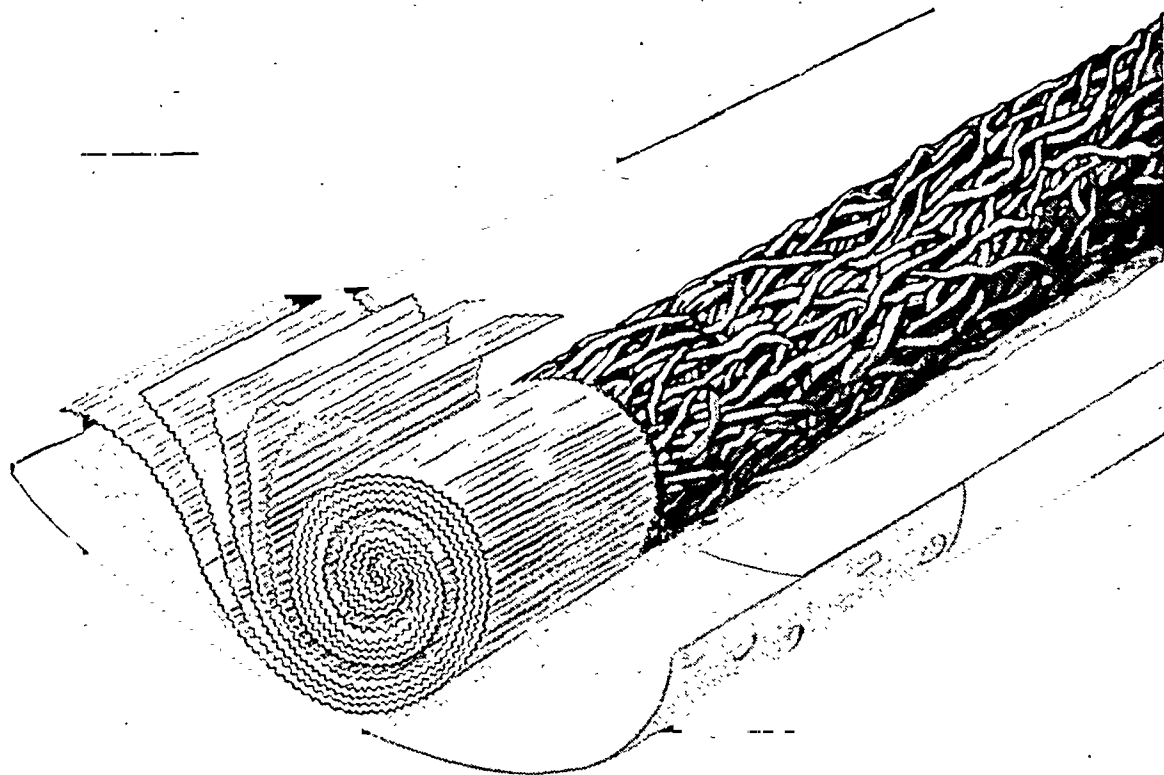
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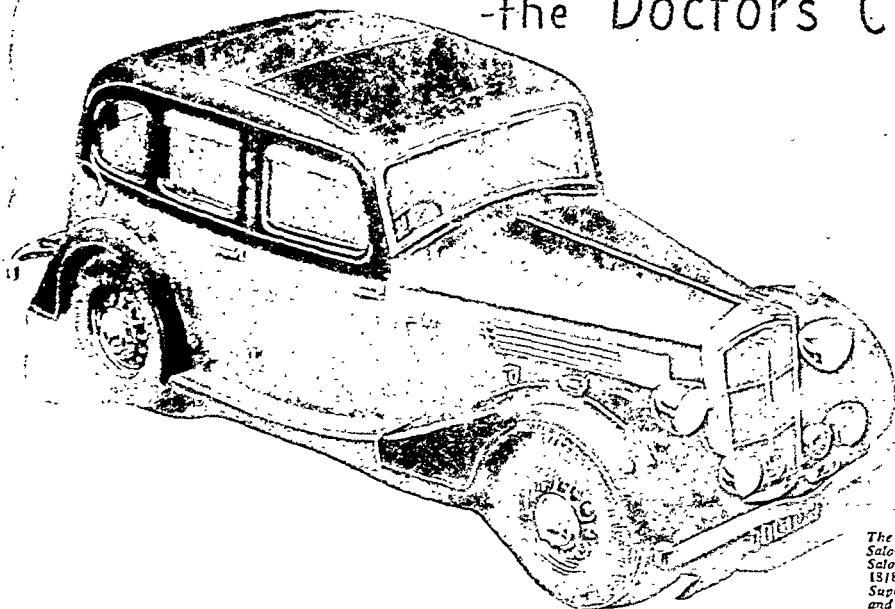


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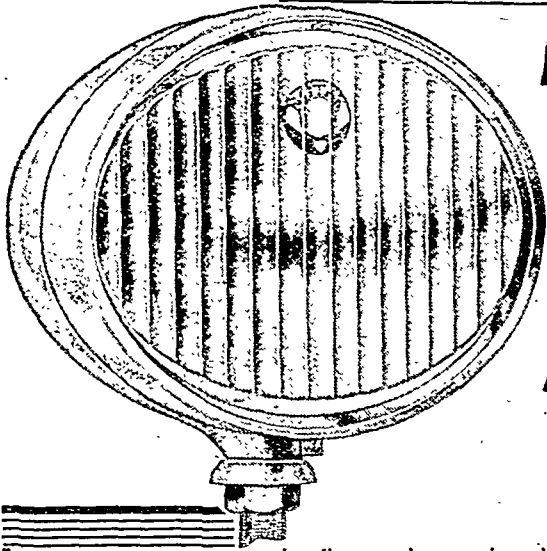
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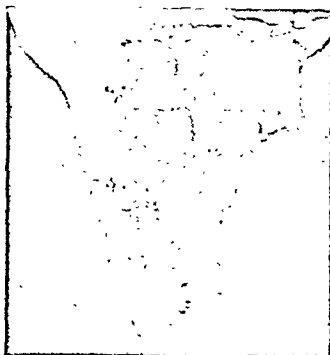
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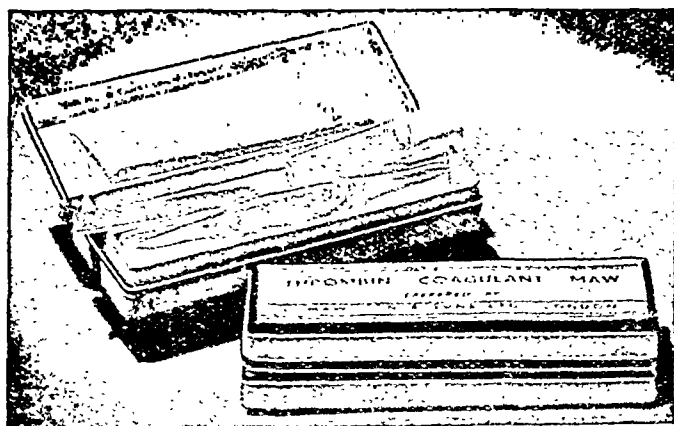
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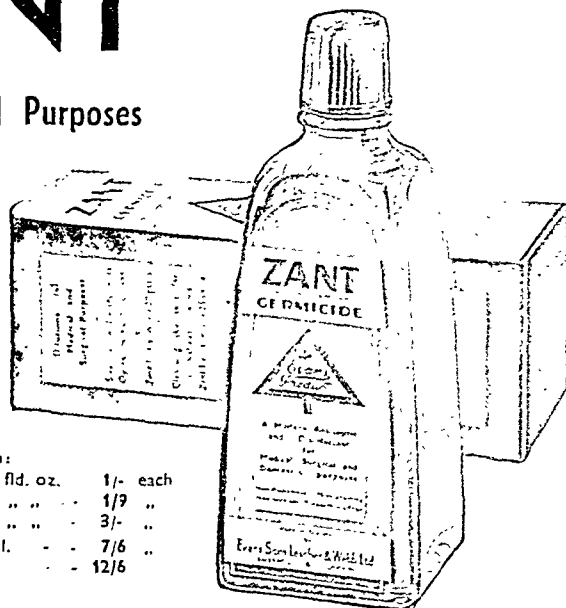
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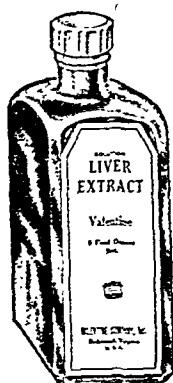
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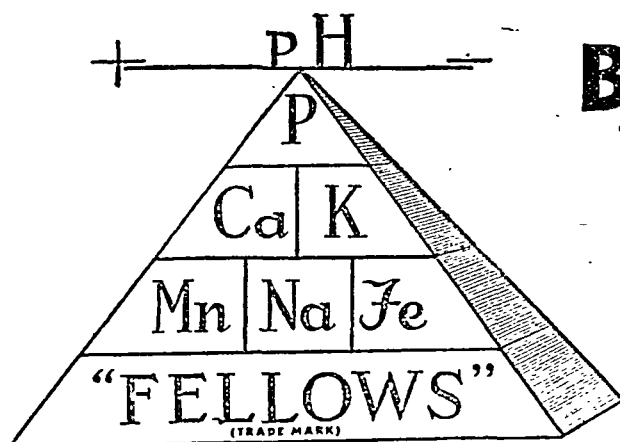
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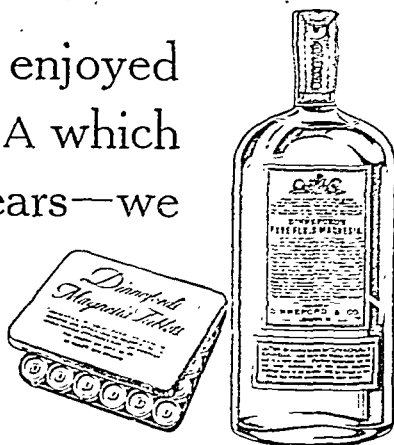
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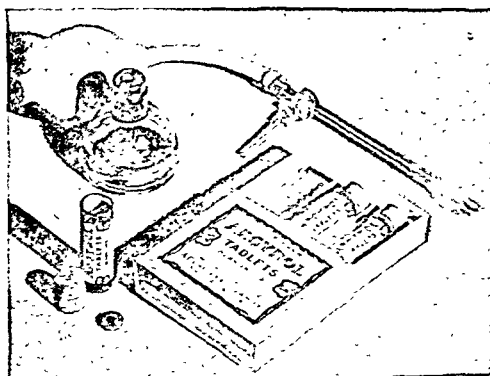
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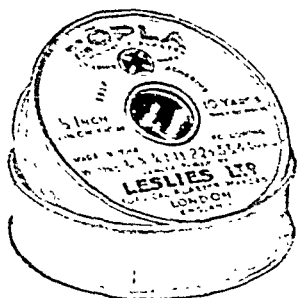
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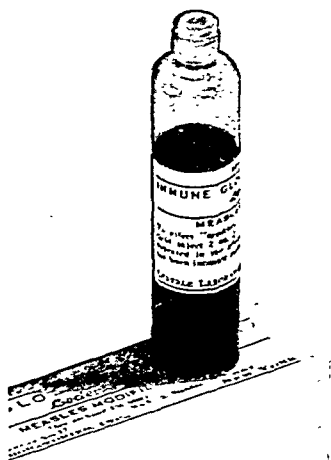
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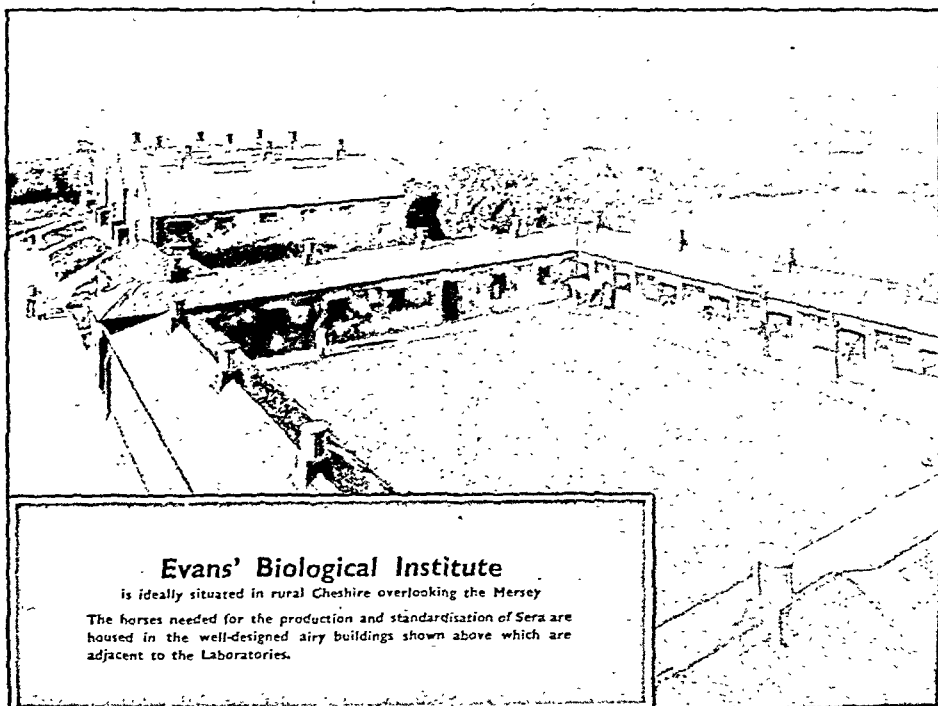
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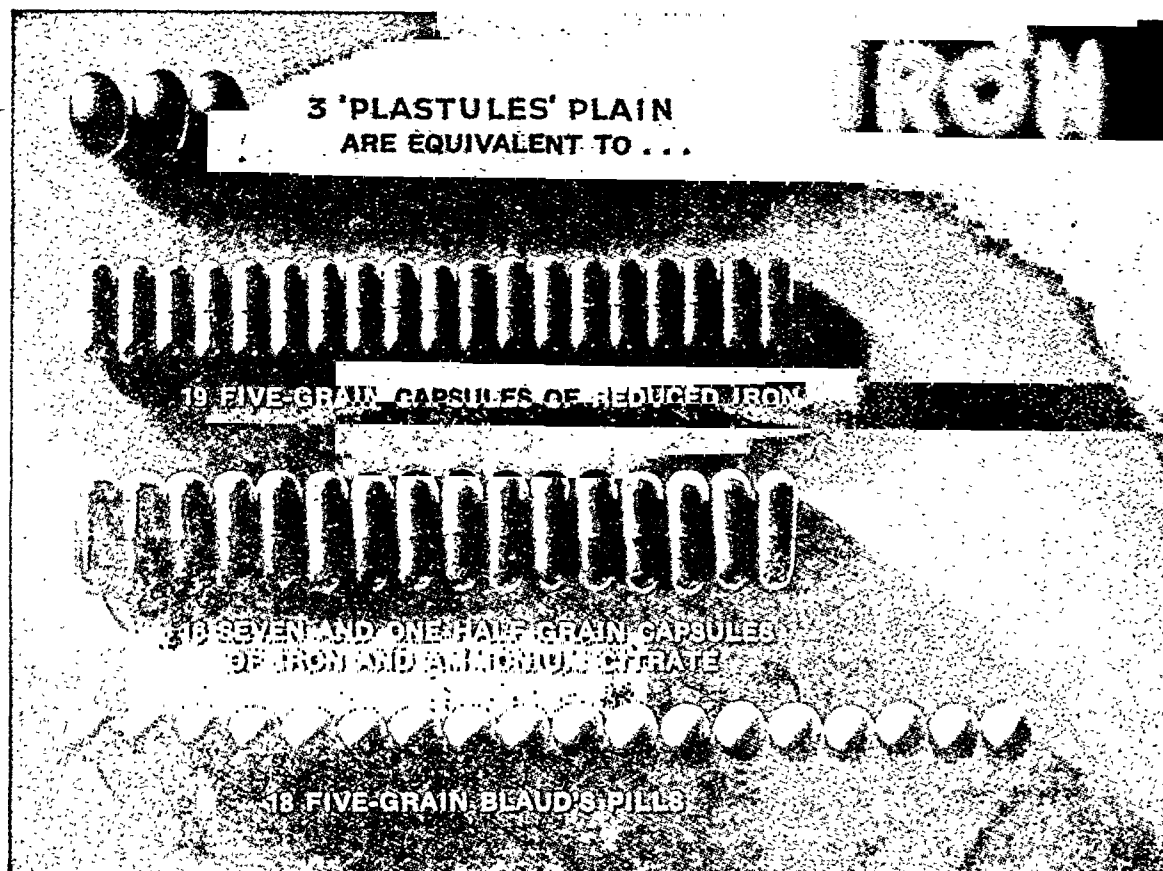
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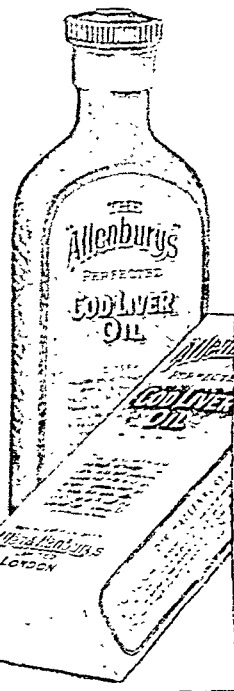
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¹ *Amey Jour. Med. Sci.*, 1931, vol. clxxxii, p. 453
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 22 1938

DIET IN GENERAL PRACTICE*

WITH SPECIAL REFERENCE TO THE AMOUNT OF FOOD GIVEN

BY

LESLIE COLE, M.D., F.R.C.P.

Physician to Addenbrooke's Hospital, Cambridge

The results of treatment by diet are often very different from those aimed at. Sometimes this is because the main idea has been obscured in a mass of comparatively unimportant detail, but more often it is because alteration in one direction has led to deficiency in another. Such errors cannot be avoided unless the constituents of a normal diet are constantly kept in mind, and for this reason these will first be briefly given.

The Normal Diet and its Constituents

For a diet to be normal it must contain enough food. Perhaps it is because this is so obvious that it is so often forgotten. The actual amount required by different people varies much more than books on physiology lead one to suppose. The diet for an "average man" approved by a committee of the Royal Society consists of 100 grammes of protein, 100 grammes of fat, and 500 grammes of carbohydrate. This has a total energy value of 3,400 calories. Many people can maintain health on a much smaller allowance of food or of protein than this, and the tolerance and requirement of fat also vary greatly. The amount of carbohydrate varies very widely, too, but it should always be enough to ensure normal metabolism of fat, and for this the ratio of carbohydrate to fat should not fall below that indicated by Woodyatt's formula, $F = 2C + \frac{1}{2}P$. Finally, in considering quantity it must be remembered that excess may be as harmful as lack.

The importance of vitamins seemed at one time to be overstressed. Recent work, however, by Harris (1935, 1936), Archer and Graham (1936), and others has shown that minor degrees of vitamin deficiency are all too common, and that they often occur in patients on special diets in which the normal vitamin requirement has been overlooked. Diets given in gastric cases are extremely liable to be deficient in vitamin C, and low-residue diets in vitamin B, unless this particular danger is realized and the deficiency corrected. In all diets, therefore, the possibility of such deficiency must be considered.

Every diet must contain certain inorganic constituents, and of these iron, iodine, calcium, and sodium are the ones of which a deficiency may occur. When it does it may result from failure of absorption or excessive loss rather than from actual deficiency in the diet. Witts and others have shown how rapidly many forms of anaemia respond to large doses of iron, but that such response only occurs when the amounts given are far and above those taken

normally. Lastly, every normal diet should contain sufficient roughage, hard food to develop the jaws and keep the teeth healthy, and water.

Deficiency through Dieting

Restriction of diet in one direction may lead to deficiency in another, and the most common of these untoward effects is the result of reducing the food to an amount below the optimum necessary for health. In some cases the reduction is so severe that actual weakness from lack of food occurs. This may happen with diets given for various conditions. In the artificial feeding of infants with diluted milk it is very easy to bring the caloric value too low without realizing it, unless calculations are made to check this. The following is an example of such a mistake.

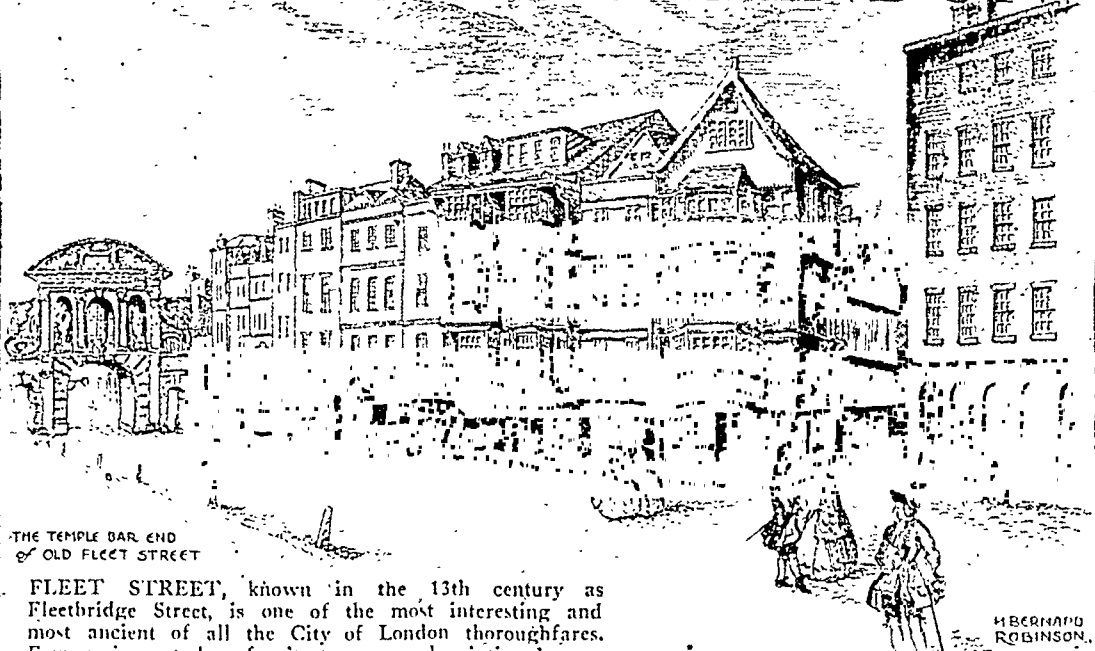
A premature infant weighing six pounds failed to put on weight. She had been given six feeds in the day, each feed amounting to three ounces, consisting of one part milk and two parts water and half a drachm of sugar: half a drachm of cod-liver oil emulsion was also given daily.

For rough-and-ready reckoning it should be remembered that the child of 6 months or under requires approximately 50 calories per pound, and that one ounce of cow's milk or human milk produces 20 calories, one drachm of sugar 15 calories, and one drachm of fat 30 calories. In this case the calorie requirements were 300. The child was actually getting six ounces of milk, 120 calories: three drachms of sugar, 45 calories: and half a drachm of fat, 15 calories: total, 180 calories, or about 120 short of the theoretical requirement. The replacement of water by another ounce of milk per feed, bringing the total calories up to 300, rapidly produced a normal gain in weight. Minor deficiencies through too great dilution of milk are not uncommon, but they can easily be avoided if such a method of calculation is used. When breast-fed children fail to thrive the cause is often too little milk. In such cases the importance of test feeding to find out exactly how much food is being given cannot be over-emphasized.

Diets for gastric and duodenal ulcer cases afford another example of quantity deficiency, particularly those given in the early stages, consisting mainly of milk. In order to maintain strength and weight and promote healing it may be well to give 2,000 or more calories a day. One pint of milk produces approximately 400 calories, so that five pints will be necessary if the diet consists entirely of milk. This diet is difficult and trying for the patient, and so far as the ulcer is concerned there is no reason why more concentrated fluid feeds, variously flavoured and thickened,

* A lecture delivered to the Isle of Ely Division of the British Medical Association at March on October 22, 1937.

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consumption was definitely greater in the obese during exercise, and was more than could be accounted for by the greater work associated with the extra weight or higher respiratory rates. The resting pulse rate tended to be higher in the obese.

If obesity produces these effects in patients whose hearts are healthy its effect on those with a weak or damaged myocardium becomes clearer. The opinions of many distinguished physicians might be quoted in support of the view that obesity tends to shorten life. Rolleston (1932) says: "The long-lived are usually spare and seldom fat, having been thin since middle age." It is also supported by life insurance figures. MacLaren (1929) says that cerebral apoplexy, Bright's disease, nephritis, cardiac disease of uncertain nature, and diabetes mellitus all give a much higher mortality in those over weight. It is supported as well by the biologist. Robertson and Ray (1920) have shown, in white mice, that those with relative paucity of tissue accretion in late life tend to be long-lived. From the evidence there is little doubt that in many the tendency to put on weight is a degenerative change. This is a particularly important point, because in numerous cases it can be prevented.

The Causes of Obesity

Before considering treatment of obesity, however, it is essential to discuss its causes. Du Bois (1927) has divided cases into two main groups; endogenous or constitutional, in which there is frank endocrine abnormality; and exogenous, in which no such cause can be recognized. These groups merge into each other, and while the extremes can be recognized there are a large number of cases in which it is impossible to say how far the exogenous or the endogenous factors predominate. The tendency to put on weight is one of the most variable characteristics in different people; one can eat as much and do as little as he likes and his weight does not vary; another has but to eat an extra potato or omit his daily walk and his weight rises. Such tendencies often run in families, and may be likened to other hereditary metabolic disorders such as diabetes or gout. Whatever may be the primary cause, it is certain that in most people gain or loss depends on supply and demand, the amount of food absorbed and the amount of energy used. The effect of variation of food and exercise differs so much in different people that it is impossible to predict with certainty the result of a particular regime in a particular patient, and the effect must be determined by trial and error. In nearly all cases, however, a decrease in the fat-forming elements of the food—carbohydrate and fat—with increased exercise will cause a loss of weight, but the degrees of each required must be found by experiment.

A word must be said here on the use of thyroid gland in obesity. This is valuable when there is hypothyroidism and in some patients who put on weight at the menopause. When, however, there is no thyroid deficiency thyroid extract should only be used as an adjunct to treatment by diet, massage, and graduated exercises, and in most cases it is unnecessary. If these measures fail, then a careful trial of thyroid is advisable. Treatment of obesity with thyroid alone is usually unsuccessful unless the dose is pushed, and then it may be dangerous. Poulton (1931) suggests that many obese subjects, far from possessing a low metabolism, have it slightly raised. To give thyroid in such conditions without reducing weight may mean that still more work is thrown on a heart which has already too much to do. The patient remains fat and feels very ill.

Method of Reducing Weight

Reduction of weight may be said to depend on the application of these principles. Fat formation is prevented by having less fat and carbohydrate in the diet, and metabolism is stimulated by giving protein and increased exercise. Only if these methods fail should artificial stimulation of metabolism by thyroid be resorted to. In actual practice this means that the diet is made up mainly of lean meat, fruit, and green vegetables, with only enough sugar, starch, and fat to prevent feelings of weakness or hunger. In putting patients on such a diet it is wise to begin slowly so that adjustment to the change may be gradual: the degree of change depends on the individual, but once a diet is found that produces a steady fall in weight there is no need to make it more drastic. The scales are the best guide.

The following example shows the method in practice:

A woman, aged 50, with obesity; weight 14 st. 6 lb. There was no evidence of endocrine abnormality. On July 3, 1937, she was put on a diet of lean meat and fruit and green vegetables, with 140 grammes of carbohydrate per day. By July 31 there had been no change in weight, and the carbohydrate was reduced to 80 grammes. On August 14 her weight was 14 st. 5 lb., so the carbohydrate was further reduced to 60 grammes. On October 16 her weight had fallen to 13 st. 4 lb.

Increase in exercise should also be gradual. Graduated exercises, designed where necessary to improve breathing and posture, should if possible be taught and supervised by a qualified masseuse, supervision being relaxed as the patient becomes proficient. It is essential that such exercises should be done regularly at home every day. Other exercises, such as walking for prescribed distances, cycling, or riding, are valuable, and the degree to which these are necessary must be found by trial in each case. The scales and the patient's feelings are again the best guides. In patients with excessive abdominal fat a surgical belt is often a great aid to increased activity.

In ten consecutive patients with uncomplicated obesity treated as out-patients at Addenbrooke's Hospital during the last year for periods ranging from twelve to forty-eight weeks the average loss of weight was 25 lb. each. Reducing diets and graduated exercises were used in all cases, and in only two were small doses of thyroid given in addition.

Occasionally patients do not respond, and these often come from families in which there is a strong familial tendency to obesity. Before beginning treatment careful inquiry into the family history will be of importance as a guide to prognosis.

Effects of Treatment by Weight Reduction

Treatment by weight reduction is often of the greatest value when obesity occurs either as an incidental association or as the result of some other condition, and perhaps unnoticed by the patient at all. Sometimes the actual increase in weight above the normal is comparatively slight and would pass unobserved in a healthy patient. In association with a weak myocardium or a raised blood pressure, however, it becomes profoundly significant, because it may be the one factor which is treatable, and may turn the scales in favour of recovery. Some conditions in which the possibilities of weight reduction should always be considered are: chronic bronchitis, myocardial weakness and degeneration, high blood pressure, visceropituitosis, and fascial rheumatism. In such the methods used are the same as those in simple obesity. Their application is, however, a much more delicate problem. Changes

should not be given. Cream and olive oil, for example, are high-calorie foods of great value. The difference between a diet of, say, 1,000 calories and one of 2,000 may be that between healing and failure to heal; while the lower diet, if continued for long, may make convalescence slower than it need be. Discretion must be used, particularly at the very beginning of treatment, but fuller diets are nearly always well tolerated.

In patients with chronic nephritis and high blood pressure it is not unusual to find that all red meat has been forbidden. If the diet previously has been a very full one and has contained much red meat it is clearly rational to reduce this in order to throw less strain on the kidneys, liver, and heart, but in so doing it must be remembered that to cut off the main source of protein drastically is often to cause a feeling of weakness and depression that is worse and more disabling than the actual symptoms of the disease. Moderate restriction is sound, but the benefit resulting from drastic restriction is at the best nebulous, and is not justified if it produces symptoms. Many patients who have been thus severely treated feel fitter and better in every way when their burdens are lightened. If a patient has been accustomed to take meat three times a day he will probably feel better if he is allowed it once a day rather than not at all.

Diet in Diabetes

In the treatment of glycosuria, whether diabetic or not, excessive dieting is one of many pitfalls. It is very important to make a correct diagnosis before symptoms are masked by what may be excessive, even unnecessary, restriction. Many cases of glycosuria are innocuous and do not need treatment, but are dieted unnecessarily; the symptom has been blindly treated without an investigation of its cause. The following is an extreme example of this mistake.

A man of 40 was sent to the out-patient department suffering from mild hyperthyroidism and chronic pulmonary tuberculosis. Sugar had been found in his urine, and because of this finding his loss of weight had been attributed to diabetes mellitus, and a diet of 100 grammes of carbohydrate, 75 grammes of protein, and 150 grammes of fat given. The glycosuria was actually a symptom of hyperthyroidism, and with his raised metabolism, chronic infection, and restricted diet he was going rapidly downhill. A change to a high-calorie diet with plenty of carbohydrate led to rapid improvement and ultimately complete recovery.

Except in severe cases of diabetes mellitus it is important that investigations of blood sugar and urine should be made before the diet has been altered, so that the correct diagnosis may not be masked by treatment. Once the diagnosis of diabetes mellitus has been made the test of good treatment is whether the patient feels absolutely fit, is able to do full work, and maintains a constant weight. If a normal blood sugar and freedom from glycosuria can also be maintained so much the better; but fitness and efficiency are more important than these, and some of the latter standards may have to be sacrificed. Extreme introspection or neurasthenia is too heavy a price to pay for a normal urine, and in such cases some laxity is preferable. It is desirable, however, that freedom from ketosis should always be maintained.

In diabetics, as in normal people, there is extreme variation in the amount and type of food required, and the best diet for a particular patient must ultimately be found by trial. In patients over 45 the question whether insulin is necessary often arises. In such borderline cases the diet which they can take and still be sugar-free is barely enough

to keep them fit and active. Again decision is by trial and error, but it is a pity to allow patients to struggle on without insulin, under-nourished but sugar-free, when with insulin they could take a fuller diet and feel well. When they develop an infection many such patients will have glycosuria and need insulin; they should therefore be taught how to use it, so that they may take it at once without fuss should occasion suddenly arise. In old people with diabetes it is undesirable to reduce the blood sugar suddenly either by diet or by insulin. Many feel better with a permanently raised blood sugar, and the danger of over-dieting even when glycosuria is present must not be forgotten.

Diet in Other Conditions causing Obesity

In contrast to the diets in which inadvertently too little food is given I would direct attention to those in which the aim is reduction of weight. "Reducing" diets have a wide application, not only for the treatment of obesity as such but in the treatment of other conditions in which a moderate increase in weight often escapes notice. It is of those "other conditions" that I want particularly to speak.

From a theoretical standpoint increase in weight seems likely to lessen physical capabilities in certain directions. The mere addition of a stone means that more work has to be done, throwing extra strain on the circulatory and respiratory systems for which there is no return. To those of sedentary occupation or inclination this may tip the scales on the side of increasing weight and decreasing activity, a vicious circle which, once started, may be difficult to break. The deposit of superfluous fat, particularly around the hip and shoulder girdles and in the abdomen, leads often to degeneration of posture, which predisposes to bad breathing and visceroptosis. Bad breathing, a lax abdominal wall, and diminished activity interfere with the return of blood to the heart. This is normally brought about by muscular movement of the limbs, the descent of the diaphragm during inspiration—which, when the abdominal wall is of good tone, raises the intra-abdominal pressure and drives blood towards the heart—and the negative pressure in the great veins towards the end of inspiration. This effect is shown by the tendency of such patients to develop varicose veins and haemorrhoids. And yet how often does one see varicose veins treated but no attempt made to correct the obesity posture or visceroptosis. Further, the output of the heart is dependent on the venous return, so that the whole circulation is likely to suffer. Increased deposit of fat and diminished activity also has its effects on joints, muscles, fasciae, and tendons, allowing adhesions to form which interfere with the blood supply, so paving the way for chronic rheumatic affections, such as "lumbago," "neuritis," and "sciatica."

Relative Cardiac Insufficiency in Obesity

Proger and Dennig (1932) have made an experimental study of the factors responsible for the so-called relative cardiac insufficiency in obesity. They compared three obese with three normal patients, with the following results.

The vital capacity in the obese was from 12 to 25 per cent. below normal, according to whether height or surface area standards were used. The respiratory minute volume, while the same in both groups at rest, showed an average increase of one-third in the obese during mild exercise. The respiratory rate per minute in the normal and obese during mild exercise was 17 and 18 respectively. The oxygen

Experimental Work

In our original experiments heavy naphtha was found to be lethal to the bed-bug through physical contact. In addition the liquid gives off a vapour which at certain concentrations is also lethal to the bed-bug. It is upon the combined action of these two factors, more especially the latter, that the efficacy of heavy naphtha depends.

The first method of using heavy naphtha consisted in spraying walls, ceilings, and floors, particular attention being given to likely harbourages—for example, behind picture rails, skirting-boards, etc. Masks with a suitable filter are worn by the operators. It was found that certain types of paintwork were damaged by naphtha and that painted linoleum was destroyed, but this has largely been overcome by the use of diffusion screens and covering linoleum with blankets where necessary. Rooms were kept sealed for twenty-four hours, and at the end of this period samples of air were taken for the determination of the naphtha vapour concentration. This was found to be 0.1 per cent. by volume, and showed that the air was only one-third saturated with vapour. Doors and windows were now opened, and ventilation was found to be rapid—so much so that rooms could be entered after a few minutes without any discomfort. After eight hours' airing in this way a further sample of air showed a concentration of vapour of only 0.009 per cent. On closing doors and windows for a further fifteen hours an air sample showed a vapour concentration of 0.009 per cent., thus indicating that concentration does not "build up" by gradual release of absorbed vapour from walls, woodwork, etc.

Effect of Temperature on Vapour Concentration

These experiments were continued throughout the autumn of 1936, but with the first cold weather a number of failures occurred. This experience led to an investigation of the effect of temperature on vapour concentration and a determination of the minimum concentration lethal to the bug. The following table shows the concentration of vapour in air at four different temperatures. The figures will, however, vary slightly with different samples of naphtha.

TABLE I

Temperature (° F.)	Concentration (vol./vol.)
50	0.16%
61	0.21%
70	0.29%
75	0.36%

The minimum concentration lethal to the bed-bug was determined in a series of laboratory experiments in which bugs were exposed for twenty-four hours to various concentrations of vapour. Table II is typical of the results obtained with three different samples of naphtha.

TABLE II

Concentration (vol./vol.)	Sample 1	Sample 2	Sample 3
Per cent.			
0.05	All alive, some rather sick	As for 1	As for 1
0.10	A few survived but died within 48 hours	"	"
0.15	All dead	All dead	All dead
0.20	"	"	"
0.25	"	"	"
0.30	"	"	"

Controls were all alive. The above concentrations apply equally to eggs.

These results, taken in conjunction with those shown in Table I, indicate that for effective disinfection the tem-

perature should not fall below 50° F., though it is not desirable to use heavy naphtha below 60° F. In winter time it will therefore usually be necessary to heat a house to as high a temperature as is practicable, say, 80° F. If an exposed flame is used the heater must be removed before fumigation is started, and smoking or the use of naked lights prohibited while heavy naphtha is being handled. The temperature will inevitably fall, but the rate at which it does so will depend on the outside temperature. It is desirable to heat as long as possible, in order that not only the air but also the walls, etc., shall be warmed.

Loss by Diffusion and Absorption

Unfortunately the concentration figures obtained in the laboratory may not be reproduced in practice. For instance, on fumigating a house in summer at a steady air temperature of 67° F. analysis at the end of twenty-four hours showed a vapour concentration of 0.10 per cent. (or approximately only a third of saturation). There are various physical causes for this—for instance, loss of vapour by diffusion through the fabric of the structure and by absorption in building materials. To counteract these losses blankets were suspended around the walls and sometimes horizontally across the rooms. After the rooms had been sprayed in the usual way these blankets were also sprayed, and analysis of the air after twenty-four hours showed that the vapour concentration was about one-half of saturation. Blankets wetted in this manner formed a reservoir of naphtha ready to vaporize when the concentration dropped below saturation point. While these results were in the right direction they were not entirely satisfactory, and it was found that woollen or shoddy material was not ideal for the purpose. There are exceptions to this. For instance, for maintaining a concentration in a roof space sufficient to kill any bugs which may be there or to prevent them from escaping from lower rooms that have been treated, woollen blankets are laid upon the joists and the whole area is sprayed with naphtha. The slower diffusion from woollen materials is advantageous in a draughty place such as a roof space. Various materials were tried, and finally Egyptian cotton fabrics were chosen. The fabrics had the following characteristics:

	Fabric I	Fabric II
Weight per sq. yd. (oz.)	2	1½
Threads per inch: warp	102	56
weft	99	73

The Use of Diffusion Screens

Naphtha dropped on to the fabric spreads in much the same way as ink spreads on blotting-paper, and when screens are wetted with naphtha and hung near the walls a high concentration of vapour is rapidly produced where it is most needed. Unless treated with a reinforcing dose, which will be described later, the screens are usually dry at the end of a twenty-four-hour fumigation, in marked contrast to the woollen blanket, which always holds a considerable residue of naphtha unevaporized.

The method of suspending these diffusion screens next received attention. Small pin hooks were first tried, but although satisfactory in one way a considerable amount of time was required to fix them. We are indebted to Dr. Macmillan and members of his staff in the health department of the borough of Woolwich for suggesting the use of electric conduit tubing, of half-inch and five-eighths-inch diameter in standardized lengths. This framework is very quickly erected in a room of any size, and by means of distance pieces is kept three inches away from the adjacent walls. The fabric of the diffusion screen is

of diet and exercise must be made more slowly and must be carefully adjusted to the individual case. Before beginning treatment it is best to make a patient describe in detail his diet and daily life. This provides a basis which may be gradually modified on the lines mentioned. In cases of heart disease and high blood pressure it may be best in the early stages to use massage as a prelude to increased activity.

Illustrative Cases

The following are examples showing some types of case to which the above methods are applicable:

Case 1.—A general practitioner, aged 47. The patient gave a history of chronic bronchitis with increasing winter cough for five years; breathlessness on exertion, getting worse for six weeks; and pain over the praecordium on exertion, with fluttering sensations in the chest. Examination in April, 1936, showed the presence of chronic bronchitis and some emphysema. Clinically his heart was found to be enlarged and one inch to the left; there were a tick-tack rhythm and frequent extrasystoles; the resting pulse rate was 90. There was slight cyanosis; the blood pressure was 140/90, and the electrocardiogram normal. His weight was 13 st. 12 lb.; height 5 ft. 7 in. The diagnosis was chronic bronchitis and myocardial weakness. Treatment consisted in gradually reducing the diet and increasing exercise, reducing smoking, and ordering the wearing of an abdominal belt. On May 20 the patient was much better and his weight was reduced to 13 st. 5 lb. On July 7 there were no symptoms; his weight was then 12 st. 2 lb., and he was doing much of his practice on a bicycle. The improvement has since been maintained.

Case 2.—A man aged 62 complained on July 31, 1937, of increasing breathlessness on exertion and slight giddiness of several months' duration. Examination revealed arteriosclerosis, a blood pressure of 190/110, and a pulse rate of 46. An electrocardiogram showed a 3:1 heart-block. His weight was 14 st. 3 lb. After ten days' treatment with massage, mild graduated exercises, and a reducing diet his weight had fallen to 13 st. 4 lb. The symptoms of breathlessness and giddiness had disappeared, and he felt much better.

Case 3.—A woman, aged 52, had had increasing noises in the head and breathlessness on exertion for eight months, with a recent gain in weight. Examination revealed arteriosclerosis and a high blood pressure (200/110). Her weight on July 17, 1937, was 12 st. 8 lb. Treatment consisted in reducing the diet and the prescription of half a grain of thyroid extract each day. After three months her weight had fallen to 10 st. 8 lb., the blood pressure was 200/94, the symptoms had disappeared, and she felt well.

Case 4.—This patient, a woman aged 44, complained of pain in the back on exercise and a "bearing-down feeling" in the stomach. On examination her doctor found sugar in the urine. When seen on June 1, 1937, she was very obese, her weight being 16 st. 9 lb. There was a heavy deposit of fat round the shoulders and hips, and the abdomen was protuberant. The urine gave 2 per cent. of sugar, but no acetone. The resting blood sugar was 2 per cent. Treatment took the form of massage and exercises to reduce weight and improve posture and breathing, with a reducing diet, and an abdominal belt was worn. After three months' treatment the symptoms had gone, the urine was sugar-free, the resting blood sugar 0.12 per cent., and the patient's weight 14 st. 6 lb.

Case 5.—A woman, aged 51, stated that following an attack of influenza in February, 1937, she developed shortness of breath and precordial pain on exertion. These symptoms persisted. When examined on May 19, 1937, her heart was not enlarged, but the quality of the sounds was poor; the blood pressure was 150/80. The abdominal wall was lax, with visceroptosis. Her weight was 10 st. 10 lb. and she was rather fat. Treatment was by means of an abdominal belt, massage, and exercises to reduce weight, and a moderate reducing diet. After five months' treatment her weight was 10 st. 1 lb. She was better in every way and her symptoms had almost gone.

Conclusion

By treatment on the above lines it is often possible to delay the effects of degenerative processes that occur after middle life. To be successful, however, such treatment must be begun early and must be thorough. If it is left too late comparatively little can be done. Both the recognition and the treatment are in the hands of the family doctor, whose opportunities are unrivalled.

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COAL-TAR NAPHTHA FOR THE DESTRUCTION OF BED-BUGS*

APPLICATION IN DWELLING-HOUSES AND TENEMENTS

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Attention was first directed to the use of heavy naphtha for the destruction of bed-bugs in a note by us in the *British Medical Journal* (1937, 1, 459) and the *Lancet* (1937, 1, 530). Toxicity experiments with heavy naphtha carried out by Professor G. R. Cameron at the University College Hospital Medical School indicated that danger to man from this substance was not to be apprehended. Extended research employing a wide range of heavy naphthas confirmed the results of the original experiments.

To ensure that only suitable naphthas shall be used the following specification has been drawn up:

Specification for Heavy Coal-tar Naphtha

1. **Colour.**—Shall not be darker than a freshly prepared solution of 1 ml. of N/10 iodine in 1,000 ml. of distilled water.
2. **Specific Gravity.**—Not less than 0.835 and not greater than 0.910.
3. **Water.**—Shall be free from water and other visible impurities at 15.5° C.
4. **Distillation Range.**—Method as defined in B.S.I. Specification No. 479 for coal-tar naphthas. Up to 160° C. not more than 5 ml.; up to 190° C. not less than 90 ml.
5. **Flash-point (Abel).**—Not less than 105° F.
6. **Tar Acids and Tar Bases.**—Not more than 0.25 per cent. of tar acids and 0.25 per cent. of tar bases.

Heavy naphtha complying with this specification may be obtained from all the principal tar distillers throughout the country at prices ranging from 1s. 6d. to 2s. 6d. per gallon, depending partly on the quantity purchased.

* A report to the Bed-bug Infestation Committee of the Medical Research Council.

In our experience the workmen have taken kindly to the use of heavy naphtha and complaints have been few. One man found that the constant use of naphtha had a drying effect upon his skin, but this was soon overcome by the use of lanolin. He has had no further trouble.

Disinfestation of Furniture and Clothing: Van Fumigation

This essential part of the procedure in the eradication of bed-bugs has received considerable attention. Our experiments in this direction are not so advanced as with dwelling-houses, but results obtained when using heavy naphtha indicate that this process can be applied to van fumigation in much the same way as HCN.

We are indebted to Dr. Geffen, M.O.H. Enfield, for his help and the interest he has taken in this aspect of the work.

A small pantechnicon, metal-lined, was fitted with tubular electric heaters placed beneath a duckboard flooring with the terminals outside. Thermostats ensured that a temperature of 100° F. could be maintained. A tent of blankets was made to fit the inside of the van and was sprayed with heavy naphtha, using a foot-operated pump. The doors were sealed with ordinary sealing-paper and the tubular heaters connected up to the electric power point. A temperature of 100° F. is reached in about three-quarters of an hour and a naphtha concentration of approximately 0.5 per cent. is obtained. This concentration is only a quarter of that of the minimum explosive concentration, so that danger from this source is not to be apprehended. Laboratory experiments have shown that an exposure of four hours at this temperature is sufficient to kill the bug, but to provide a good margin of safety a period of seven hours from the time of switching on the current was decided upon.

To simulate the conditions of bug-infested furniture ten calico bags, each containing ten bugs, were secreted in the folds of upholstered chairs, in a mattress rolled up several times, and in various articles of clothing. This load of furniture and clothing was treated with naphtha vapour for seven-hours. At the end of this period the contents of each bag were examined; all the bugs were dead. These experiments were repeated on various occasions, using considerably greater numbers of bugs, and with one exception have been uniformly successful. When bugs were placed in an artificially made air pocket in the middle of a folded feather bed they were not killed.

These experiments open up possibilities of a safe and rapid method of disinfesting furniture in transit. The polish on furniture is not affected by this process, and we are carrying out further investigations as to how soon furniture is sufficiently free from gas to be suitable for return to the tenant. According to indications the period is not a long one, and we do not anticipate any difficulty from the slow desorption of naphtha, not even when bedding is treated by this process.

The Rate of Desorption

An experiment was carried out to test the rate of desorption of naphtha vapour from furniture and bedding disinfested in the van. A typical load of furniture and bedding was kept in naphtha vapour for six hours at 100° F. The van doors were then opened for a few minutes, but no means existed of sweeping the air out of the van. The van was driven to a neighbouring house and the furniture at once unloaded into an upstairs bedroom, the doors and windows of which were kept closed (the fireplace was not sealed). After one hour the room was entered and a sample of air was taken, and a sample was also taken the following morning, at

the end of eighteen hours. The air temperature in the afternoon was 61° F., that of the next morning 55° F. The results of the experiment were as follows:

Concentration of Naphtha Vapour (vol. vol.)	Remarks
After 1 hour : 0.09% ..	.. Atmosphere unpleasant; irritant action on eyes
After 18 hours : 0.04% ..	.. Smell of naphtha, but no unpleasant symptoms of any kind

The conditions of this experiment were intentionally not those that would be adopted in routine work. The results clearly show that naphtha vapour is rapidly desorbed from furniture. No "building up" occurred, and had doors and windows been left open, as would be the procedure in ordinary circumstances, the naphtha concentration would soon have been reduced to negligible proportions. It will be advisable to have vans fitted with an extractor fan or shutter which can be opened to allow a current of air to sweep through while the van is being driven along the road. The beating of bedding might also be desirable.

In addition to this experiment two mattresses and pillows were placed in the van at the same time and treated in the same way as the furniture mentioned above. They were then removed to a room and were lain on for an hour. In the first half-hour the windows were closed; the door was also closed, but the fireplace was not sealed. In the second half-hour the windows were open. At first there was slight discomfort to the eyes and nose from the gas being released from the pillows and mattresses, but this quickly passed off. The opening of the windows, however, did not noticeably alter the smell of the mattresses and pillows. It is thought that with some ventilation before the mattresses and pillows are returned to the house there would be no discomfort in sleeping on them the same night. The conditions under which this experiment was carried out were purposely made as adverse as possible.

Heavy naphtha has been used in some twelve hundred houses and tenements, mainly empty, in various parts of the country, and experience has been gained in both summer and winter conditions of fumigation. Houses so treated have been subjected to rigid inspection throughout the year, and in one area the treatment has been successful in ninety-nine houses out of every hundred.

Summary

1. *Method of Applying Heavy Naphtha.*—A method of applying naphtha using light cotton diffusion screens and an automatic delayed-action sprinkler for reinforcing has been developed. Using the new technique the gas concentration at the end of twenty-four hours is 60 per cent. higher than that obtainable by the old method of spraying walls, ceiling, woodwork, etc. With the new method the loss of gas concentration by diffusion is largely overcome, and the gas concentration is at all times above the lethal minimum, when the temperature is 50° F. and over. Failures due to loss of vapour should therefore be eliminated, and it is to be hoped that local authorities using naphtha will adopt the improved process in its entirety. The light tubular scaffolding is quick and easy to erect and affords good support for the diffusion screens. It has the advantage over other methods of suspension that no damage is caused to the structure of the building.

2. *Disinfestation of Furnished Houses.*—This is admittedly a difficult problem, but with the new methods and apparatus further work in this connexion is in hand. The delayed-action sprinkler was not perfected until the past few months, and only one machine has been avail-

usually purchased in strips thirty-six inches wide; these are cut into sixteen-foot lengths and thrown double over the top rail of the scaffolding.

From results of analysis of air samples taken from rooms kept under naphtha vapour it was clear that by using the correct type of diffusion screen a considerably increased concentration of vapour was present at the end of twenty-four hours' fumigation. The degree of saturation at the end of twenty-four hours was increased from 33 per cent. to 80 per cent. by the use of cotton diffusion screens, but it was realized that in the unfavourable conditions presented by a leaky house such a high percentage of saturation might not be maintained at the end of twenty-four hours. The need was felt for a reinforcing dose of naphtha to be put in the room about half-way through the twenty-four-hour period without unsealing. The delayed-action sprinkler has been designed for this purpose. This apparatus automatically delivers a charge of naphtha at a prearranged time varying from eight to eleven hours after the room has been sealed. This is effected by means of an alarm-clock mechanism which at a predetermined time allows naphtha to be thrown on to the diffusion screens from a centrifugal sprayer driven by a clockwork motor.

The concentrations obtained when using the technique as outlined are shown in the table giving the results of an experiment in July, 1937. Three similar rooms were treated with equal quantities of washed heavy naphtha (on the basis of one gallon per 750 cubic feet room space). The procedure was as follows:

Room I: Walls, woodwork, etc., sprayed, but no screens in room (old technique). *Room II:* Walls draped with light cotton diffusion screens, room sprayed, and screens thoroughly wetted. *Room III:* As for Room II; but in addition the delayed-action sprinkler, charged with half a gallon of naphtha, was set to deliver a reinforcing charge eleven hours after the room was sealed. A temperature of 67° F. was maintained throughout.

Table showing Concentration of Naphtha Vapour in the Air of the Rooms at the End of Twenty-four Hours

	Concentration (vol./vol.)	Approx. Degree of Saturation
Room I	0.14 per cent.	50 per cent.
Room II	0.22 " "	80 " "
Room III	0.25 " "	90 " "

Minimum lethal concentration (for twenty-four hours' exposure) = 0.15 per cent.
Saturation concentration at 67° F. 0.27 per cent.

The figures explain themselves, but the following observations are relevant.

(a) The house in which these experiments were carried out was of good construction, and diffusion losses were therefore at a minimum. In an old leaky house the difference in concentration between Room II and Room III would in all probability be much more marked.

(b) The reinforcer enables a second dose of the lighter (or lower-boiling) constituents to be released in the room, and we have reason to believe that these constituents are slightly more toxic to the bed-bug.

Technique for Use of Heavy Naphtha

The technique for using heavy naphtha may thus be summarized as follows:

1. Make a careful examination of the room to be disinfested, for dead spaces. These are frequently boarded in, and in such cases one or more small holes should be drilled to allow easy access of the vapour.
2. Lay wool or shoddy blankets in the roof space on top of the joists and spray these thoroughly with naphtha.

3. Drape walls with light cotton diffusion screens, using the tubular scaffolding as support.

4. Spray walls, woodwork, etc., more especially where there is obvious infestation, and thoroughly wet diffusion screens with naphtha. (Naphtha will remove certain types of paint, and where paintwork is likely to be affected this should not be sprayed.)

5. Set delayed-action sprinkler to deliver a reinforcing charge from nine to eleven hours after the room has been sealed.

6. At the end of twenty-four hours ventilate and remove screens and scaffolding. The screens rapidly dry in the open air, or more quickly in a warm room, and are then available for the next job.

Disinfestation of Furnished Houses

The general practice with regard to furnished and occupied houses varies considerably. In some instances the furniture is removed in a van and treated with cyanide, and the house itself with heavy naphtha, sulphur, or other insecticide. Alternatively the furniture is disinfested in the house by means of some contact insecticide. We have felt for a considerable time that if furniture could be treated effectively *in situ* a great deal of labour and expense would be saved. As with HCN, if heavy naphtha is used alternative accommodation for tenants for one night must be provided. The original experiments in this connexion consisted in the grouping of all the furniture in the middle of the room and covering it over with dust-sheets. The room was then sprayed in the ordinary way. This method has, we understand, been successful in a number of instances, but we are not satisfied that this is the best procedure. The results have not always been satisfactory.

Experiments in two furnished houses have been carried out in Woolwich, and although a few bugs were found afterwards in one room in each house, we consider that the technique, modified as indicated below, will be likely to give satisfactory results. The walls of a furnished room were draped with diffusion screens in the usual way and the furniture grouped together in suitable positions. The delayed-action sprinkler was set down in the middle of a "kiosk" of tubing (as used for erecting the scaffolding around the walls) 3 ft. 6 in. square and 8 ft. high. The four sides of the kiosk were hung with diffusion screens and the floor immediately beneath covered by a blanket. The sprinkler was timed to discharge the naphtha on to the screens ten hours after the rooms had been sealed. The walls and screens were sprayed in the usual way, and the delayed-action sprinkler set to deliver a reinforcing dose as described above.

In these two experiments only one delayed-action sprinkler was available, and in both cases this machine was not used in the rooms where bugs were found subsequently. Having regard to the quantity of absorbent material in a furnished room we consider that a reinforcing dose of naphtha is essential, and it is not unreasonable to assume that if a delayed-action apparatus had been available for each room the results might have been entirely satisfactory. As furnishings and the like absorb the vapour to a large extent we are of the opinion that the initial dose should be increased to, say, 1 gallon to 500 cubic feet of air space. (The method adopted for using heavy naphtha is of the utmost importance, and the training of personnel in its use is also a prime consideration. Adequate supervision should always be given where houses are being treated with heavy naphtha if satisfactory results are to be obtained.)

Although one may not be responsible for the management of many cases of poliomyelitis it is desirable that the results of each examination should be charted, for unless quantitative measurements are made ideas of progress are

When admitted to hospital the distribution of muscular paresis or paralysis in fifty* cases was as follows:

	Per cent.
Both lower limbs; abdominal and spinal muscles	34
Upper limbs; lower limbs; abdominal and spinal muscles	18
Lower limbs only	13
One lower limb	2
Upper limbs	6
One upper limb	6
Both lower limbs and one upper limb	6
One lower limb and one upper limb	2

It will be seen that in more than half the cases the lower limbs and the abdominal and spinal muscles were all affected.

The Muscle Re-education Period

There are few terms more generally misunderstood than "recovery period" in anterior poliomyelitis. Lovett defined it as the period during which spontaneous recovery of muscle function occurs. In most standard English textbooks the term is used without being defined, but the authors do not hesitate to state that its duration is from two to four years. As the discussion which follows usually concerns treatment it is not always clear whether reference is being made to a period of spontaneous recovery—that is, natural recovery without medical care—or the period of improvement under the treatment described. Since most cases are now diagnosed and treated early, the spontaneous "recovery period" is of little importance compared with the period of improvement under muscle re-education. Rather than alter the original definition of recovery period and thereby create confusion I would suggest that the term "muscle re-education period" be used to indicate the time during which the muscles will improve under treatment, assuming that it is started without delay. Although there is no real justification for the idea, many students and practitioners infer that since the "recovery period" is two years it would be useless to suggest muscle re-education for a patient who suffered from the acute disease two or more years ago and who has never been given adequate treatment. In such a case it is always worth while to give at least a few months' treatment, as the following case shows.

A girl of 10 suffered from infantile paralysis when she was 4 years of age. She had never been treated. On examination of the thenar muscles of one hand it was found that there was scarcely a flicker of contraction in the short abductor and opponens pollicis. In order to relax these muscles the thumb was splinted in opposition, and after four months' treatment they had so developed that she was able to abduct and oppose her thumb strongly against resistance. After the initial lesion many damaged anterior horn cells no doubt recovered, but the muscles they supplied were so overstretched that paralysis persisted. When they were placed at a mechanical advantage, and controlled voluntary movement was encouraged, recovery occurred in response to the functional demand. Other equally striking examples could be cited from a group of fourteen late cases. Because of this, operations for joint stabilization should not be considered until a thorough attempt has been made to obtain maximal improvement. If this is not done there is a grave risk that one will excise a joint and find later that the operation was unnecessary, the muscles having become stronger after the arthrodesis which gave them the relaxation necessary for their recovery. This point is well illustrated by the following cases:

* As fourteen of these had been treated for some months before admission they have not been included in the group considered under the heading of "Recovery Period."

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL

Name..... Number..... Trunk and..... Lower extremity

Date						
*Type of Contraction						
Erector Spinae						
Abdominals						
Gluteus Maximus						
Abductors of Hip						
Tensor Fasciae Latae						
Adductors of Hip						
Quadriceps						
Sartorius						
Psoas						
Inner Hamstrings						
Outer Hamstrings						
Calf Muscles						
Tibialis Posterior						
Tibialis Anterior						
Peronei						
Extensor Longus Hallucis						
Extensor Longus Digitorum						
Flexor Longus Hallucis						
Flexor Longus Digitorum						
Small Muscles of Foot						

Gait..... Trendelenburg.....

Contractures, Deformities, Measurements

Operations

*V—Voluntary F—Farad's G—Galvanic

Strength of Contraction N—Normal contraction
R—Contraction against gravity and resistance
R—Contraction against gravity only
G—Contraction but not against gravity
F—Flicker
O—No contraction

Muscle chart of the lower extremity for recording progress of cases under treatment

The Patients

The patients studied were admitted to the Royal National Orthopaedic Hospital, Stanmore, Middlesex, between the years 1932 and 1936. Their ages ranged from 4 to 14 years, so that they were old enough to co-operate in both charting and treatment. The lesions were probably more severe than those of the average type seen in the London area during those years. Some cases admitted from orthopaedic clinics were of average severity, but others were, transferred from general and fever hospitals because of extensive paralysis calling for prolonged treatment.

apt to be affected by one's optimism or pessimism at the time, and the patient is easily deluded by trick movements so readily acquired and accounted as recovery. No one can remember for long the state of all the important muscles, and even when the patient is always seen by the same observer such notes as "extensors of the foot stronger" convey little more than a general impression, and are much less informative than a muscle chart. The keeping of a chart also eliminates the personal factor from the records, and is therefore invaluable if another clinician is called upon to treat the case.

able. Preliminary results are encouraging, and such a process has manifestly so many advantages that work to this end will be continued.

3. *Disinfestation of Furniture and Clothing.*—A van process of disinfestation, using heavy naphtha, has been developed which promises well. So far it has not had an extended trial, but the preliminary results are satisfactory. Further work is in hand.

4. *Reaction of Workmen using Naphtha in Disinfestation Work.*—Complaints by workmen have been almost negligible. One man developed a slight skin irritation on the hand, but this has been cured by the use of lanolin, and, generally speaking, the men have taken kindly to the use of naphtha as a fumigant.

The earliest experiments with heavy naphtha and much of the subsequent work described in this paper were made possible through the interest and co-operation of Dr. J. Macmillan, medical officer of health for the borough of Woolwich. We wish to express our indebtedness to him for the use of houses, equipment, and the services of members of his staff.

All the work on heavy naphtha has been carried out for the Medical Research Council under the auspices of its Bed-bug Infestation Committee.

THE RECOVERY PERIOD IN ANTERIOR POLIOMYELITIS

BY

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No big epidemics of anterior poliomyelitis have been recorded in England, yet on an average 640 cases occur annually, and the more severe of them present an important medical and economic problem.

It is well known that many patients improve greatly after the acute illness has subsided. However, observers disagree on the length of the period of recovery when adequate treatment is given. Some state that it is as short as nine months, others as long as four years. There is therefore some uncertainty regarding the proper duration of hospital treatment; and when spinal, abdominal, and lower limb muscles are involved it is even more difficult to decide when patients should be allowed to walk. In order to avoid the possibility of insufficient treatment it is best to err on the side of safety, and keep them in bed while there is any possible hope of improvement. This means that some patients are treated in hospital for a longer time than is afterwards found to be necessary. Economic considerations are involved, for the cost of keeping a patient in hospital is at least two pounds a week, and another person is for the time being deprived of the bed. More accurate information on the length of the recovery period is needed before this essential margin of safety can be reduced.

Although a huge American literature on poliomyelitis has accumulated during the last twenty-five years, most of it is devoted to descriptions of various forms of treatment and comparatively little to analysis of the results. In the Royal National Orthopaedic Hospital, since 1932, the progress of patients with infantile paralysis has been carefully recorded on muscle charts, which have provided the data for this study. The value of these charts in the prognosis and treatment of poliomyelitis has not been sufficiently appreciated in England, and it is to be hoped that they will be more generally used.

In the present investigation I have determined the progress of paretic and paralysed muscles in thirty-six patients all receiving the commonly accepted treatment from the time of the acute infection. The data so obtained are important in arriving at a prognosis regarding the degree of muscle recovery, and when the lower limbs are involved this affords a guide in deciding when to begin ambulatory treatment.

Treatment

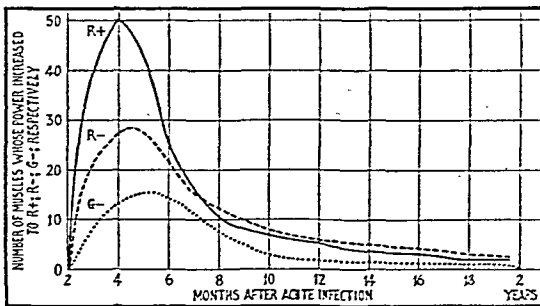
During the acute phase of the disease a patient is given absolute rest in either a plaster shell or a complete plaster case. In this way the damaged anterior horn cells are shielded from stimuli on the sensory side and from the patient's desire to move the part. This period of rest during the stage of acute inflammation is in accordance with general pathological principles, and in practice is approved by competent observers who have dealt with many cases. When muscle tenderness has gone one infers that the acute inflammation in the cord is subsiding. Muscle re-education is then started in conjunction with radiant heat and massage, while joints are moved, passively if necessary, to prevent stiffness. Particular care must be taken to avoid fatigue of the recovering muscles, and when exercises are not being carried out, overstretching of the weak muscles is prevented by resting them in plaster shells or splints. Light tasks are imposed on muscles too weak to function against gravity. In many instances the exercises are carried out in warm-water baths, gravity being eliminated thereby, while the heat improves the circulation. In a few instances electrical stimulation is an additional therapeutic measure, valuable when there is one weak muscle in a group the other members of which have the same function but are not paralysed. For example, the biceps femoris, semimembranosus, and semitendinosus are flexors of the knee. When these muscles are involved it may be found that the semimembranosus and semitendinosus are strong enough to flex the leg against gravity, while the biceps shows scarcely a flicker of contraction. Under these circumstances active flexion is performed by the stronger muscles, and the biceps is not used; electrical stimulation of the latter is therefore indicated. But, wherever possible, reliance is placed on voluntary exercise, which is the only true form of muscle re-education.

The Muscle Charts

The progress of cases under treatment was recorded on muscle charts introduced into the hospital by Mr. H. J. Seddon, the resident surgeon. At first charting was done every two months, but is now carried out at intervals of six weeks. The chart here shown is used for the lower extremity. The skeletal muscles are classified into forty groups, and the voluntary power of each is tabulated as N; R+; R-; G-; F; or O. R+ signifies that the muscle will overcome gravity and additional resistance, but is less powerful than normal. R- indicates that it will overcome gravity but not additional resistance. G- is recorded if the muscle will carry out its action only when gravity is eliminated; while F means that there is a flicker of contraction insufficient to move the part. Since the only movement of use to the patient is that which he initiates voluntarily, the recording of voluntary power is a more direct measure of recovery than that obtained by electrical stimulation. Such a chart has the merit of showing improvement or retrogression accurately enough for clinical purposes, without the use of special apparatus such as that devised by Lovett. With a little practice the necessary observations can be made fairly quickly.

months' treatment the anterior and posterior tibial muscles showed only a flicker of contraction, yet in three years they were able to invert the foot against gravity. Steady progress occurred during that time as the child gradually learned to co-operate. Acute illness or joint stiffness may also affect both the rate and duration of recovery. This was noticeable in a patient who developed scarlet fever during the re-education period. The toxæmia caused a definite decrease in muscular power, which was regained as the infection subsided. Later the child suffered from acute suppurative otitis media and a similar phenomenon was again observed.

The decision as to when ambulatory treatment may begin depends on the condition of the lower limb muscles and those of the abdomen and spine. The problem is relatively simple if only the former are affected, but when asymmetrical abdominal or spinal paralysis is present there are many difficulties. If the limbs alone are affected the patient should be kept in bed until three successive muscle charts, made at intervals of six weeks, show no further improvement. Patients with slight paralysis usually improve rapidly, and it is safe to allow them up as soon as the muscles will contract strongly against resistance. Six months after the acute infection those who are more severely paralysed may still have very weak muscles. As has already been shown, the ultimate prognosis in these cases can usually be given fairly accurately after one has studied the charts. If there is any prospect of obtaining useful recovery in key muscles extended treatment should be given, but in a small proportion of cases this expectation will not be realized and successive charting will show that progress has ceased. The patient should then be allowed to walk with suitable supports. The majority will be doing so within a year from the beginning of treatment.



The R+ curve shows the number of muscles that improved to R+ during each successive period of two months. The curves R- and G- show the number of muscles increasing in power to R- and G- respectively. It will be seen that a maximal number of muscles increase to R+ at the four-months period, that at six months only half the number did so, while after a year very few increased to R+.

It was previously stated that when abdominal and spinal muscles are involved there is difficulty in determining the optimum time for treatment in recumbency. In the first place there is no simple and very satisfactory way of recording the degree of recovery in the abdominal or the individual spinal muscles. Asymmetrical recovery, with or without the influence of gravity, frequently results in scoliosis, which may be slight when first noticed as the patient lies in bed but rapidly progressive when he walks about. Even if he is kept in bed until recovery of muscle power is maximal there is no guarantee that with asymmetrical paralysis the balance between muscles on each side of the spinal column will be improved. Indeed,

in many instances it is further upset, since the less damaged muscles recover more rapidly than the weaker ones. Once deformity is produced the less powerful muscles, being overstretched, become still weaker; thus a vicious circle is established. This helps to explain the development of scoliosis in certain cases two or three years after the acute illness. Usually when there is much paralysis of the spinal and abdominal muscles the lower limbs are also involved, so that if one could assume that the former recovered at the same rate as the latter the patients could be allowed out of bed when the legs showed maximal improvement. Probably such an assumption is not justified, since muscle re-education is more easily applied to the limbs and more rapid improvement would be expected in them. Because of this it is sometimes necessary to keep a patient in bed for two years or more if the trunk paralysis is at all extensive. From a purely theoretical point of view progressive scoliosis could be best controlled by preventing weight-bearing during the period of spinal growth. In most instances this is neither practicable nor desirable. It would mean keeping children in bed until they had reached the age of 16 years. A compromise has to be made, and it can be empirically stated that if patients can possibly walk they should not be kept in bed for more than two and one-half years. Spinal and abdominal supports must be given where necessary and methodical examinations made during the next few years. Sometimes a scoliosis progresses rapidly in spite of supports and remedial exercises, and leads ultimately to the vital capacity being diminished and to circulatory insufficiency. When this is found to be occurring, and the patient is over 8 or 10 years of age, he should be admitted to hospital again, and the deformity corrected as far as possible by head suspension. The Fisher frame used at the Royal National Orthopaedic Hospital is an excellent appliance for this treatment. At a later date one might consider the question of spinal fusion in those cases where external support will not prevent progressive deformity, with its unfortunate sequelae.

Summary

1. An account is given of the results of a study of thirty-six recent cases of anterior poliomyelitis, progress of which under treatment was recorded on muscle charts.
2. The muscle re-education period is usually found to be much less than the spontaneous recovery period. In the average case it is from nine to twelve months.
3. At from four to six months after the acute infection it is possible to determine the ultimate degree of recovery with fair accuracy.
4. The methods of treatment are briefly given, and the optimum time for treatment in recumbency is discussed.
5. A plea is made for the general adoption of graduated muscle charts as an aid both in treatment and in prognosis.

My thanks are due to the medical board of the Royal National Orthopaedic Hospital for permission to publish this paper, and especially to Mr. H. J. Seddon for his invaluable help and encouragement.

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In September, 1933, a boy aged 8 years suffered from anterior poliomyelitis. Both upper limbs were affected, and he was kept in bed for ten weeks. When seen by a surgeon in January, 1934, the left upper limb had completely recovered, but the right deltoid remained paralysed. A note made at this time read: "No hope for deltoid, will probably need arthrodesis." A splint was not applied, and the deltoid naturally remained paralysed. Thirteen months after the acute infection the patient attended another clinic, where it was found that in spite of the absence of treatment the muscle would contract against gravity but not additional resistance. An abduction splint was supplied, and after six weeks' treatment the deltoid was seen to be capable of contracting against both gravity and resistance. By November, 1935, the muscle had completely recovered, and re-examination in November, 1936, showed that it was normal.

Some years ago a patient upon whom an arthrodesis of the knee had been performed for quadriceps paralysis came under the care of Mr. Bankart. When examined by him the affected knee was soundly ankylosed, but the quadriceps had recovered.

Progress in the Muscle Re-education Period

The following table shows the number of times important muscles were involved together with the percentages of good and poor recoveries under adequate treatment. For the sake of clarity and simplicity I have not given a complete list of the recorded muscles.

Table showing the Result of Treatment in 36 Cases

	Number of Times Involved	After Treatment Completed. Percentage Capable of Contracting at least Against Gravity	After Treatment Completed. Percentage Capable of Moving Part with Gravity Eliminated	After Treatment Completed. Percentage showing no Useful Contraction
Lower limb		Per cent.	Per cent.	Per cent.
Gluteus maximus ..	44	80	9	11
Gluteus medius and minimus	48	57	26	17
Quadriceps femoris	52	54	16	30
Hamstrings	41	65	5	30
Calf muscle	44	69	9	22
Dorsiflexors of toes	46	67	8	25
Anterior and posterior tibials	51	38	6	56
Peronei	45	67	11	22
Upper limb				
Deltoid	15	79	14	7
Triceps	13	70	15	15
Biceps and brachialis	14	100	—	—
Short muscles of humb	13	78	—	22

It will be seen that the chief muscle groups of the lower limb were involved with approximately equal frequency, but that some recovered more completely than others. In general the distribution of paralysis and the extent of recovery in individual muscles were not very different from those in certain series of cases recorded in America. The gluteus maximus fared best and the two tibials worst; over 80 per cent. of the former became strong, while over one-half of the latter remained useless. I could not find such a striking contrast in any other series of cases. Generally the gluteus maximus did not do so well and the tibials recovered more completely. Also, it is unusual for the peronei to recover so much more frequently than the tibials. It is possible that in the present series better results might have been obtained

in the tibials had the feet been more carefully splinted in inversion during the re-education period and the soles supported by accurately moulded plaster gutters.

Early Recovery

The most rapid improvement in voluntary power takes place during the first six months after the acute illness. Indeed, in those cases in which the ultimate function was good, surprising recovery was found after the initial six or eight weeks of complete rest. Under muscle re-education during the next four months there was a further marked increase in strength. However, no certain prognosis could be given during this period except in mild cases, and in the most severe where all the muscles of a limb remained completely paralysed after four months. In the ten instances where all muscles of a lower limb were charted as O or F at four months the extremity remained flail.

Recovery at Six Months

Interesting facts emerged when the condition of three hundred muscles at the end of the six-months period was compared with their ultimate state.

I. Those which contracted against gravity and resistance (R+) at the end of six months became more powerful, and many were eventually regarded as normal.

II. All muscles capable of contracting against gravity only (R-) became strong enough to move against additional resistance (R+).

III. Of the group that were able to move the part only when gravity was eliminated (G-), (a) 45 per cent. recovered sufficiently to contract against gravity and resistance (R+); these were initially the stronger muscles; (b) 45 per cent. were ultimately able to contract against gravity only (R-); (c) 10 per cent. did not improve.

IV. Of those showing only a flicker of contraction (F) 90 per cent. failed to improve, while 10 per cent. became powerful enough to contract against gravity (R-). Briefly expressed, the majority of muscles which after six months were capable of moving the part developed useful contractions, while most of those that could not do so failed to recover. Therefore, at six months from the onset of the acute infection it is possible to predict the ultimate extent of recovery with reasonable certainty.

Reading at Six Months	Ultimate State
R+	N or R+
R-	R+
	R+ : 45 per cent.
G-	R- : 45 ..
	G- : 10 ..
F	R- : 10 ..
	F : 90 ..

In this series of cases improvement continued until nine to eighteen months from the acute infection, and in odd cases even longer, but in the vast majority no great change was seen after a year of muscle re-education. It may be true that the period of spontaneous recovery is from two to four years, but the period of notable improvement is much shorter when adequate treatment is given from the first.

Some cases progress differently from those considered here. Young children who cannot co-operate fully in the muscle re-education may show a relatively slower improvement over a longer period than those who are older. This is well illustrated in the case of a child aged 2 years at the time of the acute infection. After nine

The knees are held in slight flexion by small pads. If possible, all the bed-clothes are kept off the patient by a large cradle and the air is kept artificially warmed.

(3) Every two hours the painful muscles are fomented, or short-wave diathermy is applied. After that the limbs are passively moved through the full range of each joint three times. At first the limb may be exquisitely painful, but the pain soon disappears and never persists for longer than three days. During the night the limbs are not moved, but are allowed to remain in the position described, and are inspected every two hours by the night staff. If they are out of position they are replaced once again. If pain causes sleeplessness, fomentation and manipulation is carried out during the night. The patient must be under observation night and day. A remarkable feature of this treatment is the quick change in the mental and physical condition. A sick child, apprehensive of painful manipulation, is converted into a contented and co-operative individual within three days.

Active Treatment in the Apyrexial Stage

As soon as the temperature falls the active phase of the treatment is begun, and may be summarized thus:

- (a) The individual treatment of the patient and maintenance of a cheerful mental outlook.
- (b) Special form of hydrotherapy.
- (c) Maintenance of impulse.
- (d) Avoidance of fatigue.
- (e) Avoidance of immobilization.

This active phase is instituted with extreme care, because it must be remembered that most of the residual anterior horn cells are still in a state of cloudy swelling. The patient must be treated alone because it is of major importance that the whole attention should be concentrated on the treatment and not diverted elsewhere. Above all, an atmosphere of confidence must be maintained. The patients are placed upon a canvas sheet and lowered into the bath, and given the form of hydrotherapy previously described. The joints are moved passively every two hours, and on only one occasion each day is an active attempt at movement of the affected muscles made. If a limb shows extensive paralysis only one muscle group is exercised at a time, the other muscle groups being exercised at later intervals in the day. The active attempt at movement involves a special re-educative technique and is carried out as follows:

The limb is grasped firmly just below the insertion of the paralysed muscle or muscle group, and the patient is asked to make the movement. Special grips are used to prevent accessory or trick movements. The patient focuses all his attention on the affected muscle, and the attendant slowly performs the movement passively. Within a few days a trained assistant will detect a faint change in the affected muscle. It can be detected long before the finest movement is noticeable, it represents the first stage in the return of tone (subliminal excitation) in the muscle, and is termed "the impulse."

It takes some training to recognize at first this impulse, which is the basis of the re-education technique. It is the small flame of returning muscle tone which must be delicately nurtured or it will disappear. As the impulse strengthens active attempts must be made twice a day, later three times a day, and finally six times a day. When a movement is achieved for the first time it must be done only once a day, but as it improves the number of times is increased to four a day. The assisted movements are done at first in the bath under water, because the water

gives the patient greater mental consciousness of the position of the limbs, but later on the special tables. They are assisted movements at first, but when they strengthen they are resisted, and this practice is maintained until maximal power is achieved.

Once each day in the early stages the patient is taken out of bed and the feet are placed on the ground. A few days later a little weight is allowed on the feet. As muscle power returns more and more weight is allowed on the feet for very short periods each day. This procedure brings about proprioceptive re-education of the lower extremities and re-establishes the blood supply of bones and joints. Full details cannot be given here on the whole re-educative technique, but are available in Elizabeth Kenny's *Infantile Paralysis and Cerebral Diplegia* (1937, Angus and Robertson Ltd., Sydney). Only when a patient still showed paralyses after about two years' treatment would the application of splints or operative intervention be considered.

Avoidance of Fatigue

It is of extreme importance that fatigue be avoided, and this is the reason for the delicate gradation of the re-educative system. If, for example, a small movement is achieved for the first time, it must not be attempted again for a full twenty-four hours or it may disappear for weeks. Similarly, eliciting the impulse more than once or twice a day during the early stages of treatment may cause it to disappear entirely. The estimation of the faradic and galvanic responses may cause the impulse to disappear for weeks. Thus the attendant must be able to judge exactly by touch the amount of impulse present. Any unskilled attention in the early stages will lead to failure. Extreme care is essential in the nursing of paralysed muscles of the shoulder girdle, especially the deltoid muscle. Intensive training of a competent staff is essential.

Results of Treatment

It is not, and never has been, claimed that this treatment will cure all cases at all stages of the disease. So far only thirty-five cases have been treated in the early stages, but in view of the degree of improvement in these and in 1,400 chronic cases, it is claimed that Sister Kenny's methods will give the maximum recovery possible in every case treated within the first two months of the disease, this has not always been achieved by orthodox methods. A feature of the method is the speed of improvement, which allows the period of hospitalization to be reduced. Under treatment no case, either acute or chronic, has developed deformity, nor have there been any trophic manifestations, such as chilblains or impairment of the growth of a limb.

Criticism of Orthodox Methods

In the acute stage emphasis is not placed enough upon maintenance of circulation, only one-half to one hour a day being allotted to this: for the remainder of the time the limb suffers from acute anoxia, and this leads to a spasm in the unaffected muscles, stiffness of joints, and contraction of fasciae. Splinting aggravates this greatly and causes marked impairment of normal proprioceptive sensibility. Splinting may prevent major deformities, but it accentuates muscle spasm and actually predisposes to the development of minor deformity. It also has a bad psychological effect. Many cases after only a month's splinting have shown stiffness of joints and early muscle contractures. Cases immobilized for more than two months are more difficult to re-educate effectively.

TREATMENT OF ACUTE POLIOMYELITIS

AN ANALYSIS OF SISTER KENNY'S METHODS

BY

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The treatment of infantile paralysis has long been inadequate, and statistics show that of muscles paralysed in the acute stage approximately 60 per cent. of the upper limb muscles and only 30 per cent. of lower limb muscles recover completely; the figure for the trunk muscles is somewhat higher than that for the upper limb. Although the figures vary in different epidemics, approximately 25 per cent. of cases make a complete recovery in three years, leaving a majority with some residual paralysis. These cases are complicated by trophic changes, and deformities which may arise from muscle imbalance. Any form of treatment which will reduce the amount of paralysis in this the "saddest of diseases" will be greatly welcomed. The new system of treatment which I am about to describe has produced results so promising that it appears that we may have to change our views as to the degree of recovery possible. This system has stood the test of over twenty years' experience in the treatment of both acute and long-standing cases, and in no instance has trophic change or deformity developed.

Orthodox Methods of Treatment

The accepted or orthodox methods of treatment may be summarized as follows:

- (a) Rest and immobilization of the affected limbs until the stage of pain or irritation is past.
- (b) Maintenance of affected muscles in a position of relaxation.
- (c) Avoidance of contractures and deformities by light retentive apparatus.
- (d) Massage and active and passive movements.

Treatment along these lines is based upon the theory that the pain in the limbs is of central or meningeal origin, and that rest and immobilization will remove the harmful afferent stimuli and enable reparative changes to take place in the cord. The stage of irritation or painful period lasts on an average six weeks, and may be prolonged for three to six months. Immobilization and rest during the whole of this stage is not considered detrimental by many authorities.

Principles of the Sister Kenny Treatment

In opposition to this accepted theory the view is taken that the pain in the extremities is almost completely vascular in origin. Some of the pain may be of central origin, but this takes the form of spontaneous or root pain and is not aggravated by movement. The muscular pain results from venous engorgement and consequent anoxia of the paralysed muscles. The venous return from the extremities is influenced mainly by muscle tone and activity. In poliomyelitis the interference with this venous return is often of extreme degree. At first there is venous stasis, and later on capillary stasis and capillary paralysis; this is manifested by the coldness and cyanotic appearance of the limb, and is accentuated by immobilization and splinting, especially in the position often adopted of abduction of the upper or lower limb. As a result mild trophic changes develop in the skin, bones, joints, fasciae, and especially in the muscles. Immobilization of paralysed

limbs, with consequent vascular catastrophe, leads to contraction of the muscle sheath and anaemia of muscle fibres, with subsequent mild fibrosis—seemingly a clinical entity, comparable to a very mild Volkmann's ischaemic contracture. Brooks has demonstrated the fact that complete obstruction to the venous return from a muscle leads in a few hours to profound muscle changes and is the causative factor in Volkmann's paralysis. A parallel may be drawn between the aetiology of the two conditions. The importance of this ischaemic pseudo-paralysis is recognized when it is understood that it renders muscle re-education extremely difficult. It is accentuated both by stretching and relaxation of muscles, as in the position of relaxation the muscle sheath contracts, tending to cause a permanent shortening of the length of the fibres and often resulting in slight deformities.

The irritation stage is an artificial stage, which may invariably be overcome in two or three days by a well-regulated system of frequent passive movement, fomentation, and hydrotherapy. In no case does pain persist more than three days, although it will usually recur in the early mornings after the limb has been rested during the night. Cutaneous hyperaesthesia also disappears under the treatment. As soon as the temperature drops the active phase of re-education is started—that is, re-education is begun within one week of the onset of paralysis instead of after six or more weeks. In those cases in which a slight rise of temperature persists treatment is carried out in spite of the pyrexia.

Massage has little part in the restoration of circulation, to which all efforts must be directed. By massage the blood is merely squeezed from one set of dilated capillaries to another. Only some method by which capillary tone can be re-established is effective (see Sampson Wright, 1936, *Applied Physiology*). Such a method is a system of hydrotherapy which makes use of the rapid alternation of hot and cold sprays in the bath. The limbs become suffused with a pink colour within ten minutes, the areas last to lose their cyanotic appearance being those which overlie the paralysed muscle groups. By this simple measure applied daily trophic changes are avoided and the later application of such operative procedures as sympathetic ramisection rendered unnecessary.

Briefly, instead of being dealt with by rest and immobilization in the acute stage, the affected limbs must be treated energetically, by fomentations, by hydrotherapy, and by movement through every range of each joint every two hours, and a finely graded system of re-education must be started as soon as possible, usually within the first week of paralytic manifestations. Under such a regime wasting of paralysed muscles occurs only to a small degree.

Treatment in the Pyrexial Stage

(1) The usual therapeutic measures, such as lumbar puncture and administration of sedatives and convalescent serum, should be adopted.

(2) The patient lies flat on the back with a very low pillow and a small towel between the shoulders to prevent winging of the scapulae; the limbs are placed in the normal position. The arms are alongside the body supported forward in the mid-horizontal level by small towels, and the forearm is midway between pronation and supination, with the wrists and joints of the hand also in mid-position. The elbow is supported by the towels so that the weight of the humerus does not stretch the muscles of the shoulder girdle. The legs are placed together, no abduction being permitted, and foot-drop and external rotation are prevented by an easily adjustable foot-block.

positive findings in the nervous system. Extending from the coracoid process four and a half inches down the left arm was an old surgical scar. The left arm was two and three-quarter inches shorter than the right, the shortening being limited to the humerus and radius and the ulna. An old scar, two inches long, was seen on the dorsum of the left forefinger, curving proximally to the radial side and extending through the nail, which was deformed.

The patient was admitted to the Gateshead Mental Hospital as a voluntary patient and there given atropine in high dosage, according to the technique of Hall (1935, 1937) after Kleeman. Complete relief from her symptoms was obtained with 4½ mg. daily, spread over three doses. Observation and routine psychological examination produced nothing relevant.

Commentary

Cases of Parkinsonism following poisoning by manganese, gold, cyanide, and carbon disulphide have been recorded, but I have been unable to trace one following poisoning by the substances used in this case for the treatment of the growth at the head of the humerus.

Only upon inquiry was a history obtained of weakness and pain in the interval between the injury and the onset of the tremor, and these had not been regarded by the patient as abnormal. Thus the first feature of Naville and de Morsier is poorly exemplified. But the emphatic story of the tremor beginning soon after the injury, appearing at first only in the injured finger and remaining clearly limited to it for some weeks, is surely significant; and indeed no previously recorded case has shown such a precise local relation between the trauma and the first tremor. Because of this and of such a definite history of excellent general health, and in view of the cumulatively impressive accounts of the condition hitherto published, it would seem unwarranted to postulate an untraceable attack of encephalitis lethargica. Coincidence of occult encephalitis and injury does not explain the previously published cases. Naville and de Morsier (1932) state that "the constant succession of these phenomena—injury, pain, hypertony, and tremor of the injured limb; extension to the homolateral limb, then to the contralateral limbs—enables one to declare that it is not possible for it to be in the nature of coincidence."

The effect of high atropine dosage has not been mentioned in the cases published, and it is pleasant to be able to record its satisfactory action in this case, but it will surely mask any spread of symptoms to the opposite limbs. When the patient was last seen (November, 1937) she was persisting with her atropine treatment, had no complaints, and was able to do a hard day's work.

I am grateful to Dr. C. B. Bamford for his interest and for his permission to publish this case, and to Dr. F. J. Nattrass for confirming the diagnosis of Parkinsonism.

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W. B. Hubbard (*Arch. Ophthalm.*, Chicago, August, 1937) has experimented with caustic burns in rabbits using 32 per cent. sulphuric acid and 20 per cent. sodium hydroxide. In all cases one eye was irrigated with tap-water, the other being washed out with either 2 per cent. sodium bicarbonate or 2 per cent. acetic acid to neutralize the caustic. In the case of acid burns the best results were obtained with tap-water, while alkaline lesions were best treated with weak acid irrigations. This difference is probably due to the fact that acid proteinates are insoluble and alkaline proteinates are soluble.

RETENTION OF URINE FOLLOWING EXCISION OF THE RECTUM

BY

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Retention of urine following excision of the rectum is so frequent that it is regarded as a usual post-operative complication. It occurs in both sexes, and generally three or four days elapse before the patient is able to empty the bladder voluntarily. Occasionally the resumption of voluntary micturition is delayed for weeks or even months, and this condition appears to be more especially associated with the removal of high and extensive growths by the perineal route. The danger of retention of urine is the supervention of sepsis, which, though not always fatal, causes considerable morbidity and undermines the patient's strength. Minor operations on the perineum and anal region often give rise to a retention of urine which rarely lasts more than twenty-four hours and which responds to simple treatment. This retention is thought to be due to reflex nervous inhibition. After removal of the rectum, however, the condition persists for three or four days, and occasionally for weeks, and must be due to a more definite interference with the nervous mechanism.

Sympathetic and Parasympathetic Innervation

The filling of the bladder is dependent upon its sympathetic nerve supply, which keeps the internal sphincter contracted and so allows the accumulation of urine. Abolition of this nerve supply, or its inhibition, allows the sphincter to relax and the urine can escape. The emptying is due to the action of the parasympathetic nerves, which cause the bladder to contract and at the same time relax the internal sphincter. Destruction of this nerve supply reduces the contractile power of the bladder and leaves the internal sphincter tonically contracted by the action of the sympathetic nerves, which are no longer opposed. Thus retention of urine occurs.

Normally voluntary control of micturition exists because both these nerve supplies have cortical connexions. If, however, both are destroyed the bladder does not remain completely paralysed. After a latent period the musculature contracts to the stretch-stimulus of the accumulating urine; at the same time the internal sphincter is relaxed by the intrinsic nerve plexus. This automatic bladder is an excellent example of how smooth muscle adapts itself to carry on its original function after the loss of its extrinsic nerve supply. The presacral nerve, lying behind the peritoneum over the promontory of the sacrum, brings the sympathetic nerve supply of the bladder into the pelvis from the lumbar ganglionated cords. This nerve divides into the two hypogastric nerves, which, passing round each side of the pelvis, bring the supply to the pelvic plexuses, joining them near the groove between the rectum and the base of the bladder. The fibres pass through these plexuses and are distributed to the trigone and internal sphincter.

The parasympathetic supply to the bladder is brought by the nervi erigentes. In seven pelvises dissected in the anatomy department of the University of Manchester I found that the nervi erigentes arose mainly from the second and third sacral nerves. In only three cases was there any contribution from the fourth sacral nerve. A pelvic plexus is formed on each side of the rectum by

Massage is inadequate. It does not prevent the development of chilblains and the more severe trophic disturbances in many cases, as does the special method of hydrotherapy. Electric stimulation causes fatigue and damages the recovering cells. The usual technique of re-education is too coarse. The re-education board does not prevent accessory or trick movements which by long facilitation take up the function of the paralysed muscles, which are forgotten and, if severely affected, do not tend to recover. Many of the affected nerve cells do not redevelop their synaptic relationships, and lie dormant or die. No method of re-education can be successful which does not prohibit all accessory movement, concentrate only on affected muscle groups, and produce mental co-operation between patient and attendant. This can only be done through the sense of touch, which can be refined to the point of recognition of the impulse. Full concentration on the part of the patients can only be elicited by solitary treatment, and by assisting the patient by sensory means to visualize the exact muscles to be treated.

Summary

In view of the results obtained by the Sister Kenny method we feel that the prognosis in acute poliomyelitis as regards recovery of function is better than has formerly been thought.

Recovery of muscles is retarded or prevented by ischaemic changes which occur if they are immobilized during the first few weeks of the disease; maximal power can only be achieved by hypertrophy of the residual muscle fibres.

The usual re-educative methods are not sufficiently specialized and do not fully avoid fatigue and trick movements; consequently the muscles do not regain function to the fullest extent possible.

It is suggested that deformity is caused by ischaemia and the consequent muscle spasm and fibrosis, which is, paradoxically, accentuated by splinting, especially when applied in the early stages.

The following medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem were announced in the *London Gazette* of January 4: as Commanders, Major-General E. W. C. Bradfield, C.I.E., O.B.E., I.M.S., Dr. John Ramsay, C.B.E., Major-General Sir Frank P. Connor, D.S.O., I.M.S.; as Associate Commanders, Dr. D. H. Mehta, C.I.E., Lieutenant-Colonel K. K. Chatterji, F.R.C.S.I.; as Officers, Major N. F. C. Burgess, M.D., Dr. S. A. Wilkinson, Lieutenant-Colonel J. Rodger, O.B.E., M.C., I.M.S., Colonel N. M. Wilson, O.B.E., I.M.S., Major-General E. A. Walker, K.C.I.E., C.B., I.M.S., Dr. E. E. Dufty, Mr. H. J. Paterson, C.B.E., M.C., Dr. C. D. Newman, Dr. J. F. Fitzmaurice, Colonel J. A. S. Phillips, C.I.E., I.M.S., Professor W. I. Gerrard, O.B.E., the Hon. R. D. Fitzgerald, M.C., M.D., Dr. J. S. Webster, as Associate Officers, Lieutenant-Colonel A. M. Sharma, I.M.S., Dr. K. B. A. Hamid, Lieutenant-Colonel M. S. Joshi, I.M.S., Dr. S. C. Chatterjee, Colonel N. S. Sodhi, M.C., I.M.S., Captain F. N. Kapadia, M.D., Major V. V. Krishnamoorthy, M.B., Dr. J. V. Karve, Dr. S. D. de Vos; as Serving Brothers, Dr. R. J. Dyson, Dr. E. W. Rees-Jones, Dr. H. Ramsden, Dr. H. B. Pare, Dr. L. D. Porteous, Dr. H. Hunt, Lieutenant-Colonel G. H. Mahony, I.M.S., Major F. T. Deatker, I.M.S., Dr. J. E. Dovey, Dr. R. C. Oehlers; as Associate Serving Brothers, Captain M. E. Pavri, L.R.C.P., Dr. S. W. Patil, M.B.E., Dr. B. W. Advani, Dr. P. C. Roy, Dr. R. B. V. V. Mulay, Dr. Li Shan Fan, Dr. A. Wai-Tak Woo; as Serving Sisters, Dr. Florence F. Sexton, Dr. Agnes M. Glover, Mrs. Agnes L. J. Dovey, M.B.

POST-TRAUMATIC PARKINSONISM AND THE EFFECT OF ATROPINE

BY

T. F. MAIN, M.D., D.P.M.

Deputy Medical Superintendent, Gateshead Mental Hospital, Stannington

Since the review of forty-two cases collected from the literature by Naville and de Morsier few records of this condition have been published. Faure-Beaulieu (1932) gives a detailed account of one case, and finds himself in close agreement with the findings and conclusions of those authors, that such a syndrome indeed exists and that it presents the following features: (i) in the interval between the injury and the appearance of the Parkinsonian syndrome the injured limb remains weak, painful, or paraesthetic; (ii) tremor and rigidity almost always begin in the injured limb; (iii) the syndrome then extends to the other limb on the injured side, so that at a certain stage the aspect is one of hemi-Parkinsonism; (iv) there are no mental changes.

More recently Walker (1937) and Hodgson (1937) have published one case each, and J. H. Hebb, Director-General of Medical Services, Ministry of Pensions, has found fit to query the existence of such a syndrome in view of the medico-legal consequences of its recognition. The details of the following case may therefore be of interest.

ILLUSTRATIVE CASE

A single woman aged 25 was seen in July, 1937, at the Gateshead Psychiatric Clinic of the Royal Victoria Infirmary, Newcastle-upon-Tyne, suffering from weakness and tremor of the left arm, which was suspected by her doctor to be of a hysterical nature. Three years before, while chopping wood, she had struck the tip of her left forefinger with an axe, so that "the end was hanging off." This had healed in about three weeks, and a fortnight later trembling was noticed in the injured finger. Her hand was clumsy—it "dropped things easily"—and in about three months it too began to shake, while a week or two after this the whole forearm and arm became involved. Two weeks later she noticed her left foot "kicking stones on the ground when she walked." The limbs on the left side then "lost their energy," and this and the trembling of the arm got worse, so that for the last two and a half years she could do little physical work of any kind.

Inquiry into her history elucidated former (surgical) trauma to her left arm. In November, 1918, and again in October, 1919, Mr. Grey Turner operated on the head of her left humerus, scraping out a growth which was proved histologically to be a giant-cell sarcoma. On the first occasion he sponged out the cavity with pure carbolic, and on the second washed it out with Harrington's solution and packed it with iodoform gauze soaked in 1 in 18 carbolic. In November, 1919, the wound was reopened, cleaned, treated with bipp, and sutured. An examination in March, 1923, showed no further trouble, and the x-ray report then was, "a piece of metal dressing." Detailed inquiry for any illness which might be construed as an attack of encephalitis lethargica revealed nothing: neither she nor her mother could remember her having even a common cold during the last six or seven years. Her mother said there was no mental change.

The patient manifested the following features of left hemi-Parkinsonism: head bent towards the left shoulder; tremor of the lower lip and left angle of the mouth, more pronounced when she smiled in her slow Parkinsonian way; the left elbow held close to the side, with forearm pronated and tremorous; a pill-rolling movement of the left fingers and thumb; rigidity of the left arm and leg. She adopted a steppage gait for the left leg, and her foot was plantar-flexed. The tendon, abdominal, and plantar reflexes were normal, no sensory changes were revealed, and there were no other

Clinical Memoranda

Abortion Associated with Broad Ligament Cysts and *B. welchii* Infection

Few abortions can have a stranger background than that about to be described.

CASE RECORD

Mrs. M., aged 27, the mother of three children, the youngest being 7 years old, had her last monthly period on September 8, 1937. During October she had hyperemesis, and at the beginning of that month had a shivering attack, following a fall. She was admitted to hospital on October 26 on account of bleeding from the vagina, which started the night before. She looked flushed, her lips were dry and cracked, and the tongue was coated. The respirations were rapid (44 per minute), but there were no physical signs in the chest. The throat was clear and without a rash; her pulse rate was 108 and there was no cardiac bruit; the temperature was 101° F. She had complained of abdominal pain the previous night.

On examination the abdomen appeared to be slightly distended, and tenderness was felt on pressure in the left iliac fossa. There was no dullness in the flanks. Vaginal examination revealed a uterus about the size of a two-months pregnancy, fixed and tender; the cervix was not dilated and there was a foul-smelling discharge. The urine was acid, concentrated but clear, and contained a trace of albumin.

The case was diagnosed as general peritonitis following abortion and immediate laparotomy decided on. Under 0.5 per cent. novocain and gas-and-oxygen anaesthesia (by Dr. Knight) the abdomen was opened in the midline below the umbilicus; no pus was seen. A smear was taken from the visceral peritoneum immediately on opening the abdomen and sent to the pathological laboratory for investigation. On looking into the pelvis a greyish-black sausage-like mass was found on the left antero-lateral side of the uterus. On releasing the tumour it lost its congested look and was seen to be a parovarian cyst filled with clear fluid. There was another cyst, situated posteriorly, which had the left Fallopian tube running above it, and yet another cyst was present beneath, actually pushed down on to the pelvic floor. They were all removed. The superior cyst was the size of a small hen's egg, the middle one the size of a duck's egg, and the inferior one the size of a pigeon's egg. The right ovary was normal; the left ovary was absent.

My impression at the end of the operation was that I had made a mistake in diagnosis, but that laparotomy had been justified by the unsuspected findings. The report from the pathological laboratory came through in due course, and was as follows: "The cysts are simple parovarian cysts. Peritoneal smear: films show Gram-positive bacilli and pairs and short chains of Gram-positive cocci. Culture yields a growth of *B. welchii* and *Staph. albus*." This report was dated November 1: it was therefore five days before the patient was known to be suffering from an infection by the gas-gangrene bacillus.

On the morning following operation the patient aborted, and the placenta had to be removed manually: she was very shocked until this was done. Proseptasine therapy was started—1 gramme three times a day by mouth—and glycerin was introduced into the vagina: she had precordial pain the first post-operative day, but there were no physical signs in the chest. Pitressin was administered in four-hourly doses until flatus was passed two days after the operation; the bowels were moved by enema on the fourth post-operative day. On the fifth post-operative day she complained of pain in the left buttock, and on examination there was a swelling which seemed to be deep-seated in the buttock and to bear an infero-lateral relation to the left sacro-iliac joint. The swelling was fomented and two days afterwards explored, foul-smelling greenish-yellow pus being aspirated. The abscess was thereupon incised

and found to be deep to the gluteus maximus muscle, the cavity in its upper part being bounded anteriorly by the posterior ligaments of the left sacro-iliac joint. A drain was inserted. On the same day the report on the peritoneal smear came to hand, and the patient was given 20 c.cm. anti-gas-gangrene serum.

The report on pus aspirated from the gluteal abscess is as follows: "Films show Gram-positive cocci in pairs, chains, and clusters. Cultures yield a growth of *B. welchii* and *Staph. albus*." Her condition improved after draining this abscess, and she had another 20 c.cm. *B. welchii* serum a week after the first dose. Five units of insulin were given twice a day to act as a tonic.

A week after the gluteal abscess had been drained the patient complained of abdominal pain. Rectal examination revealed a pelvic abscess: this was drained through the anterior wall of the rectum and produced only a tablespoonful of pus. She became afebrile four days later; there was troublesome diarrhoea for a few days. Convalescence was rapid, and she was discharged from hospital thirty-three days after admission. On the day of discharge pelvic examination revealed a uterus firmly fixed in the pelvis and drawn over to the left side. Since she had been afebrile for two weeks the fixity of the uterus was recognized as the result of the pelvic abscess.

SUMMARY

1. Incarcerated broad ligament cysts complicating pregnancy.
2. *B. welchii* infection of the peritoneal cavity present at operation.
3. Possible presence of gluteal abscess before admission to hospital, and the condition primarily a *B. welchii* septicæmia determined by the fall early in October.

Longtown, Cumberland.

R. RUTHERFORD, F.R.C.S.

Pregnancy Associated with an Ovarian Dermoid

The following case history presents some points of unusual interest.

On June 22, 1937, Miss X., aged 16, consulted me. Her last normal period was on March 6. Early in April there was a slight vaginal discharge of blood. On examination the breast signs were inconclusive. Palpation of the abdomen was negative. Bimanual examination, with one finger in the vagina, disclosed the presence of a tense pelvic swelling to the right of the uterus. A tentative diagnosis of unruptured extra-uterine pregnancy was ventured upon.

The patient was sent to Auckland Public Hospital, where a diagnosis of retroverted gravid uterus was made. The displacement was corrected and a ring inserted. No other pathological condition was noted. A few days after her discharge from hospital she again consulted me. On inspection a swelling could be detected in the right lower abdomen. Bimanual examination revealed the presence of a three-months gravid uterus and a freely movable, firm-grounded swelling above the pelvic brim on the right side. The clinical findings suggested an ovarian cyst. An infra-umbilical abdominal incision revealed an ovarian cyst about the size of a cricket ball. On removal the cyst proved to be a dermoid, containing sebaceous material, hair, and cartilage. Following operation the pregnancy continued undisturbed.

Points of interest are: (a) The association of pregnancy with an ovarian dermoid at the age of 16. (b) When the patient was first examined the cyst was intrapelvic. (c) At the time of the second examination (after the retroversion had been corrected in hospital) the intrapelvic lateral swelling had disappeared, having been displaced into the abdominal cavity.

Auckland, N.Z.

J. P. HASTINGS, M.D., M.R.C.P.

the nervi erigentes, and fibres could be traced down to the anus and as high as the recto-sigmoid junction. The plexuses were attached to the rectum only by their fibres of distribution, and, passing forwards, they communicated with each other and received the sympathetic fibres near the prostate and bladder base. Dissection of the plexuses, and the tracing of the fibres as completely as possible, showed that those arising from the second sacral nerve appeared mainly to supply the bladder, whereas the rectum was chiefly supplied by the lower fibres of the third sacral nerve and the contribution from the fourth nerve.

Operative Injury to Nerves

In the dissecting room the rectum may be removed without the risk of damage to the nervi erigentes or to the pelvic plexuses. The hypogastric nerves which carry the sympathetic supply are in no danger of being injured. The removal of a carcinomatous rectum in a living patient demands, however, a much wider dissection. It was found in the cadaver that the dissection necessary would assuredly destroy the contribution to the pelvic plexuses from the fourth sacral nerves and the lower fibres from the third nerves. During the operation the upper fibres from the third sacral nerve were in constant jeopardy, depending mainly on the height and lateral extent of the excision. Damage to the fibres arising from the second sacral nerve could be avoided, but where a high removal was attempted they were in danger of being divided.

The dissections suggested that in perineal excision of the rectum there is little interference with the sympathetic supply of the bladder, but that the nervi erigentes always suffer some damage. The parasympathetic fibres arising from the fourth, and the lower fibres arising from the third, sacral nerves are usually divided, but as they appear mainly to supply the rectum their division does not affect the bladder to any great extent. The supply to the bladder from the upper fibres of the third sacral nerve suffers from traction, and to a varying degree from actual severance of fibres. The supply from the second sacral nerve is injured usually only by traction, but in the removal of high growths it may be severed. The effect of traction will be to paralyse temporarily, and of severance to paralyse permanently, the bladder parasympathetic supply. Hence the action of the sympathetic nerves will be unopposed, giving in the first case a temporary and in the second case a more or less permanent tonic contraction of the internal sphincter. The resulting retention of urine will be temporary in the first instance and more lasting in the second; but it will hardly become permanent, as the smooth muscle will slowly adjust itself to the altered conditions and give an automatic type of bladder.

Previous attempts to deal with this retention of urine have been mainly concerned with the methods of emptying the bladder when the condition is established. The best results appear to have been obtained by Cuthbert Dukes (1928-9), who suggested the pre-operative administration of two doses, at weekly intervals, of a vaccine prepared from the bacteria present in these urinary infections. He inserted a catheter at the time of operation and afterwards emptied the bladder frequently. The catheter was connected to an apparatus which allowed repeated bladder-washing to be performed, and had a column of antiseptic fluid as a seal for the catheter instead of the customary wooden peg. He demonstrated an immediate improvement in results; but even in his own cases one-third of the males and all the females developed some urinary infection. The danger of urinary infection would

cease to exist if we could avoid the introduction of a catheter into the bladder.

Cause of the Retention

It has been shown that the cause of the retention of urine is a relative overaction of the sympathetic nerve supply of the bladder. This appears to be due to weakening of the parasympathetic supply by traction on its fibres during the operation or, in extreme cases, by actual severance of the nerves. The overaction could be avoided by dividing the sympathetic supply either at the time of excision or at a previous operation. This is easily achieved by the division of the presacral nerve, and we know from the numerous cases in which it has been done for gynaecological pain that it is followed by no untoward effects upon the bladder, even though that organ has an intact parasympathetic supply.

This presacral neurectomy involves no separate intervention. Its performance is very easy and it adds no more than a few minutes to the time taken by the exploratory laparotomy and colostomy which must precede the perineal excision. The presacral nerve is found behind the peritoneum overlying the promontory of the sacrum. An incision two inches in length is made through this peritoneum, the pelvic colon being held well over to the left side. The nerve is formed near the bifurcation of the aorta by the junction of three descending roots, and it passes down into the pelvis either as a single cord or, more commonly, as a loose plexus. Rather more than one inch of the nerve is excised, and to make sure that all the fibres are divided it is better to clear the angle between the right common iliac artery and the left common iliac vein completely of all fatty and fibrous tissue down to but not below the sacral promontory.

Results

A consecutive series of twenty-two cases of perineal excision of the rectum have had their presacral nerves excised at the preliminary laparotomy. Fifteen were males and seven were females, and there was no mortality in the series. In no case was a catheter inserted into the bladder as a guide to the urethra, as it was felt that this was unnecessary and only introduced a risk of sepsis. Of the seven women four passed urine naturally and three had to be catheterized, one for two days and the other two for three days. Of the fifteen men nine passed urine of their own accord; four were catheterized for one or two days, and the other two for five days. In each of these cases the prostate gland was larger than normal. All the patients passing urine normally escaped urinary infection.

These results, although not completely solving the problem of post-operative retention of urine after perineal excision of the rectum, suggest that a preliminary division of the sympathetic nerve supply of the bladder is of considerable value in avoiding this troublesome complication.

Summary

Retention of urine following perineal excision of the rectum appears to be caused by a nervous imbalance—a sympathetic preponderance due to trauma to the parasympathetic supply (the nervi erigentes).

Resection of the presacral nerve at the time of the preliminary laparotomy and colostomy has been followed by a considerable diminution in the incidence of post-operative retention of urine.

REFERENCE

Dukes, Cuthbert (1928-9). *Proc. roy. Soc. Med.*, 22, 259.

The author has, of course, since radiology is a department of medicine, to deal fully in his book with the general legal position of doctors. He therefore summarizes the law of contract and negligence as it affects the doctor; the law of agency, with its implications of vicarious responsibility for assistants and nurses; the law of evidence, and more particularly of x-ray films as evidence; and gives useful, down-to-earth advice for the radiologist who is required to testify in court. In short, this book receives full marks and is highly recommended to English radiologists, with the proviso that, although the principle underlying the American systems of law is much the same as in this country, the reader must make allowance for differences in details of procedure. The book must have been extremely difficult to write, because law and practice vary considerably among the many States of the Union, and the mass of reported cases is enormous and bewildering. There is a good bibliography and table of cases.

PROFESSOR DREYER

Georges Dreyer: A Memoir by his Wife, Margrete Dreyer. With an introduction by Sir Charles Sherrington, O.M. (Pp. 249; 8 illustrations. 10s. 6d.) Oxford: Basil Blackwell. 1937.

This is a charmingly written account of the late professor of pathology at Oxford showing the happy home life of a busy and enthusiastic scientific worker. Dreyer, though a Dane by descent, had several associations with the country of his later life: born at Shanghai, he was thus nominally a British subject; his uncle was president of the Astronomical Society, and two cousins are respectively an admiral and a major-general in the British Navy and Army. Originally anxious to follow his father's profession, the Danish Navy, he was first drawn to medicine by his experience in a very severe attack of scarlet fever. Educated at the University of Copenhagen, he became a demonstrator under Salomonsen, and did much work on ultra-violet rays with Finsen. Among the visitors to the Copenhagen laboratories were Professor W. Bulloch and Dr. E. Frazer of the London Hospital, and thus it came about that he visited England and worked at Oxford, especially under the late Professor Goitch.

In 1907 James Ritchie, who since 1902 had been the first professor of pathology, left Oxford to become superintendent of the laboratories of the Royal College of Physicians of Edinburgh. This changed the place but not the character of Dreyer's activities, for, though his prospects of such a chair in Copenhagen were good, he was attracted to the life at Oxford which he knew, and was elected from the other "possibles," among whom was the late Sir F. W. Andrewes.

The wide field of his scientific work, especially on standards, and his happy faculty of attracting and inspiring young collaborators are shown in this volume, which begins with a pleasantly reminiscent introduction by his colleague, Sir Charles Sherrington.

CLINICAL CHEMISTRY

Chemical Procedures for Clinical Laboratories. By Marjorie R. Mattice, A.B., Sc.M. (Pp. 520; 90 figures, 2 coloured plates. 30s. net.) London: Henry Kimpton. 1936.

The rather cumbersome title *Chemical Procedures for Clinical Laboratories* is perhaps less happily chosen than is the material out of which this book is compiled. Nowadays the better textbooks of this kind do not differ very greatly over a wide range in the methods they choose for presentation. We do not propose, therefore, to make a detailed commentary upon the author's main

material, but rather to single out for mention some distinguishing features of her work. The first of these are the concise notes which follow the description of each method and which are carefully designed to guide the inexperienced over the difficulties and pitfalls that are likely to beset them. The notes, however, cover technical matters rather than general principles, and we feel that the latter could have been given more emphasis.

In a very full section on blood analysis the author's contributions to the accurate determination of creatinine should command special attention, while the part devoted to the urine is chiefly notable for the end chapter, which ably deals with an often neglected topic—namely, the detection and estimation of the heavy metals, not only in urine, but also in the other biological fluids. The author has also taken considerable trouble in the preparation of the fourth section, embracing miscellaneous biological fluids, and has collected very complete information upon their exact composition. She may rightly claim that it is done with a thoroughness not attempted by any other book, and indeed much of the tabulated data is not readily accessible anywhere in the literature. A valuable appendix includes a chapter on the calculation of results and errors, introducing the student to the use of statistical formulae. Here again we have evidence of the author's determination that the book should lack nothing that is essential to the full understanding of analytical methods.

OPERATIONS ON THE EYE

A Textbook of Ophthalmic Operations. By Harold Grimsdale, M.B., F.R.C.S., and Elmore Brewerton, F.R.C.S. Third edition. (Pp. 322; 105 figures. 17s. 6d. net.) London: Baillière, Tindall and Cox. 1937.

The third edition of Grimsdale and Brewerton's textbook on ophthalmic surgery shows a radical departure from the previous editions in the elimination of much that is only of historical interest. In this sense the earlier editions had a completeness which the present edition lacks, but the deletion of matter of historical value has not been carried to the extreme of leaving the reader without a guide as to the evolution of present-day methods. The final result is that the book is more practical without having lost its individuality. The broad conception and wide sweep which pervaded the two earlier editions are left, and thus the student has still at his disposal the means of judging why modifications in operative procedure have been developed and why so many of these are stillborn. By drastic revision room has been found for bringing the subject-matter up to date, the most obvious addition being, of course, the section dealing with detachment of the retina.

A point of weakness in the book is that in their obvious fairness to other surgeons the authors have kept their own vast experience and surgical judgment in the background, allowing the various innovations of operative technique to speak for themselves. To the non-expert reader this has the disadvantage of not giving a clear lead as to which methods are routine procedures. A little dogmatism would not have been out of place. One aspect of modern work does not seem to have received due attention. Plastic operations used to be, and perhaps still are, an important part of ophthalmic surgery. The great changes that have taken place in this field are not clearly reflected in the present work—cases in point being the operations for ectropion and ptosis. These are, however, minor flaws in a book that has been an established guide for a quarter of a century. A word of praise is due to the hand drawings; in their clarity, economy, and effectiveness they are fit companions to the text-matter.

Reviews

SURGERY OF THE CHEST

Thoracic Surgery. By Ferdinand Sauerbruch and Laurence O'Shaugnessy, F.R.C.S. A revised and abridged edition of Sauerbruch's *Die Chirurgie der Brustorgane*. (Pp. 394; 15 plates, 215 figures. 50s. net.) London: E. Arnold and Co. 1937.

It has become commonplace to point to the enormous progress made in thoracic surgery. Indeed, the developments are so rapid that it is hardly possible to write a textbook on the subject that is up to date in all respects at the time of publication. But such books generally suffer from yet another defect. The artificial distinction between physicians and surgeons is nowhere to be deplored more than in connexion with surgery of the chest. In this field success often depends more on a correct appreciation of the "medical condition" of the patient, and of the time to operate, than on the actual operative technique. Since it is often difficult for surgeons, under conditions existing in this country at all events, to obtain the necessary "medical" experience, close co-operation with the physician is essential, and it is the physician who should accept the responsibility and insist upon due weight being given to his opinion.

Hence the book just produced by Sauerbruch and O'Shaugnessy is assured of an enthusiastic welcome. It is described as "a revised and abridged edition of Sauerbruch's *Die Chirurgie der Brustorgane*," but to most English-speaking readers it will open a wide field of experimental and clinical work that has stood the test of time. Professor Sauerbruch's pioneer work in chest surgery has always been carried out in a team by whom the associated medical problems were constantly being explored; and Mr. O'Shaugnessy's experimental work of more recent date has similarly found important clinical application in the operation of cardio-omentopexy.

The most valuable feature of the book is the logical presentation of the possibilities of active intervention in chest disease—a presentation that will appeal and be intelligible to the physician as well as the surgeon. The style is brief and to the point, yet the whole makes an interesting and connected account. The possibilities of surgery in the chest are well shown by the fact that almost half the book is concerned with surgery of the heart, pericardium, mediastinum, oesophagus, and diaphragm. Each condition described in the book is illustrated by case histories, often going back for several years (for instance, a thoracoplasty and a lobectomy each dating from before the war), thus meeting the frequent objection that such procedures are so new that the end-results cannot yet be correctly assessed. The need is stressed for placing exploratory thoracotomy—a safe procedure—on the same footing as exploratory laparotomy, if we are to discover more conditions in the chest at a stage when they are amenable to surgical treatment. It is good to find bronchiectasis discussed as a condition found in adults, with the addition of a section on its presence in children; for the common tendency to regard it as a disease of childhood has been responsible for its neglected recognition in adults. There are several unique features in the book—for instance, a tomogram of a lung abscess, a skiagram of a peptic ulcer of the oesophagus, a skiagram and a picture of a specimen of mediastinal emphysema, skiagrams and diagrams of mediastinal hernia, and the Graf diagrams of the mechanical effect of a

pleural effusion—all features to be found only in very specialized literature.

The general excellence of the book tends to emphasize several points for criticism. Only forty pages out of a total of 360 are allotted to the section on pulmonary tuberculosis. This may be useful in stressing the point that surgery of the chest is no longer synonymous with surgery of phthisis, but it does not take into account the fact that, owing to the high incidence of pulmonary tuberculosis, the surgical treatment of this disease remains the largest part of the thoracic surgeon's work. The discussion is too brief to assist the physician, and shows a conservative attitude that will rightly discourage reckless surgical interference by the inexperienced, but may at the same time cause many patients to be deprived of the benefits of surgical treatment by the experienced. In a comprehensive treatise of this kind it is disappointing, to say the least, to find also a very scanty account of endoscopy. Bronchoscopy, in particular, is an indispensable and (should be) a very frequent procedure in the diagnosis and treatment of chest disease, and it should have been very fully discussed. Minor points to which attention may be drawn are the absence of mention of pulmonary tuberculosis in the differential diagnosis of pulmonary abscess, and the inadequate insistence on early operation. The omission of dates after names of references should be corrected in another edition, since this book is written in a pronounced historical vein.

No praise is too high for the production of the volume. The format, the quality of the paper, the general lay-out, and the beautiful illustrations all add to the reader's enjoyment. Not the authors alone but also the publishers must be congratulated on this work, which should do much to popularize important practical advances in medical knowledge.

RADIOLOGY AND THE LAW

The Roentgenologist in Court. By S. W. Donaldson, A.B., M.D. (Pp. 230. 18s.) Springfield, Illinois; Baltimore, Maryland: Charles C. Thomas. London: Baillière, Tindall and Cox. 1937.

This volume stands out from a bewildering mass of American medical and semi-medical literature as a thoroughly sound work filling a large and yawning gap. Perhaps the first monograph on the legal position of the radiologist had to be written by an American, because in the United States radiologists are apparently subjected to a legal persecution quite inconceivable by their English colleagues. They are constantly dragged to the courts for mishaps of all kinds, and often have to pay damages for trivial burns which the most careful precautions could not have avoided. In America radiotherapy and electrical treatment are popular, and are practised by a number of persons who are perhaps not adequately qualified. Although in this country one seldom hears of an action for negligence against a radiologist, other legal problems nevertheless arise from time to time. One of these is the question of who owns the x-ray films which a radiologist makes as part of his examination of a paying patient sent him by a general practitioner, and, more difficult, who has the right in a particular case to call for their production in court. Dr. Donaldson has a chapter on the ownership of films, headed with the appropriate quotation from *As You Like It*: "An ill-favoured thing, sir, but mine own." In it he collects a large number of decisions given by the courts of different States, and quotes a judgment of the Michigan Supreme Court holding that, in the absence of agreement to the contrary, x-ray negatives are the property of the physician or surgeon who makes them in the course of his treatment.

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BUG DESTRUCTION

The bed bug is not normally a vector of communicable disease, but everything else that can be said of it in its human relations is by way of dispraise. By means of its powerful beak it pierces the skin of man, raising a painful red blotch surrounded by papules. By means of a pair of glands situated in its thorax it diffuses a repulsive odour. It is a pest in houses, lying concealed by day in cracks and crevices and emerging at night to suck the blood of sleepers. The presence of bugs in dwellings, besides being vexatious to tenants, has also come to carry some suggestion of a social stigma, and quite a range of substances of varying degrees of activity has been employed from time to time for their extirpation. Turpentine and scalding water, corrosive sublimate and painters' blow-lamps, naphthalene and sulphur dioxide have all been applied without conspicuous success, and so recourse has been had, as a last resort, to gaseous hydrocyanic acid.

While fumigation with hydrocyanic acid has been found quite effective for the destruction of bugs, the method completely fails to conform to the requirement that a convenient disinfectant should not be unreasonably toxic to man, by attacking operators or dwellers in adjacent premises or by leaking out of stuffed furniture after the fumigation is over. When the acid is employed for killing rats in the holds of ships the whole procedure can be kept under strict control, but its routine use about people's homes for the destruction of insects, even granted that bugs are a pest and that all precautions are taken, as we believe they are, conveys to the mind a suggestion of incongruity between the risks taken and the results achieved. The report printed elsewhere in this issue (p. 160) is to the effect that the vapour of heavy naphtha may be found on extended trial to possess a bug-destroying power which is for practical purposes equal to that of hydrocyanic acid while at the same time non-toxic to man. The method recommended is to spray the naphtha on the surfaces to be disinfected and also on sheets of Egyptian cotton hung on frames of electrical conduit tubing three inches from the walls, with a view to producing a concentration of naphtha vapour in the air of the room. The room is then sealed and kept sealed

for twenty-four hours. Just before sealing up the room a clockwork-driven delayed-action naphtha sprinkler is placed in position and set to deliver a reinforcing charge of naphtha from nine to eleven hours later. This is done in order to ensure that naphtha vapour remains in the air in lethal concentration. When the room is unsealed all bugs should be dead. Lethal concentrations of naphtha for bugs are from 0.15 per cent. upwards, with twenty-four hours' exposure. It is important that the room temperature should not fall below 50° F., and preferable that it should be 60° F. or over. Owing to the rapid escape of heat from houses, rooms for disinfection in winter should be raised to 80° F. before the process begins. As the flash point of the naphtha is 105° F. no naked lights or tobacco smoking can be permitted. The only instance of disability among the workmen employed on the tests was one case of irritation of the skin of the hand, which readily yielded to lanoline. With suitable modifications the method can be applied to empty or furnished rooms or vans containing furniture.

On weighing up the results of the tests which have been carried out the impression is distinctly favourable to the tentative claims made on behalf of heavy naphtha. The reporters have rendered a useful service by their work with the substance. If bugs can be killed with ease and precision by its means there will be no need for operators or others to incur the major hazard of hydrocyanic acid.

DIETETIC THERAPEUTICS

At the present time the subject of dietetics is front-page news. That is unfortunate for its consideration in an atmosphere of scientific calm. There would appear to be two main reasons for this popular interest—one good, the other bad. The good one is that our social conscience is rightly stirred by the question of unemployment and the risks of consequent malnutrition; there is a strong desire to see that the available resources are wisely applied. The bad reason is symptomatic of the widespread neurosis of the present day. Neurosis is generally characterized by a regression to more primitive modes of thought, and for the infantile mind the working of its alimentary canal is the prime interest—an interest which, indeed, the mother and nurse foster. An anxiety state therefore generally involves a certain fussiness about food. Such a patient seeketh after a prescribed diet and will not be comforted without one, thereby often falling a not unwilling victim to cranks.

The end of the nineteenth century saw the quantitative aspect of diet firmly established: the role

MOTOR FUNCTIONS OF THE ALIMENTARY TRACT

Normale und Pathologische Physiologie der Bewegungsvorgänge im Gesamten Verdauungskanal. Zweiter Teil, Klinik, Pharmakologie. By Professor Dr. Med. Werner Catel. (Pp. 298; 123 figures. M. 15; GM. 16.50.) Leipzig: Georg Thieme. 1937.

Dr. Werner Catel, who is director of the University Children's Clinic at Leipzig, has continued his study of the motor functions of the alimentary canal, and in the second volume of his work on the normal and pathological physiology of the motor functions of the whole alimentary tract he deals with clinical and pharmacological considerations. The subject is covered in a thorough manner, beginning with the physiology of sucking, of chewing, and of swallowing, and then going on to consider the stomach and intestines in great detail. Radiological studies are made use of in all sections, and the later portions of the book, which deal with pharmacology, describe the effects of selected drugs in series of animal and human experiments. References to the literature are given in some detail, and the whole monograph can be recommended to those whose special interest lies in the alimentary tract in health and disease. The author's special clinical interest lies in the field of paediatrics, but his appointments apparently also include a general out-patient clinic, so that adults also come under consideration, and the clinical basis of the study is a wide one.

Notes on Books

The forty-fifth edition of the *Annual Charities Register and Digest* has been published by the Charity Organization Society. The subtitle of this valuable reference book describes it as a "classified register of charities in or available for the Metropolis," but in fact the scope is much more comprehensive. Details are given of more than 2,700 institutions and societies, and the index, as usual, is particularly full. There is also a statistical chapter on the finance of the social services, voluntary and official, and a list of addresses of social case-work societies all over the world. Copies of the 1938 edition of this indispensable directory of charities and public institutions for the service of persons in trouble or need can be obtained from the Charity Organization Society, Denison House, Vauxhall Bridge Road, S.W.1 (cash price 8s. 6d. in the United Kingdom).

The continued popularity of *Black's Medical Dictionary* has called for a fourteenth edition, which completes the printing of 100,000 copies since its first appearance in 1906. The author, Dr. J. D. COMRIE, has taken full advantage of this opportunity of bringing the book thoroughly up to date in regard to recent medical advances. It now comprises more than a thousand pages of text and five hundred simple illustrations. It is published by A. and C. Black at 18s.

The *1937 Year Book of General Medicine* (The Year Book Publishers, Chicago, and H. K. Lewis, London, 12s. 6d.), one of the practical medicine annuals, now in their thirty-seventh year, is, like its immediate predecessor, divided into five parts, devoted respectively to infectious diseases, by George F. Dick; diseases of the chest excepting the heart, by Lawrason Brown; diseases of the blood and blood-forming organs and diseases of the kidney, by George R. Minot and William B. Castle; diseases of the heart and blood vessels, by William D. Stroud; and diseases of the digestive system and metabolism, by George B. Eusterman. Among the subjects receiving special attention are arthritis, immunization against diph-

theria and influenza, prontosil therapy, air-conditioning, silicosis, pneumonia, carcinoma of the lung, collapse treatment of pulmonary tuberculosis, hypochromic and haemolytic anaemias, various types of leukaemia, hypertension, coronary thrombosis, electrocardiography, peptic ulcer, and diabetes.

Food Tables, by V. H. MOTTRAM and ELLEN M. RADLOFF (Arnold, 5s.), "is intended to fill a gap in the equipment of the dietitian and to supply a set of tables collected from authoritative sources of the composition of the most used of British foodstuffs." It is based on the most up-to-date analyses, in which the content of mineral substances has been accurately estimated and in which foods have been analysed as they are served at table. In all cases analyses are expressed in terms of portions of 100 grammes, 1 oz., 4 oz., and 1 lb., and figures are given where available not only for protein, fat, carbohydrate, and total calories, but also for calcium, phosphorus, and iron. In many cases figures are also given for waste, roughage, non-phytin phosphorus, and titratable acidity. The authors have done a very useful bit of work, and this little book will be invaluable to all who have to calculate and dispense diets.

The scope of *Studies on the Bacterial Flora of the Respiratory Tract in Acute and Chronic Bronchitis, Bronchial Asthma and Lung Gangrene*, by SVERRE DICK HENRIKSEN (Oslo: Jacob Dybwad, 1937, 18 Kr.), is indicated in the title of the monograph. It contains the results of investigations carried out over a period of four years into hitherto little studied problems at the bacteriological laboratory of the Norwegian Army. The author was able to demonstrate that the vast majority of cases of acute bronchitis are caused by a pure infection with *Hemophilus influenzae*, pneumococci, or haemolytic streptococci, or by a mixed infection with two of these organisms. The results in the other conditions studied were less clear-cut, but are of interest. The book is written in better English than most publications from Scandinavian countries.

That a third edition of Dr. R. RIVOIRE'S *Les Acquisitions Nouvelles de l'Endocrinologie* (Masson, 45 fr.) has been called for so speedily is not surprising, for it is very attractive both in matter and manner. The author ingeniously compares the newer phases of his subject to the transition from a pastoral to an agricultural state—mere surface grazing is no longer enough; we are ploughing deeper. He expresses legitimate satisfaction that several of his earlier hypotheses have been subsequently confirmed by recent observations. He now adds another theory—that myasthenia gravis is due to a thymic adenoma and is characterized by an excess of sodium and a deficiency of potassium in the blood—the precise opposite of the conditions obtaining in Addison's disease. Some interesting observations are recorded in support of this view. The chapters on the thyroid and pineal are new, and the whole book has been revised so as to bring it thoroughly up to date.

The International Congress of the Union of Therapeutics held its first meeting under the presidency of Professor. Emile Buerger at Berne last May, and the bound volume of proceedings (624 pages in length) has been published by Medizinischer Verlag Hans Huber, Berne (price RM. 14.40). Copies may also be obtained from Masson et Cie, 120, Boulevard Saint-Germain, Paris, VIe (price 24 francs).

The monograph on *Castellani's Bronchospirochaetosis* (Palermo: L. Salpietra, lire 18), containing a brief introduction by Sir ALDO CASTELLANI himself, gives a concise and lucid account of a condition first described in 1905. Nineteen illustrative cases are recorded in patients aged from 20 to 61. An international bibliography of 142 references is appended.

so-called recovery stage during which spontaneous return of function is seen in muscles previously weak or completely paralysed. A valuable contribution on this subject from the Royal National Orthopaedic Hospital, London, appears in our current issue at page 164. In this article Mr. N. M. Harry shows that in a series of thirty-six cases treated by the orthodox methods of rest, splinting, and a carefully graded system of re-education striking and rapid recovery of muscle function occurred only during the first year, and more especially during the first six months. The system of muscle-charting employed at the Royal National Orthopaedic Hospital is admirable in its simplicity, and it is only upon such data that authoritative statements on recovery in poliomyelitis can ever be based. Similar criteria have been used by the Council of Inquiry composed of distinguished consultants in Sydney, who have recently reported¹ to the Minister of Health of New South Wales on the results of Sister Kenny's treatment at the Royal North Shore Hospital. The small series of cases under review were all patients with poliomyelitis of some years' standing. The council expressed the opinion that although there was considerable improvement in several cases recovery from paralysis had not taken place at a greater rate or to a greater extent than would be expected under orthodox methods of treatment. Furthermore, in its opinion Sister Kenny's treatment did not embody any new general principle. At the same time the council recommended that the work of the Elizabeth Kenny clinics should be incorporated in a comprehensive scheme for the treatment, education, and rehabilitation of the cripple in New South Wales. An inspection of Sister Kenny's treatment at work shows that it embodies many re-educative manœuvres which could be used with advantage in centres where poliomyelitis is treated on orthodox lines. As a distinct system of treatment the method is obviously still *sub judice*, and a final opinion must be withheld until a larger series of fully documented cases have been examined and reported on by an impartial committee of experts.

OPTO-CHIASMIC ARACHNOIDITIS

The "pathology of the living" has added to the pituitary syndrome of bitemporal hemianopia a new clinical fact—namely, that the syndrome is not necessarily of pituitary origin. As neurological surgeons have been exploring the pituitary region with greater frequency they have not uncommonly found that an operation undertaken in the full confidence of finding a pituitary tumour revealed no such condition. It has of course been recognized for some time that lesions in the pituitary region are of sellar and suprasellar origin. What is new, however, is that neurological surgeons have come to regard a localized meningitis at the chiasma as a distinct clinical entity. Earlier observers when confronted with this localized inflammation assumed that it was either a reaction round a tumour or a cyst formation of obscure origin. As early as 1924 Horrax, when analysing cases in Cushing's

clinic, found thirty-three in which a cerebral tumour was simulated by arachnoidal cysts, and drew attention to one particular form in which the arachnoiditis was situated at the chiasma. Gordon Holmes in 1929 reported two cases operated upon successfully so far as vision was concerned, in one of which, treated by Percy Sargent, the condition dated back to 1919. The clear recognition that a clinical entity was being dealt with, and that it was indeed a localized basal arachnoiditis, not a secondary reaction to adjacent tumours, came with almost simultaneous papers in 1931 of Heuer and Vail in France and Craig and Lillie in the U.S.A. Since then a literature has grown up on the subject, and a valuable review of it is contained in a monograph by J. Bollack, M. David, and Puech,² recently published by the French Ophthalmological Society. An interesting clinical picture emerges from their detailed study of the sixty-three cases they have collected from the literature and the sixty-six they have studied personally. That the condition is no rarity is clear from the fact that of the 254 transfrontal explorations undertaken at Dr. Clovis Vincent's clinic at the Pitié during the past six years no less than seventy-one, or 27 per cent., proved to be cases of arachnoiditis, almost as frequent as pituitary adenoma, of which seventy-four cases were found. The commonest form of arachnoiditis is of the adhesive type, the adhesions ranging from fine strands to massive sheets of exudate sometimes containing calcareous flakes. A serous type with cyst formation is not infrequent, while the least common type is one in which there is minimal exudate but grey, unhealthy-looking optic nerves and chiasma. The optic nerves and the chiasma may themselves appear variously, ranging from engorgement and oedema to atrophy with fibrosis, while in some cases there are no changes at all. There is no predilection as regards age, though at different ages different aetiological factors play a dominant part. The commonest exciting factor is sepsis in the mouth and sinuses, and meningitis—syphilitic, tuberculous, or colibacillary—is not infrequent. The route of infection may be haematogenous, as is probably most often the case, or the arachnoiditis may be caused by a contiguous spread of infection from an infected sphenoidal sinus. Trauma appears to have played an undoubted part in some of the cases. The fully developed pituitary syndrome, so far as ocular manifestations are concerned, may be present, but sometimes signs suggestive of unilateral or bilateral retrobulbar neuritis with the corresponding subjective findings may be the only features. The field defects may be of a bizarre distribution and not at all of the type of more or less frank bitemporal hemianopia. An important consideration is the fact that while classical signs of cerebral tumour may be present there are generally no neurological findings of any significance, though there may be such unusual features as diabetes, disturbances of the adiposogenitalis type, and indications of basal meningitis elsewhere. A capricious progression in symptoms, with the discovery of aetiological factors, suggests a diagnosis of this condition. As the authors put it, in a schematic way

¹ *Med. J. Austral.*, 1937, 2, 888.

² *Les Arachnoïdites opto-chiasmatiques*. Paris: Masson et Cie, 1937.

of each foodstuff, their minimum and optimum quantities, the total calorie requirement—all these things were generally agreed. It was known, however, that a mixture of chemically pure proteins, carbohydrates, and fat, even with the addition of the salts extracted from cow's milk, would not sustain life. The only explanation then available was that some at least of the salts must be present in organic combinations such as are found in animal or vegetable foods. Then early in this century came the realization of the great importance of certain qualitative as opposed to mere quantitative factors. When Sir Frederick Gowland Hopkins found that the addition of a few cubic centimetres of milk to the carefully purified diet of rats made all the difference between ability and failure to grow, a new era in dietetics dawned. True the influence of lime juice (or, better, lemon juice) in the prevention of scurvy was known, as was the effect of polishing rice in inducing beriberi; but now the whole question of deficiency diseases opened up. Looking back, it is perhaps curious that this new idea developed rather slowly. It was the consequences of food restriction during and after the war which focused attention on the subject, though Casimir Funk had labelled these accessory food factors "vitamines" before the outbreak of hostilities had necessitated his return to his native land. He was under the impression that these factors were amines, but, this proving incorrect, the non-committal name of vitamins was substituted. Yet even in 1918 controversy still raged as to whether rickets was a disease of diet or of the dark.

It is this retrospective spirit that adds point to Dr. Leslie Cole's address, "Diet in General Practice," printed at page 157 this week. It may be safely asserted that the ordinary mixed diet of the comfortably situated person is not likely to suffer in quality; there will be no lack of accessory food factors. The more probable risk is that the diet may be excessive in quantity. Danger as to quality arises, however, under two conditions—where the total intake is grossly reduced by poverty, and where it is greatly limited as to quantity and variety by disease. The danger of the former condition is now realized, though the issues have been to some extent obscured by political controversy; it is the risks in the latter circumstances to which Dr. Cole usefully calls attention. The study of minor degrees of vitamin deficiency has now reached a more accurate stage by the introduction of quantitative methods of estimating this lack. Thus we have the dark adaptation test for vitamin A (M. K. Maitra and Leslie Harris),¹ the urine saturation test for vitamins B₁ and C, and the

blood phosphatase test for vitamin D. Particularly has an unsuspected deficiency in vitamin C been revealed by the test dose of ascorbic acid, which is excreted by those already taking a sufficient supply of the vitamin but retained by those previously inadequately supplied. Recently in our columns Lazarus² reported an investigation of fifteen cases of haematemesis and melaena, in thirteen of which a deficiency of vitamin C was revealed; this was of a severe degree in seven of the cases. The addition of such things as orange juice, marmite, and cod-liver oil to the diet of these patients has been recommended and is a rational measure. Nor is this the only instance: in rheumatoid arthritis a similar vitamin deficiency has been observed. Evidently we are entering on a new phase of dietetic therapeutics, and one which is based not merely on general impressions and guesswork but on accurate observations quantitatively controlled.

TREATMENT OF ANTERIOR POLIOMYELITIS

Much interest has been aroused lately by reports which have reached this country of the results achieved in Australia by what is known as the Sister Kenny system of treating anterior poliomyelitis. In this issue of the *Journal* (p. 168) Dr. F. H. Mills describes this treatment, expounds the principles on which he believes it to be based, and offers certain criticisms of the methods of treatment which have for many years been in vogue in most countries. The main criticisms of the orthodox routine are that complete rest and immobilization and the use of splints induce trophic changes, minor deformities, and stiffness of joints; and that re-education is delayed far too long, the conventional technique being crude, apt to cause fatigue and encourage trick movements, and therefore ineffective in restoring the maximum recovery of muscle. In Sister Kenny's method movements of the limb are deliberately carried out in the pyrexial stage for the relief of pain, assisted by some form of local heat. No splints are used, the paralysed limbs are sprayed with hot and cold water (the patient being in a bath), and at the end of the first week what is described as a finely graded system of re-education is begun. So far only thirty-five patients in the early stage have been treated in Australia, and 1,400 chronic cases have been treated on similar lines, with, it is claimed, much improvement. Sister Kenny's technique is now being tested in this country at Queen Mary's Hospital, Carshalton (L.C.C.), where a ward has been set apart for what is undoubtedly a reasonable and most interesting clinical experiment. The ultimate evaluation of what at first sight seems to be a revolutionary departure from accepted routine will depend on a careful study of a series of cases which have been accurately documented from the beginning. There has been much inexact writing about recovery in poliomyelitis, and particularly about the limits of the

¹ *Lancet*, 1937, 2, 1009.

² *British Medical Journal*, 1937, 2, 1011.

for even to-day few tuberculosis dispensaries fulfil in practice the wide vision of Philip. Some of the historical details, particularly those connected with Koch, are fascinating, and should be read by every student of tuberculosis. It is inevitable that there should be much repetition of material in the papers; but those who might complain should remember that it was this very repetition, this insistence on bringing the same points forward, that did so much to awaken public consciousness to the gravity of the problem and led to the development of a scheme of control which, however faulty in its application, is basically the soundest means so far evolved to combat the disease.

THE ACTION OF THE CORONARY ARTERIES

Physiologists differ widely on the question of the control and mode of action of the coronary arteries. Whenever one school attributes a vasodilator influence to the sympathetic another considers the control of these vessels similar to that of the peripheral arterial system. In a recent paper Champy and Jacques-Louvel¹ draw attention to the need for distinguishing between true vasodilatation and vasodistension. Working with the frog's mesentery, the authors observed the effects of a drop of adrenaline (1/1,000) on the calibre of the vessels: all the vessels—arteries, veins, capillaries—responded with an unequivocal constriction, the veins, however, showing less response than the arteries. Repetition of this experiment, with the root of the mesentery clamped so as to obstruct the venous return, led to the finding that, while the arteries constricted when treated with the adrenaline, the veins dilated rapidly. Such an effect is due not to a dilator action of adrenaline on the veins but to the inability of the constrictor action on the veins to resist the haemodynamic force exerted by the contracted arterial musculature. Such a mechanism is proposed by the authors to explain the vascular engorgement produced in certain vessels—for example, the pulmonary and intestinal vessels—by an intravenous injection of adrenaline. It is to be noted that in almost all cases in which intravenous adrenaline gives rise to vasodilatation the effect of local application of the same agent is vasoconstriction. Arguing on these lines, the question is asked whether the usually accepted effect of adrenaline in dilating the coronary vessels cannot be explained in a similar way. In an investigation of this the coronary arteries of a horse's heart were studied immediately after death. Segments of the coronary arteries were attached to a graduated reservoir containing an appropriate perfusion fluid, and the rate of flow through the segment at constant temperature and pressure was measured with and without the addition of adrenaline. The method used was admittedly crude, but the results obtained were sufficiently clear-cut and uniform to warrant conclusions. It was first of all demonstrated that adrenaline had no effect on the coronary segments from the aorta to the bifurcations.

The interventricular coronary segments, however, were definitely sensitive to adrenaline, thus exhibiting an autochthonous vasomotor system, which was still sensitive an hour after the death of the animal. So pronounced a difference in reaction led the authors to attempt an explanation on structural grounds. Histological study showed that the coronary arteries from their origin to their bifurcation are similar in structure to the aorta—that is, they consist mainly of elastic tissue and hence would not be expected to respond to adrenaline. The interventricular coronary branches are, on the other hand, of the muscular type of vessel, and hence much more prone to changes in calibre. Besides circular muscular fibres the interventricular branches possess bundles of longitudinal fibres, the latter being situated near the periphery of the vessels while the former are subendothelial. The longitudinal fibres are conspicuous in the horse, but have also been described in man and in the guinea-pig. Thus these branches of the coronary vessels may be constricted by the circular fibres and dilated by the longitudinal fibres, and it seemed probable that the effect of adrenaline would depend upon the degree to which this agent came into contact with the relevant fibres. On following this up the authors found that impregnation of the walls of these coronary segments with adrenaline led to vasodilatation. The conclusion is, therefore, that the constriction observed on perfusing adrenaline through the lumen of the vessel is brought about by the circular fibres, to which the active agent can penetrate while the longitudinal fibres remain more or less unaffected. The mechanism of control of the coronary vessels appears thus to be twofold—mechanical in the parts mainly composed of elastic tissue, and nervous in the parts composed of circular and longitudinal muscular tissue. The therapeutic possibility of adrenaline in cardiac infarction arises, and indeed some success has been reported by Donzelot. Justification for this lies in the fact that the circular fibres possess relatively poor contractile power compared with that of the longitudinal fibres. The hypothesis that vascular spasm is responsible for certain cases of coronary insufficiency is also called in question, and it is suggested that they are due rather to insufficiency of the dilator mechanism.

NEW YORK HEALTH RECORDS

In his report on the health of New York City during 1937 the Health Commissioner, Dr. John L. Rice, announces the lowest infant mortality rate, the lowest death rate from typhoid fever, the lowest tuberculosis death rate, and the lowest proportion of deaths of mothers in childbirth. All four are the best records ever attained in the history of the city. For the reduction in the maternal death rate Dr. Rice gives credit to the New York Academy of Medicine and the county medical societies, which have done effective work in this field. With a total of 101,988 births during the year and 77,466 deaths, there was an excess of 24,522 births over deaths. During the past ten years there has been a constant decline in the birth rate; now for the first

¹ *Presse méd.*, 1937, 45, 857.

it may be said that the affection gives hybrid symptoms of a tumour together with inflammatory reactions along the optochiasmic tracts. What is of particular import is the fact that operations to free the optic nerves and chiasma from the adhesions give favourable results in a good many cases, though in some the operation may have to be repeated. In assessing prognosis age is an important factor. The arachnoiditis of childhood¹ is generally due to a localized meningitis. In the aged, however, the prognosis is poor, since in some cases the reaction is secondary to lesions of cerebral vessels. This monograph, with its careful documentation, opens a new chapter in the study of lesions of the chiasma, a structure which Cushing has aptly described as the cross-road at which the ophthalmologist, otologist, endocrinologist, and neurological surgeon meet. To the ophthalmologist it is of particular interest in helping to clear up obscure points in the symptomatology and aetiology of optic atrophy, and in enlarging the limited field where treatment of optic atrophy is helpful. This new conception has, for one thing, made the puzzle of retrobulbar neuritis of obscure origin a little less formidable.

ARTIFICIAL LIGHTING AND THE WORK OF WEAVERS

There can be very few industrial occupations in which adequate lighting is more important than in weaving, and Report No. 81 of the Industrial Health Research Board, by H. C. Weston,¹ which deals with the effects of various conditions of artificial lighting on the performance of weavers, is likely to be of considerable practical value. In this country the usual method of illumination in weaving sheds is by means of lights fixed vertically above the looms, but an investigation made in Germany appears to indicate that it is better to direct the light across the looms from the side. In order to test the two methods a group of six night-shift weavers were kept under observation for successive periods of five weeks at a time, and their output of cloth was compared with that of a corresponding group of day-shift weavers operating the same looms. The results obtained showed that when the system of overhead localized general lighting which is customarily employed in weaving sheds was doubled in intensity, the personal efficiency of the weavers in mending thread breakages and doing other hand work increased no less than 24 per cent., while there was a substantial improvement in the quality of the work done. These improvements were surprising in view of the fact that the illumination previously used had apparently caused no dissatisfaction in the weavers. A still further increase in illumination had no better effect than its doubling, and the other systems of lighting tried, whether localized or lateral, did not give such good results as the one mentioned. It is to be remembered that the weaver has constantly to be on the alert, not only to mend breakages in warp threads but to note when the weft threads are running low and fresh shuttles are required.

If the cloth is a fancy one several shuttles are used, each containing weft of a different colour. As the weaver has to superintend two looms they often need attention at the same time, and his task seems a very trying one. Moreover, he is often subject to adverse environmental conditions such as high temperature and a humid atmosphere.

A PIONEER IN TUBERCULOSIS

Last year we paid our tribute¹ to Sir Robert Philip on the occasion of the fiftieth anniversary of the foundation in Edinburgh of the first tuberculosis dispensary in the world. Few would question Philip's claim to a place among the outstanding names connected with tuberculosis, but perhaps not many are familiar with the details of the part played by him in developing an interest in the control of the disease in this country and abroad and in guiding this interest into practical channels. The publication of a volume² containing twenty-four of his papers and addresses written or delivered in this country and elsewhere between 1898 and 1934 should enable everyone fully to appreciate his pioneer work. So much of what he said in the past holds good to-day, so little has been contradicted by later events, that at times, in view of the scanty experimental and pathological evidence then available, one feels like ascribing to him a prophetic sense. Sir Robert Philip would probably himself no longer emphasize the value of "aerotherapy" at the expense of rest, insist on the role of the lymphatic system in the dissemination of tuberculosis, or claim that the pharynx is a common portal of entry for the bacillus. On the other hand, how strongly do we feel like applauding his reiteration that tuberculosis must invariably be regarded as a general disease, his arguments in favour of having sanatoria built near towns, or the wise conclusion—of increasing importance—that well-equipped laboratories "in close relationship to tuberculous clinical material" are "a primary need"! His faith in tuberculin as a mode of treatment makes one wonder whether its almost total rejection in therapy has not been too hasty. And though we might not agree with "distrust in its value I have found most commonly expressed in loudest terms by those whose acquaintance with tuberculosis is limited and whose knowledge of the actual treatment is fragmentary or second-hand," the need for a re-trial of tuberculin therapy by competent workers should perhaps be considered. The history of the development of tuberculosis control as depicted in these pages shows well its pendulum swings. The sanatorium movement is a good example: the long delay in recognizing the value of this institution was followed by an over-enthusiasm which has given way to a more reasonable appreciation of its true function. But the pendulum still moves, and there is a danger of fresh air and good food being too thoroughly ousted in favour of major surgical procedures. On the other hand, the dispensary movement still tends to emulate the tortoise.

¹ *British Medical Journal*, 1937, 1, 1165.

² *Collected Papers on Tuberculosis*. By Sir Robert W. Philip. F.R.C.P. London: Oxford University Press. (21s.)

¹ Medical Research Council, Industrial Health Research Board. Report No. 81. H.M. Stationery Office. Price 9d. net.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

TREATMENT OF WOUNDS—II

BY

W. H. OGILVIE, F.R.C.S.

(This is the second of two articles on the treatment of wounds, of which the first appeared last week at page 132.)

Dressings

A dressing is no magic talisman; it is the tissues themselves that do the healing. The dressing serves two purposes only: to prevent fresh infection and to afford mechanical protection to the wound. Frequent changes are therefore valueless and may be harmful. The dressing should only be changed when it has ceased to perform the above functions—that is, when it is soaked or displaced—or when access to the wound is required for the removal of stitches or drains. The daily dressing—which was formerly a ritual—merely delays healing by damaging the wound edges and the freshly growing cells in skin and granulation tissue. Gauze soaked in an antiseptic has little advantage over sterile gauze, beyond giving a further guarantee that its sterility is a matter of fact rather than faith. Antiseptics are at their best *in vitro* and on blotter circulars. Few bacteria are killed by their action in a wound, and then only those in the discharge, the defeated enemy, of no further fighting value, escaping in the rout; the shock troops, the organisms multiplying in the tissues, are unharmed and possibly favoured by the application of chemical agents, and can only be vanquished by the action of the tissues.

A respect for natural defence mechanisms dominates the modern attitude towards dressings, which demands rest and non-interference, combined in the presence of sepsis with free drainage. Vaseline, which is entirely innocuous and easily sterilized, is an excellent medium both for dressing and for drainage. A wide-mesh net of vaseline gauze is a valuable surface dressing where a large flap of skin has been torn back and sewn into position again. The vaseline net keeps the edges secure and protects them from injury, while discharge can escape through the meshes and outer dressings can be applied to soak up fluids and distribute pressure on the flap without disturbing the healing edge. Such a vaseline net with eight meshes to the inch is obtainable readily sterilized as "tulle gras lumière." Ordinary gauze impregnated with sterile vaseline is used for the drainage of wounds that have become infected. The gauze may be packed loosely into all parts of the wound, and heaped up on its surface. Wounds so treated need dressing at infrequent intervals only, and the scar after they have healed is remarkably supple.

Tannic acid (2.5 per cent. solution), the preparation widely used in the treatment of burns, is an excellent dressing for clean superficial wounds inflicted with a sharp knife or razor, particularly those in which part of the tip of a finger has been shaved off. The tannic acid forms a firm coagulum that remains as a protective scab till the wound underneath has epithelialized completely.

Antiphlogistine provides a useful first dressing for those large and dirty grazes on the shins, knee, or forehead, which are often the result of motor accidents or falls on the playground. The clay poultice is most efficient in removing collections of grit and debris from the deeper

layers of the skin where they have become embedded, and where, if not removed early, they will remain as disfiguring "tattoo marks."

Drains and Sutures

A drained wound should usually be left alone for forty-eight hours. If at the end of this time the appearance of the wound and its surroundings indicates that there is no infection the drain should be removed, if there is doubt it may be shortened and removed on the following day. Where infection has taken place the drain must be left till such infection has been overcome. Nothing is more harmful than to remove drains and reinsert them after boiling, to twist them round, or replace them with others. The original drain has its own bed; a new one has to make a fresh bed by killing tissues. In the abdomen we are anxious to remove drains early, but in soft parts it is better to leave them too long than to remove them too soon. Premature removal may mean the accumulation of septic material in the depths of the wound and the formation of an abscess, while late removal implies no more than a few days' delay in healing.

In a wound that has been brought together without tension the cut is completely epithelialized in four days. Stitches that are approximators only should be removed at this stage, while those that take or relieve tension should be left in for eight or ten days. After ten days stitches merely cut out and serve no useful purpose. If tension on the edge must still be combated this is best done by strips of elastoplast fixed outside the wound, and tied with tapes over the dressing.

Treatment of Sepsis

Sepsis is rarely encountered in wounds that have been excised and packed open at the start. It is seen in the untreated wound brought late to the doctor, or in those wounds that have been closed without, or with insufficient, drainage. The treatment of sepsis as a late complication is by immobilization and free drainage. Immobilization is of paramount importance, and should be complete and uninterrupted. This usually means enforced recumbency, the application of a splint, and the avoidance of frequent dressing. In a septic wound of the arm or leg it is an excellent plan to sling the whole limb in a Thomas's splint from an overhead frame. Two alternative methods of dressing, both of which allow free drainage without interference, may be recommended for septic wounds—namely, the vaseline pack, and intermittent irrigation with Carrel tubes. The first is suitable for the open wound of simple shape, the second for one with pockets or underhung flaps. In either case the pack or tubes are preferably put in under gas anaesthesia.

After the stitches have been removed and the wound has been opened up, vaseline gauze is tucked lightly into its recesses and heaped over the mouth and edges, and an abundant dressing of wool is placed over the part to take up discharge. Unless there is any indication in the condition of the patient or of the limb outside the bandages that progress is not satisfactory, this dressing is left unchanged for a week at any rate, or for such longer period as the smell of the dressings will allow. The cavity closes rapidly round the vaseline gauze, the healthy granulation tissue pushing out the plugs, and after two changes it is

time the rate is higher than it was in the preceding year. Dr. Rice suggests that the change resulted from the better economic conditions prevailing during the greater part of 1937. The 77,466 deaths represent a death rate of 10.4 per 1,000 of population, "a remarkably low rate for a large city like New York with its housing problems, its many foreign born and with so many persons unemployed. We would have made even a better showing had it not been for a sharp outbreak of epidemic influenza beginning at Christmas, 1936, and lasting throughout January of 1937. This outbreak cost over 1,500 lives, a loss more than double the deaths caused by measles, whooping-cough, scarlet fever, diphtheria, and typhoid fever all combined." Commenting on the 6,505 deaths from pneumonia during the year, Commissioner Rice expresses the hope that the pneumonia control programme recently inaugurated by the Department of Health will soon begin to show results in a reduction of the death rate from this disease. "Early diagnosis and prompt use of the proper serum after the type of pneumonia germ has been determined will undoubtedly save many lives. Our laboratory has effective serums available for five or six of the most prevalent types, and these account for about four-fifths of all the pneumonias now occurring in the city. We have typing stations in each of the boroughs, and the one in Manhattan gives a 24-hour service, including Sundays and holidays." A feature of the Department's activities was the development of the campaign against syphilis. The close of the year saw twenty health districts organized, each with a full-time health officer in charge; nine of the centres are housed in new buildings specially planned to provide complete health services for the people of the district. The Department of Health now has 385 typhoid carriers under supervision. They report to the Department twice a year and are given instructions regarding the precautions to be taken in order to prevent the infection of others. They are not permitted to engage in food-handling occupations. Thanks to the sanitary supervision and chlorination of the municipal water supply, and the pasteurization of all milk sold in the city, New York has had no water-borne or milk-borne outbreaks of typhoid fever during the past quarter of a century.

HOSPITALS FOR CIVILIAN CASUALTIES IN AIR RAIDS

As was indicated in the course of proceedings upon the Air Raid Precautions Bill, the Government has for some time had under consideration the arrangements to be made for civilian casualties in the event of an emergency. Local authorities are already making in their air raid precautions schemes provision for the establishment of clearing hospitals, and it has now been decided that, with a view to making the fullest use of the existing facilities and extending them if necessary, a complete survey of the hospital accommodation of the country (including any earmarked as clearing hospitals) should be carried out. The survey will be undertaken in England and Wales by the Minister of

Health, and in Scotland by the Department of Health for Scotland. In England it will be made through the agency of a staff composed of the general inspectors of the Ministry and certain selected medical officers. In Wales it will be made by the Welsh Board of Health. These officers have been instructed in the first instance to confer with medical officers of health concerned and with the leading representatives of the voluntary and other hospitals. So far as the provision of accommodation in or on the sites of mental hospitals and mental deficiency institutions is involved, the survey will be undertaken in England and Wales by the Board of Control, and in Scotland by the General Board of Control for Scotland.

IRISH DISHES

Miss Florence Irwin has brought together a number of dishes designed "both to nourish and to please"—as Mr. St. John Ervine says of them in his entertaining preface to the book.¹ In it there is also much that is instructive. For here the non-Hibernian cook may learn—learning often sorely needed—how to treat the potato with the culinary consideration it deserves. In vain may expert committees of the League vaunt the virtues of the vegetable, in vain advise its substitution for white flour—that frequent disturber of gastrointestinal peace—so long as there are cooks who make of this goodly tuber a soapy sacrifice. Miss Irwin tells of ways in which it may be rightly cooked and served—jacketed and unjacketed—of potato-cake and potato-pudding, of potato-oaten farls, and "champ"; chive, nettle, parsley, pea, and scallion. She tells, too, of right uses to which oatmeal and wheatmeal may be put and of other things showing how "protective foods" may be combined to form delicious dishes. Poets, politicians, orators, and saints, doctors, divines, and Presidents of the United States are among Erin's gifts to the English-speaking race: these, and the staple breakfast dish of Britishers where'er the sun doth his successive journeys run. Who knows what the far-flung Empire owes to the union of the bacon with the egg? Yet, as Miss Irwin tells us, the conjunction came about "by the grace of God and the irregular proclivities of a lazy hen." Champ, stirabout, and brotchan roy; broth, brawn, and real Irish stew; durgan, flummery, and sowans—these are among the dishes of which, we feel, nutrition experts would approve; but "soda-bread" we think they would eschew. "Synthetic flour, synthetic fruit, synthetic juices, and synthetic bread must one day result in synthetic people. It is to avoid that calamity that this book is published, and I wish, indeed, that it may fulfil its holy purpose." So says St. John Ervine—and we endorse this hope.

Professor C. Regaud has retired from his position as director of the Radium Institute of Paris and has been succeeded by Dr. Antoine Lacassagne.

¹ *Irish Country Recipes*. Compiled by Florence Irwin. Belfast: The Northern Whig, Ltd. (2s. 6d.)

divided it may be accepted that the ulnar vessels are also cut, and these should be isolated and ligatured at both ends before the nerve is approached. Nerve suture depends for its success on there being a minimum amount of scar tissue across the suture line. The two ends must be healthy, and must be approximated by interrupted sutures which pick up only the perineurium, and which bring the two ends together without rotation, without separation, yet without compression. The line of suture must not be involved in any neighbouring repair, or in the reaction to infection.

If the ends of the nerve are seen to be clean-cut and if the surrounding injury is slight, repair may be carried out at once. The cut surfaces, if at all ragged, may be trimmed by a single cut of a sharp razor blade on a cork laid under them, but any wide clearing or resection should not be attempted. After this trimming four interrupted sutures of the finest intestinal catgut are passed through the sheath alone at the four quadrants, and pulled so as to approximate the ends very accurately before they are tied and cut. After the nerve has been thus repaired the line of suture should be shut off from any area of adjacent repair by stitching a flap of healthy tissue around it before the wound is closed. When there is much laceration, when repair is undertaken after twelve hours, or when the wound is in any way infected, the injured nerve should be left untouched, to be repaired later by secondary suture when other structures have soundly healed.

Wounds in the Neighbourhood of Joints

Penetrating wounds of joints demand consideration in a separate article. Very often, however, a wound is seen to be near a joint, but it is uncertain whether actual penetration has or has not taken place. In such cases the operator should hope for the best and prepare for the worst. It is unwise to explore with a probe: a non-penetrating wound may be turned into a penetrating one, and infection may be carried through a small tear that might otherwise have sealed off. The wisest course is to clean thoroughly the more superficial layers, to close the wound partially (leaving a drain or pack down to that part which lies nearest the joint cavity), and to immobilize the whole limb. If after a week there is no reaction in the joint, movements may safely be started.

Wounds Caused by Indelible Pencil Lead

These wounds are sufficiently common and sufficiently serious to demand attention. Indelible pencils are beloved of school children. The leads are large and brittle, and may be broken off accidentally by a child in falling on the point, or intentionally by one in need of pellets for an air gun. The wound is usually a small punctured one which emits a copious purple discharge, often for weeks at a time. The dye is toxic, and may even give rise to constitutional symptoms due to absorption. Locally it is taken up by phagocytic cells, which form a granulomatous mass that persists till the last of the dye is eventually discharged or the whole area is extruded as a slough. These small wounds should be excised as soon as their nature is recognized.

The November issue of the *Bulletin de l'Office International d'Hygiène Publique* includes articles on typhus in Egypt, India, and Rumania, Weil's disease in the United States, paralysis following anti-rabic treatment, progress made in the quarantine services in the United States, and the work on nutrition in India.

INTERNATIONAL HEALTH

SURVEY BY THE PERMANENT COMMITTEE

The report of the medical director of the International Health Office of the proceedings at the session of the Permanent Committee in October, 1937, has now been issued.¹

Aircraft and Yellow Fever

New accessions to the International Sanitary Convention for Aerial Navigation of 1933 were reported from the Republic of Liberia and several British protectorates and possessions. A general list of the notifications under the various categories of aerodromes envisaged by the Convention has been published by the Office and will be revised from time to time. A detailed survey of such aerodromes in the French colonies was submitted and an account was received of the organization and measures adopted in the United States against yellow fever. Further information was received on the degree of infestation of African countries by mosquito vectors of yellow fever and observations were communicated on the insect content of aircraft arriving at Khartum. The new form of the journey log book has been adopted by the International Commission for Air Navigation and will be put into force from June 1, 1938.

On certain specific questions submitted to the committee decisions were reached as follows:

(a) Measures to be taken under the Convention against yellow fever must be applied to all passengers using an international line, including those who do not leave the limits of one territory. The possible risk is no doubt small, but in certain regions it must be kept in mind.

(b) Article 38 may be considered as being complied with by the establishment, in areas in which the risk of infection by the yellow fever virus exists, of refuelling aerodromes to be used for short stops only, during daylight, even if such aerodromes do not possess screened buildings for the passengers and crew; no passengers must embark from them and they must not be used for any other purpose than refuelling. (The delegate from British India expressed his reserves on this point.)

(c) Hospitals in the near neighbourhood of aerodromes may be permitted to take the place of special buildings for passengers required under Article 38 (d) of the Convention.

(d) An area can only be officially considered infected or suspected if yellow fever has been diagnosed and notified in it (the delegates from British India and the Dutch East Indies expressed their reserves on this point); such a notification relating to one area must not be considered as rendering the whole country infected.

In the course of the first nine months of 1937 yellow fever has been rather more frequent in Africa than in the immediately preceding periods.

Small epidemics at Accra and Mepom (Gold Coast) occurred, and single cases were notified at Brazzaville and Bangui in French Equatorial Africa, both of which are areas in which yellow fever had not previously existed. In South America yellow fever was notified from Colombia and from Peru—the latter being the first notification for a long time—as well as from the States of Matto Grosso, Minas Geraes, and Sao Paulo in Brazil. In the Anglo-Egyptian Sudan fresh work has confirmed the high proportion of sera positive to the mouse protection test, the proportion reaching 70 to 80 per cent. in the region of the Nuba mountains. It would seem that yellow fever existed there in 1936, in the neighbourhood of Kau: a large number of sera of children under 10 years old were positive in 1937, while in 1935 all sera of children of the same age were negative. That of a European doctor who had lived in the area in 1936 was negative before

¹ Paris: Office International d'Hygiène Publique, 195, Boulevard Saint-Germain.

often possible to approximate the edges of the wound with strapping.

In the Carrel-Dakin method the wound is similarly opened, and Carrel tubes are put into each of the main compartments of the wound. These are rubber tubes, a quarter of an inch in diameter, closed distally by a silk ligature and perforated for two or three inches proximal to this by pairs of holes, one millimetre in diameter, at every half-inch. The skin opening may be partly closed again with stitches. Gauze is lightly packed round the entering tubes, and the whole part is covered with an abundant dressing of "fluffed" gauze and wool, through which the tubes are brought in a bunch. Thereafter half an ounce of Dakin's solution is injected under pressure through each tube every two hours, night and day, either with a glass syringe or from an ampoule the outlet of which is controlled by a spring clip at least four feet above the wound. The limb need not be removed from the splint, nor need the dressings be changed, until sepsis has been overcome and the tubes can be removed. Immobilization is therefore entirely adequate. (It is an essential of the Carrel-Dakin method that the injections should be made under pressure, yet even to-day it is not uncommon to see the tubes joined up to a continuous-drip apparatus. With low pressure and continuous flow most of the holes will become blocked and the fluid will trickle from a few only; with high pressure an even jet will emerge from all the holes in all the tubes.)

The hot fomentation is attacked on all sides, but it remains one of the most admirable methods for the temporary treatment of superficial sepsis. Cuts, grazes, and tears which look dirty, and stitched wounds the skin edges of which have become red and angry after forty-eight hours, will usually clear up like magic if fomented four-hourly for one or two days. The hot boracic fomentation does not rely on heat, boracic, or lint; the heat is evanescent, the boracic harmless to bacteria, and the lint one of the worst absorbents. The magic in the dressing lies in its power of capillary absorption—the power of a dish-cloth soaked and wrung nearly dry to mop up milk. The only requirements of such a dressing are that it shall be sterile or antiseptic, highly absorbent, moist but not wet, and kept moist throughout. Surgical gauze, wrung out of a one in four solution of warm eusol, fluffed out over the wound to the thickness of one inch and then covered with oiled silk and wool, forms the best compress.

Cut Tendons

The general principles of wound treatment apply equally to those involving tendons, and indeed abolition of infection and healing by first intention are of extreme importance if any useful amount of independent movement is to be obtained in the sutured tendons. Cut tendons are most commonly encountered in wounds of the wrist, palm, back of the hand, or fingers. These wounds are usually caused by broken glass or slipping bread-knives, and are therefore clean-cut and not grossly contaminated. In wounds due to broken glass it must be remembered that a great many tendons, and one or more nerves and arteries, may have been cut through an apparently small wound, and that broken fragments of glass are often lying loose in the deeper parts of the wound, and may be left behind unless a careful search is made for them. The cardinal points in the repair of such a wound are recognition of all cut tendons, exact anatomical repair, relaxation after suture, and early movement.

An exact analysis of the damage is best made by testing movements in the conscious patient, and determining

in this way which tendons have been cut. The recent Fellow may feel certain that his anatomical knowledge will allow him to identify every severed structure once the wound has been opened in the bloodless field allowed by a tourniquet. But he will be surprised to find how the synovial sheaths, structures hardly seen in the dissecting room, are converted by effused blood and the oedema of injury into gelatinous opaque masses in which cut ends are difficult to see, let alone label. The operator must be prepared to cut away enough of this red jelly, and by tabulating the proximal end according to its anatomical site, and checking the distal end according to the movement it produces, pair off all tendons which he knows to be cut. Elaborate suture of tendons is a mistake; it takes time, the extra suture material produces an extra reaction of repair, and the average result is not equal to that obtained by simple means. A single stitch of 00 catgut on a very fine cutting needle should be passed through both ends of each tendon in the same plane about three-sixteenths of an inch from the cut surface, pulled enough to appose but not angulate the ends, and tied. When all have been sutured the synovial sheath is wrapped over the group with one or two interrupted stitches of the same material and the wound closed.

After suture the limb should be splinted in such a position as to relieve tension in all the repaired tendons—for example, in cut wrist, with the wrist flexed. The position of relaxation must be maintained in any case for a week, or till the skin stitches have been removed and the clean healing of the wound is assured. The time when movement should be started varies; early movement favours freedom from adhesions, but risks the security of the suture. On the whole, it may be said that flexor tendons, lying in fibrous tunnels and enclosed in synovial sheaths, are much more liable to form adhesions than the extensors in their indefinite synovial and areolar coverings. Movement of cut flexor tendons should therefore be started after a week, whereas cut extensor tendons may be immobilized up to three weeks. The movements in either case should at first be voluntary.

The finger tendons are often severed through very small punctured wounds, or in the depths of a cut that appears to lie some distance away, and the injury may not be recognized by the patient for some days. Suture during the healing period should be avoided, being unsafe and unlikely to give a good functional result. If the case is not seen within twenty-four hours it is best to wait till the wound has healed and then to explore in a clean field, find the severed ends, and suture them. Suture of the extensor tendons in the fingers is nearly always a success; suture of the flexor tendons is nearly always a failure because of the great likelihood of adhesions in the rigid tube of the theca. Cut flexor tendons must nevertheless be repaired, and the theca must be opened to reach them by an incision along its side, as has been taught in the drainage of sheath infections. The tendon should be sutured with the finest intestinal catgut, and voluntary movements of the gentlest type encouraged from the first day. A gloomy prognosis will prepare the patient for the probable result, but allow jubilation over the rare success.

Cut Nerves

Nerve injuries due to wounds are rarely met with in civil practice except in cuts of the wrist, where the median or ulnar nerve, or both, are very often severed. As with tendon injuries, the existence of a nerve lesion should be established by the preliminary clinical investigation and not found accidentally. If the ulnar nerve is known to be

PRAECORDIAL LEADS IN ELECTROCARDIOGRAPHY

A JOINT MEMORANDUM

At the request of the Council of the Cardiac Society of Great Britain and Ireland we print below a Memorandum on Praecordial Leads in Electrocardiography. Many different positions have been used for the electrodes in obtaining these electrocardiograms, and much confusion has arisen from the different methods in use. As it has been possible for the Cardiac Society of Great Britain and Ireland and the American Heart Association to reach agreement it is hoped that these joint recommendations will be useful, both to those working at the subject and to all others who are interested.

Recommendations for Standardization

In the last few years electrocardiographic leads in which an electrode placed upon the praecordia is paired with an electrode in contact with some part of the body distant from the heart have come into widespread use. The confusion which has resulted from the lack of uniformity and precision in the technique and nomenclature employed by different observers in connexion with leads of this kind has led to an almost universal desire that a standard practice be established. To this end the Cardiac Society of Great Britain and Ireland and the American Heart Association have each appointed a committee to consider this matter and make recommendations. The two committees have conferred and have agreed jointly to make recommendations with reference to the routine use of a single praecordial lead. It is understood that either committee may make additional reports with reference to multiple praecordial leads and other matters not dealt with in the present report.

1. It is recommended that those who employ a single praecordial lead place the praecordial electrode upon the extreme outer border of the apex beat, as determined by palpation. If the apex beat cannot be located satisfactorily by palpation the electrode may be placed in the fifth intercostal space just outside the left border of cardiac dullness, or just outside the left mid-clavicular line if percussion of the heart is unsatisfactory. Where praecordial leads are taken by a technical assistant, the position for the praecordial electrode should be marked on the chest by the physician.

2. It is recommended that a single praecordial lead in which the praecordial electrode has the location specified in the preceding paragraph be known as lead IV B when this electrode is paired with an electrode in the left interscapular region; lead IV R when it is paired with an electrode on the right arm; lead IV L when it is paired with an electrode on the left arm; lead IV F when it is paired with an electrode on the left leg; and lead IV T when it is paired with a central terminal connected through equal resistances of 5,000 or more ohms to electrodes on each of the three extremities mentioned.

It is suggested that for all ordinary purposes lead IV R or lead IV F be employed. The latter lead should have the preference until it has been established that the former, which is somewhat more convenient, is equivalent to the latter for all practical purposes, or yields results of equal value.

3. It is recommended that in taking the praecordial leads specified the galvanometer connexions be made in such a way that relative positivity of the apical electrode is represented in the finished curve by an upward deflection (a deflection above the iso-potential level) and relative negativity of the apical electrode by a downward deflection. It is urged that this convention be adhered to in the case of praecordial leads other than those specified,

and also in the case of all leads in which one electrode is placed much closer to the heart than the other. In other words, it shall be the standard convention in taking such leads to make the galvanometer connexions in such a way that relative positivity of the electrode nearer the heart is represented by an upward deflection.

4. It is recommended that with the galvanometer connexions made as described in the preceding paragraph the deflections of praecordial leads be designated by the symbols P, Q, R, S, and T, and that in the application of these symbols the same conventions be employed as in the case of the standard limb leads.

5. It is recommended that in taking praecordial leads the electrocardiograph be so adjusted that a deflection of 1 cm. in the finished record corresponds to a potential difference of one millivolt, as in the case of the standard limb leads. Any reduction in sensitivity made necessary by very large deflections should be clearly indicated on the curve, preferably by photographing the effect of introducing a potential difference of 1 mv. into the galvanometer circuit.

6. It is recommended that the greatest dimension of the apical electrode employed in taking the leads specified in this report be 3 cm. or less. A circular electrode between 2 cm. and 3 cm. in diameter should ordinarily be employed.

7. It is recommended that the terms lead IV (R, F, etc.), apical lead, apex-leg lead, etc., be used henceforth only in connexion with the leads specified in this report.

The above recommendations have been drawn up by the following two committees, working in co-operation:

Committee of the Cardiac Society of Great Britain and Ireland

D. Evan Bedford (London)
John Cowan (Glasgow)
A. N. Drury (Cambridge)
I. G. W. Hill (Edinburgh)
John Parkinson (London)
P. H. Wood (London)

Committee of the American Heart Association

Arlie R. Barnes (Rochester)
Harold E. B. Pardee (New York)
Paul D. White (Boston)
Frank N. Wilson (Ann Arbor)
Charles C. Wolferth (Philadelphia)

These joint recommendations have been approved by the Council of the Cardiac Society and by the American Heart Association, who now authorize their publication. The following addendum to the joint report has been made by the Cardiac Society.

Addendum by Cardiac Society

1. The above report deals with the nomenclature and technique for obtaining a single praecordial lead suitable for routine clinical work. The committee of the Cardiac Society had insufficient evidence available to permit their making recommendations in respect of multiple praecordial leads. The American Heart Association will, however, draw up such recommendations, and, when published, copies of these will be available for those specially interested on application to the secretary of the Cardiac Society (Dr. Maurice Campbell, 25, Upper Wimpole Street, London, W.1).

2. In using either of the two standard praecordial leads—for example, lead IV R or lead IV F—the correct polarity (paragraph 3) is obtained as follows. The lead switch is turned to lead I. The L.A. terminal is connected to the praecordial electrode. The R.A. terminal is connected to the distant electrode—for example, to the right arm for lead IV R, or to the left leg for lead IV F.

and positive after his stay; in the interval between these two examinations he had had a slight attack of fever lasting four to five days.

Virus attenuated by tissue culture, without the addition of immune serum, has been used with success in England on more than 600 persons with no serious reactions. In North and South America the Rockefeller Foundation uses a virus grown on tissue from chick embryos from which the head and spinal cord have been removed. This has been used without immune serum on more than six thousand persons with a proportion of 5 to 8 per cent. of slight reactions on the sixth or seventh day after vaccination. Two to six months after vaccination fifty-one out of 2,200 persons vaccinated by various methods showed jaundice.

Typhus Fever

Although fairly frequent in Czechoslovakia between 1920 and 1923, typhus has now practically disappeared from that country, except in the mountainous region of the north of Russian Sub-Carpathia, into which it is thought to be introduced from Poland by smugglers. The local population is comparatively immune, but persons coming from other parts of Czechoslovakia are much more severely attacked. Weigl's vaccine has been used since 1934 for persons particularly exposed to infection; no case of the disease has occurred up to date in 740 persons vaccinated.

In the United States louse-borne typhus does not seem to occur, but 1,662 cases of murine typhus transmitted by fleas were notified in 1936, the majority being from the States of Georgia, Texas, and Alabama.

In Morocco three serious outbreaks occurred following the bad harvest of 1936—near Marrakesh, at Fez, and at Casablanca. Blanc's living vaccine attenuated with bile was used to inoculate the great majority of the natives in the threatened areas; 44,655, 2,962, and 146,283 persons were vaccinated in the above three areas respectively. This mass vaccination was followed by a sudden fall in the epidemic curve, even although no other prophylactic measures such as delousing were employed. According to carefully controlled mass observations the total percentage of reactions was 0.61 among the natives and 13 among Europeans.

In Tunisia endemic typhus has persisted in a few areas and broke out between November, 1936, and June, 1937, with unusual virulence. The results of the classic methods of prophylaxis having therefore been judged insufficient, it was decided to employ, in addition to isolation of infected persons and delousing, vaccination with Laigret's vaccine (living murine virus incorporated in egg yolk); this can be dried and suspended in oil at the time of inoculation, and can therefore be sent considerable distances and used by doctors on the spot. In Tunisia 3,601 vaccinations were carried out in 1935-6, 27,941 in 1936-7, and it is hoped to raise the figure to 150,000 for 1937-8. Thirty-two cases of typhus with no deaths occurred in vaccinated subjects, but twenty-seven of these, fell ill during the first fortnight after inoculation. The incidence of typhus in the months following inoculation was 0.9 per 1,000 in the vaccinated and 11 per 1,000 in the non-vaccinated of the same communities. Three cases of murine typhus, with a rash but of an ambulatory type, were produced by vaccination.

Post-vaccinal Encephalitis

As regards post-vaccinal encephalitis in various countries, five cases occurred in Great Britain in 1936 and three cases in the first eight months of 1937; five of these eight were fatal. Four of the cases were in young infants, the remainder were primary vaccinations in children of 10 to 15 years. In Germany five cases were confirmed in 1936, two in children of 3 months and 1 year, the remainder in children of 3 and 4 years old. In Italy five cases occurred in 1936 and six in 1937 out of

1,104,520 primary vaccinations and 1,205,971 revaccinations in 1936 and the spring of 1937. All the cases followed primary vaccinations, and six occurred in children of 10 to 13 months, while five were in children of 2 to 8 years. In Sweden, during the period 1924-36, fifty-four cases were notified (forty-three primary vaccinations and eleven revaccinations), of which eleven occurred in the last four years. No case was noted in the first year of life, six were in children of 1 to 2 years. The highest proportion of cases to vaccinations appears to occur in the age period 5 to 10 years. Cases are scattered throughout the country and their frequency does not appear to be influenced by epidemics of poliomyelitis.

Other Infectious Diseases

Tuberculosis.—Communications on mortality from tuberculosis in rural areas as compared with urban, with special reference to females, were received from Germany, Denmark, the United States, Great Britain, France, Italy, and Yugoslavia. Measures in force with the object of preventing tuberculous infection of school children by teachers and by one another were communicated by the delegates of nine countries.

Poliomyelitis.—Studies of several epidemics of poliomyelitis in Sweden have thrown considerable light on its epidemiology. The disease appears in several areas of a district at the same time, and may be presumed therefore to depend on some external factor. Rainfall or thaws seem to occur some ten to twenty days before each outbreak, and cases appear first in the country and then spread to the towns, possibly through unpasteurized milk. Cases of reinfection have been noted and specific immunity does not appear to be important. In Italy, on the other hand, multiple cases in families or schools are practically never observed, nor is there a relation to the rainfall. In Switzerland, as compared with an average annual incidence of 300, 1,269 cases occurred in 1936 and 1,088 in the first ten months of 1937. Family cases are very rare but occur more frequently as an epidemic progresses.

Scarlet Fever.—In the United States scarlet fever continues to be mild in character. The case incidence is 200 per 100,000 population and the death rate is about 1 per cent. Active immunization with Dick toxin makes little progress, except among those specially exposed to risk, such as nurses.

Bacillary Dysentery.—In the Netherlands Shiga-Kruse bacillary dysentery has disappeared since the beginning of the century, but small epidemics are fairly frequently observed due to Flexner's or the Y bacillus, and particularly from Sonne's bacillus. Cases are mild, but deaths may occur in children and old persons. The principal prophylactic measure is the discovery and elimination of carriers among food handlers.

Rabies.—Work at the Pasteur Institute of Tangier goes to explain why vaccine prepared by the method of Högyès has caused more frequent and severe paralytic accidents than other antirabic vaccines. It has been shown that the virulence even of a fixed virus increases very greatly by repeated passage through rabbit spinal cord. Högyès's original dilution was 1 in 10,000, but a dilution of 1 in 900,000 may be fatal.

L. M. Davidoff and C. G. Dyke (*Amer. J. Ophthalm.*, September, 1937) describe a syndrome comprising increased cerebrospinal fluid pressure, headache, marked papilloedema, and failing vision, but seldom vomiting. It is often associated with otitis media. The encephalograms are normal, the cerebrospinal fluid clear, and there are usually no abnormal neurological signs. The patients are mostly under 30 years of age, the duration of symptoms being under two years. Some of the fifteen cases they record showed slight signs of involvement of the pyramidal tract. Dehydration treatment was used in the majority of the cases with good results.

Keratoconus has been shown in many instances to be a manifestation of disorders of endocrine glands (thyroid and gonads). Von Imre is of opinion that there is a close connexion between acute and chronic glaucoma and abnormal folliculin production. The folliculin production of four glaucomatous patients, examined by reliable biological methods, proved to be exceedingly low. The production of prolactin was in every case normal. He points out that there is an undoubted connexion between the changes of the intraocular tension and the pituitary during pregnancy.

Patients suffering from retinitis pigmentosa are treated nowadays with menformon, and in many cases improvement follows and the progression of the disease is arrested.

Prevention of Blindness

At the meeting of the International Association for Prevention of Blindness Dr. Bailliart (president) read an introductory address. Mr. A. F. MacCallan (London) discussed the measures adopted in Egypt for the prevention of blindness. The ophthalmic campaign inaugurated in Egypt thirty-four years ago, and especially the establishment of travelling ophthalmic hospitals, has reduced the incidence of blindness among patients attending ophthalmic hospitals by one-third. Dr. F. Park Lewis (New York) discussed the responsibility of the ophthalmologist in the conservation of sight and the prevention of blindness. The prevention of blindness is as worthy of consideration by ophthalmologists as either research or surgical care in affections of the eyes. The blindness that comes from negligence, from ignorance, from indifference, and the crudities of living and its mismanagement is universal.

Dr. Joseph Minton (London) read a paper on prevention of industrial eye injuries. An investigation was carried out by him at the Royal Eye Hospital, London, where over 7,000 patients suffering from industrial eye injuries are attended to every year. The present high numbers are due to (1) non-provision of safety measures by employers, and (2) the attitude of indifference shown by workmen to the risks entailed in their work and their negligence in using preventive measures supplied to them. Following his investigation he has organized at the outpatient rooms of the Royal Eye Hospital a museum of preventive measures. The patients have thus an opportunity of studying the preventive appliances at the time of attendance at hospital, and thus choosing the most suitable one for their type of work. If other hospitals situated in industrial areas would take an interest in preventive work a diminution of eye injuries and, with it, of resultant total or partial blindness would follow.

Mr. Lewis H. Carris (U.S.A.) read a paper on the role of the social worker in a campaign for the prevention of blindness. Educationists, public health officials, nurses, industrialists, sanitary engineers, social workers, and all in any way concerned in human welfare must take their rightful place in the attack upon this social enemy. To the world at large we must teach the causes of blindness and defective vision, the place of nutrition and hygiene in relation to eye health, methods of safeguarding the eye against injury and harm and of keeping it in a state of greatest possible usefulness.

The Congress was attended by 600 delegates from all countries. On December 9 they were entertained at the Royal Palace by King Farouk. Visits were arranged to the hospitals in Cairo, and excursions to museums and places of interest. The next international congress will be held in Vienna in 1941.

The Diabetes Society of New York has issued a card for diabetics to take about with them containing the patient's name and telephone number, and stating that he has been treated with insulin, and that on loss of consciousness he should at once be injected with glucose solution.

CROYDON TYPHOID INQUIRY

FINAL SPEECHES

The Croydon Typhoid Inquiry, which had been expected to end on January 11, the tribunal sitting late for the purpose, had to hold a further meeting on the following day to enable Sir Walter Monckton, K.C., to conclude his speech on behalf of Croydon Corporation. His final address to the tribunal consisted largely of a defence of the water department and the borough engineer, but he also dealt with certain complaints as to "slowness" which had been made against the medical officer of health.

Sir Walter Monckton reminded the tribunal that on November 1 the medical practitioners in the neighbourhood where the first few cases had occurred were notified to look out for typhoid. In the course of his cross-examination Sir William Wilcox had agreed with him that, so far as it went—though he thought it had not sufficient life in it—that was an adequate notification to put them on their guard about the existence of typhoid in the district. It was necessary to secure two things: first to put the doctors on their guard, and secondly, to prevent premature publication of something which ought not to have been published because it would create a scare or panic. If medical practitioners knew that there was a case or two of typhoid in the district where they practised they would suspect each case of illness of being a typhoid case until they were satisfied that it was not, and therefore the notification by the medical officer of health was all that was required. It was true that one could not draw a line and say that within a particular area every doctor should be notified; nevertheless, all the doctors practising in the particular district were notified on November 1, and on November 4 all the doctors in Croydon were notified. It was quite plain that any method of the kind was subject to criticism, because it must leave out of account some doctors who would be coming into the area, but when the 150 or more doctors who actually practised in Croydon received the notification it was to be presumed that their colleagues who came in from outside would hear of it. The advantage of notifying the doctors was not only that they were the people who saw the illness at its beginning, but they were the only people who could be trusted to pass on the information in a way which would not cause uninstructed alarm. A doctor could pass on explanations to his patients and their families, while public notification might lead to misunderstanding and panic.

With regard to the cause of the outbreak, Sir Walter Monckton submitted that it was still impossible to put the finger with any confidence upon a particular cause. The possibility of an unidentified carrier and of pollution being received in some way from the gathering ground could not be excluded. Sir William Wilcox had taken the view that the gathering ground was the most probable source, but Sir William had not in mind the fact, which was assumed by all the rest of those concerned in the Inquiry, that for a period there was a carrier actually at work in the well, and he might to some extent have modified his view if he had had that fact present in his mind. Among the many people who were on the gathering ground it had not been possible to investigate far enough to rule out a potential source of infection there. Looking at the gathering ground as a possible source, one's mind turned first to the latrine trench that was dug thirty-five yards from an adit. It had not been possible to identify all the workmen—100 or more—who were engaged there from May to November, and to eliminate the possibility of carriers. Steps had been taken to examine some, and so far as the investigations went they were negative.

In conclusion he suggested how easy it was to be wise after the event. It was scarcely possible to help applying to things as they had turned out to be a standard which

CAIRO OPHTHALMOLOGICAL CONGRESS

[FROM A CORRESPONDENT]

The fifteenth International Ophthalmological Congress was held in Cairo from December 8 to 14, 1937. The two main subjects discussed were hypertension and retinal arteriosclerosis, and endocrinology and its relation to the eye.

Retinal Arterial Hypertension

Dr. H. P. Wagener and Dr. Norman M. Keith (the Mayo Clinic), Dr. Bailliant (Paris), and Dr. Y. Koyanagi (Japan) read the opening papers on the subject of retinal arterial hypertension.

The ophthalmologist, because of the wider and more intimate knowledge of the clinical details of retinal pathology, should be better equipped than the physician to observe the reactions in the retina which are associated with an elevation of blood pressure and systemic vascular disease. If it can be assumed, as seems logical, that the visible reactions in the retinal vessels are similar, though at times disproportionate, to the invisible reactions taking place in vessels of similar size throughout the body, then an explanation of the mechanism of these reactions in the retina will go far toward solving the mechanism of diffuse vascular disease. The responsibility of the ophthalmologist in the solution of this problem is great and his opportunities are wide, for he is able to see these vascular changes from their inception and to study their modes of origin and progression.

Evidence accumulated in the fields of physiology, pathology, and clinical investigation indicates that arterial hypertension is an expression of a diffuse disease or abnormal condition of the arterioles throughout the body. The lesion of the arterioles results in an increase in the peripheral resistance in certain regions or in the whole of the arteriolar bed. The narrowing of the lumen of the arterioles, which is the apparent cause of the increased resistance, is not structural in the earliest phases of the disease. It must be regarded as due to increased tonicity of the vessel wall, to spastic constriction, or to a combination of the two. Whether the tonic or spastic constriction is due to the action of a pressor substance directly on the arteriolar wall or through the medium of the sympathetic nerves, or simply to increased vasomotor stimuli, is not known. If the causative factor of the arteriolar narrowing continues to operate, histologic changes develop ultimately in various parts of the arteriolar system—for example, in the peripheral muscles, the heart, the kidney, the brain, and the retina.

Classification of Essential Hypertension

Both these factors—functional narrowing of and structural wall changes in arterioles—appear to be present in the usual case of diffuse arteriolar disease of the so-called "essential hypertension" type. On the basis largely of the dominance of one or the other of these factors in a particular case, it is possible to classify cases of "essential" hypertension into various groups, in each of which the probable course of the disease and the life expectancy of the individual patient can be foretold with a reasonable degree of accuracy.

Dumas divided essential hypertension into three phases. In the first or silent phase the patient is essentially symptomless. In the second or established phase the disease has become organic and visceral lesions are present. Cerebral haemorrhages, cardiac failure, or uraemia may terminate this phase. It is possible, however, for the hypertension to pass into the third or involutional phase, in which the blood pressure drops and arteriosclerosis dominates the picture—the hypotensive stage of hypertension. According to Bonamour the retinal changes in Dumas's first phase are spastic in type. The blood pressure in the central artery of the retina is likely to be

elevated disproportionately to the blood pressure in the brachial arteries. Patients may complain of transient loss of vision. Post-spastic thrombosis of the central artery may result in permanent loss of vision. In the second or established phase retinitis develops in cases which are running a rapidly progressive course. If the disease progresses more slowly sclerosis develops in the retinal arteries as a defence reaction. In the third or involutional phase the sclerosis in the retinal arteries is likely to be quite marked, and lesions such as arteriosclerotic retinitis and retinitis circinata are characteristic. In Bonamour's opinion retinitis of the hypertensive type is essentially vasospastic in origin. As a result of arteriolar constriction reactional dilatation and stasis develop in the capillary bed and serous and haemorrhagic transudations take place into the retina.

Albuminuric Retinitis

The problem of the pathogenesis of "albuminuric retinitis" has been a consuming one almost since the beginnings of our knowledge of albuminuria as an expression of disease of the kidneys. Bright himself recognized that loss of vision was a symptom in cases of certain patients with albuminuria. Most physicians at present agree that a retinitis of "albuminuric type" can occur in cases in which no evidence of renal insufficiency can be demonstrated clinically, and in which, at necropsy, the kidneys show no evidence of primary nephritis. The most logical explanation of the mode of origin of "albuminuric retinitis" seems to be that of Volhard, who regarded both the arteriolar sclerosis of Verwey and the retinitis as a result of ischaemia due to spasm of the larger arterioles. Volhard's conception of ischaemic or angiospastic retinitis seems to be more generally applicable than any other to the retinal complications of hypertension and nephritis, and to permit of more ready comparison of these complications with the other features of the systemic disease.

Wagener and Keith reported in 1928 on a condition which they termed "the malignant hypertension syndrome." The objective findings are persistently elevated blood pressure, diffuseness of arterial and arteriolar thickening through the body, minimal changes in the renal parenchyma, and retinal changes. The important retinal alterations are the marked spastic and organic narrowing of the arterioles, with diffuse retinitis and oedema of the disks. The characteristic symptoms are nervousness, asthenia, visual disturbances, and dyspnoea on exertion. All observers are agreed that the patients of this group are in a very serious condition. A follow-up of 146 cases showed that 80 per cent. of them died within one year.

Dr. Bailliant, dealing with the clinical part of retinal arterial hypertension, stressed the value of his dynamometer, which estimates the diastolic blood pressure in the retinal arterioles, which is about 40 per cent. of the diastolic pressure in the brachial arteries. The pressures as measured by this method furnish a ready and probably fairly reliable method of determining variations from the normal in pathologic states.

Endocrinology in Relation to the Eye

The discussion on endocrinology and its relation to the eye was opened by Dr. Snapper (Holland), Dr. von Szily (Germany), Dr. von J. Imre (Hungary), Drs. Jeandelize and Drouet (France), and Dr. Le Cascio (Italy).

Recent investigations have shown that various disorders of the sexual glands are associated with pathological changes occurring in the eyes. Periodic haemorrhages of the subconjunctival tissue, recurring conjunctival inflammations, or especially phlyctenular kerato-conjunctivitis are not rarely found in close relation to menstruation. Filamentary keratitis following atrophy of the lachrymal glands and often combined with arthritic processes as a rule develops in women with ovarian disorders or in the beginning of climacteric.

Reports of Societies

NUTRITIONAL THERAPY DURING PREGNANCY

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on January 11 a discussion took place on nutritional therapy during pregnancy. Dr. J. W. TREYAN was in the chair.

Analysis of Diets taken by Pregnant Women

Dr. R. A. McCANCE of the Biochemical Department, King's College Hospital, said that the results he had to communicate were reported very briefly to the British Medical Association Meeting at Belfast in July last, but the work had been considerably extended since then. The subjects of the investigation were 116 pregnant women with varying incomes, who weighed all the food they ate for one week. He believed this was the first investigation of the kind made in this or any other country, but those concerned took no credit for that, because it was an investigation which should have been made years ago in any country interested in the well-being of its citizens. The better-class women were not all visited personally, but the poorer women were visited every day, any records which were suspect were thrown out, and it was believed that these 116 women carried out their part in the investigation correctly enough to provide records of real value. The composition of the diets was calculated from food analyses made at King's College Hospital. The heights and weights of the women were measured, and the amount of haemoglobin in the blood was estimated (by Haldane's method) in seventy-seven of them. About fifty of the women were the wives of unemployed miners in South Wales and Durham, and the others belonged to three groups of rather more than twenty, each consisting respectively of the wives of employed labourers in Bermondsey, the wives of better-off artisans in Camberwell, and women of the professional classes. The results were shown in the following table:

Income (Less Rent) per Head per Week	No. in Group	Haemo- globin %	Calor- ies per Day.	Total Prote- ins gms. p.d.	Animal Proteins gms. p.d.	Cal- cium gms. p.d.	Phos- phorus gms. p.d.	Iron mgms. p.d.
Less than 6s.	16	76	2,211	60	28	0.51	0.80	8
6s. to 9s.	23	79	2,158	64	36	0.53	0.92	10
9s. to 15s.	19	80	2,194	66	37	0.52	0.99	12
15s. to 25s.	14	81	2,471	75	36	0.75	1.22	13
25s. to 40s.	13	90	2,781	86	55	0.75	1.32	14
Over 40s.	22	—	2,517	80	55	0.92	1.44	14

With rising income the intake of milk went up, and would have gone up much more steeply but for the fact that the women in the two poorest groups were being supplied with considerable amounts of milk from the public authorities; this went a long way to explain the increase in calcium. White bread fell as incomes went up, but brown bread stayed level in the first three groups and then went up. Total flour showed a certain falling off with income. The intake of jams and marmalades went up. Eggs rose with income, as did raw fruit, meat, and fish, and green vegetables rose strikingly. It could be said that the investigation had afforded evidence of profound nutritional deficiency in the poorer classes.

The next question as to whether the well-to-do women were perfectly nourished was difficult to answer because of the absence of criteria. On comparing the diets of these professional women with the recommendations of the League of Nations Committee on Nutrition, it appeared that they consumed an average of 2,517 calories a day, whereas the Committee's recommendations were from 3,000 to 3,500, but, in his view, these recommenda-

tions were too high. The calcium intake each day, 0.92 gramme, was very much below the League of Nations' recommendation (1.60 grammes), and so was the phosphorus, 1.43 grammes a day, the League's recommendation being 1.90 to 2.60 grammes. It was possible that even women of the professional class were not being nourished during pregnancy in the best possible manner, but well-to-do women with plenty of money to spend on food would find it difficult to consume up to the protective food level suggested by the League of Nations.

As for remedies there appeared to be four possible methods: (1) food education; (2) increased income, or, alternatively, the cheapening of essential foods; (3) communal feeding in some form; and (4) medicinal treatment with mineral or vitamin supplements. Probably a mixture of the four methods would give the best solution.

Concentrated Food Substances in the Diet

Dr. MARGARET BALFOUR gave a brief account of the work of the National Birthday Trust Fund, organized to help women in the distressed areas. This work began in the Rhondda Valley, where the maternal mortality for the seven years previous to 1935 averaged 7.22 per 1,000 births. The scattered nature of the population made it difficult to organize meals, and as the local authority was already giving milk the Birthday Trust determined to supply dry foods from ante-natal centres. At the end of 1935, the first year of the experiment, there was a reduction in mortality; in 1936 the scheme was extended to other areas in South Wales and to three areas in the north of England, and again the mortality fell. The food given consisted of a certain milk preparation and marmite, and this was continued for twelve weeks, which might be the last twelve weeks of pregnancy or, if the medical officer preferred, the nine weeks before delivery and the three weeks after. Over 10,000 expectant mothers had received the food, and among these the puerperal death rate from sepsis was only 0.09 per 1,000—that is, only one death. In a control series of 18,000 women in the same area who did not receive the food the puerperal death rate from sepsis was 2.91. The maternal deaths from other causes gave rates of 1.54 and 3.24 in the respective groups, and the infant death rate was little more than half in the Birthday Trust group what it was in the control series. The Birthday Trust women were mostly the wives of unemployed men; the mothers in the control group were more often better-class women who received ante-natal care from their own practitioner. It had been suggested that the difference was due to the fact that all the Birthday Trust women received ante-natal care, whereas only a proportion of the others did so. On the other hand, it must be remembered that the women who went to the ante-natal centres were likely to include a larger proportion with some abnormal condition in pregnancy and also a larger number of primiparae.

There was some doubt as to how far the milk foods given were taken by the women themselves, and how far they shared them with their families. The marmite contained very little protein, no carbohydrate or fat, but it was rich in the vitamin B complex, which was a neuro-muscular stimulant, and possibly when this preparation was taken in the last months of pregnancy it enabled the woman to deliver herself in certain cases when otherwise she would have had to undergo operative intervention. The vitamin B complex also had a special action on the skin and mucous membrane, and it might be that the action on the mucous membrane of the uterine passages diminished the tendency to puerperal sepsis. A new extract of yeast rich in vitamin B had been prepared, and this was being given instead of marmite in some areas in order to find out whether the beneficial effect of marmite was due to its vitamin B or to some other constituent.

General Discussion

Dr. J. W. TREYAN commented upon the high total calories recommended by the League of Nations. He was sure that he could not himself consume 3,500 calories a

it might not have occurred to one to apply had one been faced with the conditions at the time. In expressing gratitude for the patience and courtesy with which the tribunal had listened to the arguments, he said with what kindness the assessors (Sir Humphry Rolleston and Mr. Gourley) "have watched us sail our frail barque into what to them are territorial waters, but to us uncharted seas, and have observed our misfortunes with ready sympathy and kindly smiles."

Mr. H. L. Murphy, the chairman of the tribunal, said that he would endeavour to get out his report without undue delay. He added:

"We have been debating a subject upon which feelings have been very strong on both sides, and we have been here for seventeen days debating it in an atmosphere, I think I may say, of complete tranquillity, for hardly has there ever been the necessity for even a request for silence. I think that is a tremendous tribute to the orderliness and sense of fair play of the people of Croydon, and I wish to thank them very much for it."

In the course of the Inquiry about 8,000 questions were asked of witnesses, and the shorthand record extends to over 1,000 printed pages.

PSYCHIATRIC RESEARCH BUREAU

Thanks to the generous assistance of the Rockefeller Foundation a bureau for the assistance of research workers in psychiatry has been established under the auspices of the Royal Medico-Psychological Association. The committee of the Research Bureau consists of Sir Hubert Bond, Dr. J. Brander, Dr. W. T. Fleming, Professor F. L. Golla, Dr. P. K. McCowan, Dr. W. D. Nicol, Dr. G. W. Smith, and Dr. R. M. Stewart.

Aims and Methods

The objects of the Bureau are the following:

1. Any psychiatrist who wishes for special information as to what is at present known on any subject of interest to himself is invited to notify the Secretary of the Bureau. A bibliography of all recent papers relating to the subject will be sent to him, together with abstracts of such communications as may seem of great importance, and should he then desire abstracts of any particular papers, especially those published in foreign languages, they will be made for him on demand.

2. Any worker who wishes to start some particular research may on application obtain information as to what has already been done on the subject, and what methods of procedure are advised for further work.

3. Any worker who desires further elucidation on points of technique will be either advised directly from the Bureau or put into direct communication with the appropriate members of a panel of experts who have kindly consented to advise on technical questions.

4. Workers desiring the loan of technical manuals for purposes of their work may obtain them on application.

5. Workers desiring to see personally the application of methods of research or treatment or to confer personally with expert advisers will be eligible to receive small grants to enable them to do so. These grants, which will be made by the committee, are intended to cover the expense of visits of a few days to laboratories at home or abroad, and are primarily for the use of medical officers who might be unable to make such visits at their own expense.

6. A short account of recent advances in subjects of particular interest together with a fairly complete bibliography will be issued at intervals and sent to any psychiatrist who may signify a desire to receive it.

7. Psychiatrists who would like to be put into communication with other workers abroad can receive help from the Bureau.

8. Although it is very much hoped that all British psychiatrists will be members of the R.M.P.A., the services of the Bureau and the eligibility for grants is open to any psychiatrist working in the British Empire.

All communications should be addressed to Research Bureau, the Royal Medico-Psychological Association, 11, Chandos Street, Cavendish Square, London, W.1.

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee eight annuities were awarded. Forty-five grants were voted to beneficiaries, amounting to £1,204. Among thirteen new applicants the following particulars are given of two cases:

M.R.C.S., aged 70, married; wife aged 58. Invalided out of the Royal Air Force with glaucoma in 1926, he has not been in practice since, but has been able to earn a very small and precarious living by writing. This source of income is ended owing to blindness and through exhaustion of the subject. His wife has had several attacks of cholecystitis due to gall-stones, and may have to be operated on in the near future. Private income *nil*. The Fund voted £100.

Daughter, aged 60, of F.R.C.S. For twenty-nine years she has worked as a matron at two private schools, but had to give up her work in 1933 owing to phlebitis and varicose veins. She has been living on her savings, which are now reduced to £30. She has no relations who can help her. The Fund voted £36, and is obtaining assistance from other charities for this most deserving case.

Subscriptions and donations are urgently needed. Cheques may be made payable to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

E. Mowinckel, H. Hansen-Reistrup, and P. J. Reiter (*Hospitalstidende*, September 7, 1937) have sought clinical evidence of vitamin deficiencies in the patients treated in a large Danish mental hospital whose diet they have scrutinized with special reference to its vitamin content. The test for vitamin A deficiency was that devised by Edmund for the detection of hemeralopia, and consisted in the measurement of the patient's reaction to light in a darkened room. The degree of intelligent co-operation required for the satisfactory performance of this test entailed the elimination of many of the patients, but 260 were found suitable. Among them were twenty-one with definite and sixty-eight with doubtful visual signs of vitamin A deficiency. A search for vitamin B₁ deficiency in the form of polyneuritis, other than alcoholic polyneuritis, revealed only one case, and that was merely a suspect case. Evidence of vitamin B₂ deficiency leading to pellagra was found in several patients, particularly among the subjects of schizophrenia and those suffering from severe chronic disturbances of the digestive system. The changes observed were partly cutaneous, partly neuritic (central neuritis). The ascorbic acid test for vitamin C deficiency not being available when these studies were started some three years ago, the authors relied on the Bexelius capillary resistance test for the demonstration of vitamin C deficiency, for which 548 patients were examined. In 6.5 per cent. of them vitamin C deficiency was thus demonstrated. Among the patients found to be suffering from it were eleven with well-defined stomatitis. The incidence of various forms of vitamin deficiency was highest among the schizophrenics, who represented 60 per cent. of the hospital's inmates. The authors conclude that though they have failed to demonstrate any marked vitamin deficiency either in the patients or their diet, the amount of vitamins A, B, and C in the diet is dangerously low. This is the more deplorable as a shortage of vitamins may in some cases profoundly influence the mental condition of the insane.

phases. The major fit, usually starting ten to thirty seconds after the injection, with a phase of generalized tonic clonus merging into the clonic phase and succeeded by a state of flaccidity, was followed by a short period of coma, and complete consciousness was generally regained in from five to ten minutes. Recovery was sometimes associated with confusion, restlessness, and mild excitement lasting a few minutes, but most patients were quiet and soon dropped off into normal sleep.

If due precautions were taken danger was insignificant. Meduna had treated 400 cases without fatality, and Dr. Cook believed that only three deaths were recorded in upwards of 1,500 cases treated by various workers. At Bexley he and his colleagues had induced over 1,400 major fits without encountering any really alarming features. Respiration might momentarily cease in the flaccid stage, but pressure on the lower ribs immediately restarted it. Transient cyanosis was usual, and might possibly be of therapeutic value. Occasional irregularity of the pulse occurred, but was quite temporary. A thorough physical examination should precede treatment, and all patients suffering from general bodily illness, especially of the heart and lungs, or any form of pyrexia, should be excluded.

Although dangerous or serious sequelae were conspicuously absent, two annoying complications tended to occur. One was local fibrosis of the injected veins, and the other was the distress and fear occasioned. Most patients feared the injections and a few reached a pitiable stage of apprehension. The distress could be lessened by giving an immediate sedative (not an anti-convulsant, such as luminal). It was his habit to give a second and larger dose immediately after an unsuccessful injection, thus reducing to a minimum the period of distress. The question of premedication had been considered, and lately he had been using hyoscine and morphine in combination, with the result that severe apprehension and distress had become a thing of the past. The only method of completely eliminating distress was that of combining insulin and cardiazol therapy and administering cardiazol during insulin coma.

Estimation of Results

After showing a table giving the collected results of a number of workers, Dr. Cook gave a summary of forty-five cases treated at Bexley. There had been remissions in twenty-four cases and no remissions in twenty-one. Of the twenty-four cases which showed remissions, sixteen showed very good remissions or recovery. In these same twenty-four cases the duration of illness had been over two years in eleven, between one and two years in six, and under one year in seven. Of the twenty-one non-remission cases, fifteen had had a duration of illness of over two years. By "recovery" he meant discharge or awaiting discharge, the patients having lost every schizoid feature. The greatest triumphs had been gained with some of the almost intractable schizophrenics whose illness had lasted more than two years. More trustworthy than statistics were the impressions of experienced clinicians and nurses. The medical staff at Bexley felt no doubt as to the value of the therapy, and the nurses, who were not likely to be carried away by a new treatment, and at first were biased against it because of the distress occasioned, were now enthusiastically in its favour.

Of the early cases of acute onset, the stuporous and confused types were generally agreed to have the best prognosis. Paranoid types were said to offer considerable resistance to cardiazol therapy, but if the case was of recent and rapid onset it was by no means intractable. Less success attended the treatment of early cases of schizophrenic excitement, especially when the predominant affective state was one of elation. This might be partly due to the tendency for cardiazol to produce a mood of euphoria and spurious confidence. When a schizophrenic illness had lasted more than three years complete recovery

was extremely rare, yet here again stuporous and vegetative subjects of catatonic type fared best, and Dr. Cook thought it might fairly be claimed that cardiazol fits could always interrupt a state of stupor.

A tendency to relapse was not infrequent in cases of incomplete remission and could easily be counteracted by a few further convulsions. If treatment was interrupted before completion relapse was common. Post-convulsional lucidity with a tendency to relapse within forty-eight hours had been observed in two cases of agitated, resistive stupor. Good results had been obtained in recurrent cases, although they might not have achieved more than a "social" remission—that is, becoming as well as they were before their illness, or at their individual best—over a period of several years.

Finally Dr. Cook touched upon cardiazol in relation to other forms of treatment, in particular insulin. Insulin and cardiazol should be regarded not as rival but as complementary methods of treatment. Their statistical results were similar, but insulin appeared to have a curative predilection for paranoid and excited syndromes, while cardiazol produced its best results in states of confusion, stupor, and distress. In ideal circumstances both methods should be available. The combined method abolished the distress associated with cardiazol, whilst retaining the beneficial effects of regular convulsions. Cardiazol had the advantage of a simple technique, requiring no large or specially trained staff, and of comparative freedom from danger, though the dangers of insulin therapy, on the other hand, were rapidly decreasing as experience of its action accumulated.

THE ASTHMA PROBLEM

At a meeting of the Section of Medicine of the Royal Society of Medicine on January 13, with Dr. H. L. Tidy presiding, a discussion took place on certain aspects of the asthma problem.

Dr. FRANCIS M. RACKEMANN (Boston, U.S.A.) said that asthma was most often a symptom of allergy, but there were a number of patients who had asthma which was not allergic in origin. Asthma and hay fever, and possibly eczema, depended upon immediate reactions of the urticarial type. These reactions, which were demonstrated by a skin test, occurred not only in persons said to be allergic but in others said to be normal, and they could be reproduced in animals. In addition to the immediate reaction a delayed inflammatory reaction could also be demonstrated twenty-four or forty-eight hours after the test had been applied. It was possible to correlate the delayed and the immediate reactions and to show that each was a part of the development of immunity. The degree of sensitiveness of asthma subjects was often extreme, and might be multiple. Thus, a baker with wheat asthma reacted not only to wheat but to rye and orris powder. Another factor was inheritance; some 60 per cent. of the individuals who were themselves sensitive stated that their father or grandfather had had similar symptoms.

The symptoms that accompanied asthma were very characteristic. The patients had a low blood pressure, a rapid pulse, and fatigued easily. Sensitivity to a skin test did not necessarily imply sensitivity to the point of producing symptoms. He had tested thirty employees in a bakery, making skin tests with wheat and other substances; seventeen of the men had partial skin sensitiveness to wheat, but only one out of the thirty had any trouble from the inhalation of wheat flour. In hay fever or specific allergic rhinitis the tissues in the nose were sensitive, and a local reaction in the mucous membrane took place on contact with grass pollen. About one-third of such persons had asthma, but the process did not advance by direct extension along the mucous mem-

day. With regard to Dr. Balfour's figures, he wished it had been possible to have controls from the same group, although he admitted the difficulty of having to deprive some women of the protective foods which were given to others. Dr. HELEN MACKAY said that in work like this it would be better to study small groups intensively. The mortality rate would be too small to be helpful, but the morbidity rate might afford a great deal of information. There was no doubt that in children small additions to the diet effected remarkable improvements in the morbidity rate, and if in children why not in adults? Professor JAMES YOUNG said that some of the Birthday Trust figures seemed almost too good to be true. To have only one death from sepsis in 10,000 deliveries almost suggested—though he could not accept the suggestion—that all the obstetric procedures against sepsis might be abandoned, and that it was sufficient to administer a little yeast to secure an adequate resistance. The control group, he imagined, consisted of women who were economically better off. This must mean that the important thing was not the quantity of food, because these better-to-do women presumably had sufficient food, but the difference must depend upon some inherent quality in the diet.

Dr. JANET VAUGHAN said that Dr. McCance's figures had demonstrated again that there was a very high incidence of some degree of anaemia in working-class women during pregnancy. She thought the justification for giving all women during pregnancy medicinal doses of iron should be considered, not only for the sake of the women themselves but for their children. Another point was that marmite had a very important haemopoietic action which was not understood and was probably not associated with any of the vitamin B constituents at present recognized. It might be associated with the vitamin B complex, but was certainly not vitamin B₁ or B₂. She quarrelled with Dr. Balfour when she said that it was better to give these medicinal remedies than to give a good round meal. In the latter case the women were being provided with a good many other necessities not included in the artificial diets. It did seem rather tragic that this magnificent experiment was being jeopardized by the omnibus type of therapy employed. It would be far wiser to study a few cases, giving them not omnibus treatment but carefully selected remedies.

Mr. A. L. BACHARACH differed from Dr. Vaughan. It was a paradoxical position that Dr. Vaughan, who was a physician, should be . . . she alleged was an experimental and . . . while he, as a laboratory worker, was "shocked by her suggestion." He believed that such an experiment would not work. It would be all very well if the women dealt with were experimental animals in the laboratory whose basic diet could be rigorously controlled so as to be adequate in all factors save one, and experiments carried out on that one variable factor. But that was not the position, and there would be a large number of women who were suffering from multiple deficiencies of varying degrees of intensity. The only result of giving to a group of individuals, who were suffering from subnutrition in other respects a single factor would be to prevent that single factor from demonstrating its full possible effect. He further said that it had been shown that diets apparently perfect in themselves were capable of very marked improvement by the addition of one or more constituents that had been previously supposed to be present in adequate amounts; no two of these additions when worked out arithmetically on paper had the same effect as when given together in practice. This was a question of integration of effects which could not be demonstrated in theory, but only by carrying out experiments. The work that was being done was of the nature of making the best of a bad job. A number of pregnant women were on a dietary level which was injurious to their health. Additions to the diet would go a long way to modify that position. It was not known exactly what dietary constituents would do this, but they were in a position to say

that certain foods and yeast products would do a great deal to bring down mortality and morbidity.

Professor J. R. MARRACK joined in the protest against the medicinal method of making up inadequacies in diet. The people concerned suffered from multiple deficiencies, and if an attempt were made to make up such deficiencies with multiple supplies of elaborate preparations peculiar difficulties would arise. It was much better to make up the deficiencies with ordinary food. Dr. PAYNE asked whether there were any sources other than milk for obtaining calcium. Dr. McCANCE replied that a large amount of calcium was necessary to the body, and milk was the only food in common use in this country which gave it. It was the most important source of calcium in British diet. Dr. MARGARET BALFOUR said that it might be very much better to give natural rather than artificial food, but this was not easy, partly owing to the economic situation and partly owing to the psychological fact that these poor expectant mothers did not like leaving their homes to go to a centre for a good meal while their husbands and children remained with scanty food at home.

CARDIAZOL CONVULSION THERAPY IN SCHIZOPHRENIA

At a meeting of the Section of Psychiatry, Royal Society of Medicine, under the presidency of Dr. EDWIN GOODALL, on January 11, a paper on cardiazol convulsion therapy in schizophrenia was read by Dr. L. C. COOK, deputy medical superintendent, Bexley Mental Hospital.

Dr. Cook began with a reference to his visit last summer to Budapest, where the treatment of schizophrenia by induced convulsions was originated by Meduna in 1934. For many years it had been known that any severe shock, whether in the nature of acute physical illness or intense psychological stimulation, occasionally produced dramatic improvement in schizophrenia. The metabolic changes in schizophrenia were unknown, but evidently they were not irreversible, and these shock methods were able sometimes to reverse them. Convulsion therapy was first introduced in the form of intramuscular injections of a camphorated oil solution, but Meduna soon discovered the advantages of intravenous cardiazol (pentamethylene tetrazol), a synthetic water-soluble compound, primarily a cardiac and respiratory stimulant. For convulsion therapy it was convenient to use a 10 per cent. aqueous solution, made up freshly every two or three days, sterilized by autoclaving at 110° C. for twenty minutes, and kept in air-tight rubber-capped bottles. Doses as small as 0.2 gramme might be sufficient to produce a fit, but 0.5 gramme (5 c.cm. of the 10 per cent. solution) was the usual initial dose. The same dose was administered as long as it produced a major fit. When the initial dose failed to produce a convulsion an increase of 0.1 gramme was given at the next injection. In practice a few increases were often necessary during a course. When once the effective dose was reached 85 per cent. of injections should be successful. Dr. Cook never found it necessary to give more than 1.2 grammes as a single dose, but he had immediately followed a subliminal dose of 1.1 grammes with a second injection of 1.2 grammes without any ill effects except slight vomiting. Fits were usually induced every three days; in some cases it might be preferable to give the injections every other day. The length of the course depended upon the subject. When improvement occurred it might be dramatic in its rapidity. When a full remission was considered to have been established it was usual to give at least three further fits to diminish the chance of relapse. In completely unresponsive cases twenty fits should be induced before the treatment was given up.

The Fit and its After-effects

The fit resembled a severe, spontaneous, generalized epileptic convulsion and showed all the characteristic

PREVENTION AND CONTROL OF ADDICTION

At the meeting of the Society for the Study of Inebriety on January 11 two papers were read under the title of "Some Official Contacts with Addiction," one by Dr. W. NORWOOD EAST, H.M. Commissioner of Prisons, and the other, dealing with the subject from the international point of view, by Major W. H. COLES, H.M. Chief Inspector under the Dangerous Drugs Acts and United Kingdom representative on the League of Nations Opium Advisory Committee.

Dr. Norwood East began with a review of the various legislation and regulations before, during, and since the war which had contributed to the prevention of alcohol and drug addiction. He mentioned particularly the following:

The Children's Act, 1908, which prevented children from being taken into licensed premises, and imposed penalties for giving intoxicating liquor to a young child except in special circumstances.

The Small Holdings and Allotments Act, 1908, prohibiting any dwelling-house or building on the holding being used for the sale of intoxicating liquors.

The Defence of the Realm Regulations during and following the war, with their various restrictions.

The decision of the Central Control Board (Liquor Traffic) in 1916, leading to the State management of licensed premises at Carlisle.

More recent legislation included:

The Road Traffic Act, 1930, with its penalties for motor drivers found to be under the influence of drink.

The Licensing (Permitted Hours) Act, 1934, enabling justices to vary the hours of opening.

The Dangerous Drugs Act, 1932, amending earlier Acts.

The Extradition Act, 1932, making it possible to include offences in relation to dangerous drugs in the list of extraditable crimes.

The Pharmacy and Poisons Act, 1933, with its attendant rules.

Various statutory Orders controlling the manufacture, possession, and distribution of narcotic drugs.

The average number of persons dealt with summarily for offences which may be placed under the general heading of drunkenness in the years 1910-14 was 193,354. The figure fell to 33,858 in 1932, but since then there had been a gradual rise to 48,110 for 1935, the last year for which figures were available. The number of persons received into prisons on conviction for drunkenness in 1913 was 52,149; in 1932 it had fallen to 5,836, but a slight upward tendency since then had to be noted, and in 1935 the figure was 6,880. The approximate number of drug addicts in the United Kingdom known to the central authorities in 1936 was 616, being almost equally divided between the sexes, and representing one in 76,000 of the population. Of this total 137 were said to be members of the medical profession.

Dr. East said that the curative value of imprisonment for drunkenness had probably never been convincing; at the same time persons addicted to alcohol no doubt derived benefit even from short periods of enforced abstinence. Prison medical practice necessarily afforded a large-scale experiment in the relation of the abrupt withdrawal of alcohol to delirium tremens. When cases were more numerous it was the general experience of prison medical officers that on persons verging on an attack of delirium tremens being received in prison, the enforced abstinence and medical care and treatment often shortened the attack; there was no reason to believe that recent experience pointed to a different conclusion. Abrupt withdrawal in cases of addiction to narcotic drugs was also the usual practice of prison medical officers, and the fact that the patient realized that he was under control and must face up to the situation had therapeutic value. Further, there was some reason to think that the sense of inferiority and

dependence in the addict was less pronounced in the prison hospital because he realized there that other patients were also social failures, and, like himself, must be re-adjusted to society.

International Conventions

Major W. H. Coles reviewed the advance in the control of the trade in narcotic drugs brought about by the Geneva Convention, 1925, which extended the import and export certificate system and set up the Permanent Central Opium Board. By these means discrepancies between the amount of drugs exported and imported were virtually eliminated—in other words, the escape of licitly manufactured drugs into the illicit market was prevented. This control was supplemented by the inauguration, through the Limitation Convention, 1931, of a complete system of limitation of manufacture of drugs to medical and scientific needs and the setting up of a body to supervise and if necessary to frame estimates of the drug requirements of all countries. Major Coles gave an account of the work of this supervisory body, and said that thanks to the stricter application of the international conventions there had been during the last few years a progressive shrinkage in the difference between the quantity of drugs manufactured and the quantity legitimately consumed. Statistics furnished by Governments showed that the amounts manufactured approximated more and more to the legitimate consumption, leaving little apparent margin available for the illicit market.

No precise knowledge was available of the amount consumed for the purpose of maintaining addiction, nor could any accurate estimate of the number of persons using drugs for that purpose be formed. It was certain that in some countries the number of addicts was very small and in others very large. In 1930 the Canadian authorities estimated approximately one addict in 1,000 of the population, and the United States reckoned a similar figure. In 1928 it was considered that the proportion of addicts in the large towns of Germany was one in 10,000, and one in about 18,000 elsewhere. In Egypt it was estimated in 1930 that the addicts numbered half a million in a population of fourteen millions, but this figure had been much reduced in later estimates, and in 1934 the Egyptian authorities reported some 18,500 addicts. The Chinese Government, in reply to a questionnaire addressed by the League of Nations, gave the number of registered opium addicts as 3,700,000. It had been stated that in Harbin there were no fewer than 300 heroin dens, besides 100 authorized opium saloons. No one knew how many clandestine factories there were, nor what was their output.

The next step in control, leading, it was hoped, to the ultimate elimination of illicit traffic, was the limitation of the production of the raw materials from which drugs were produced to the quantity necessary to supply the medical needs of the world. The preliminary work in connexion with this task was in progress.

CAUSES AND TREATMENT OF STERILITY

At a meeting of the West London Medico-Chirurgical Society on January 7, with Dr. G. RICE-ONLEY in the chair, a discussion took place on sterility or infertile marriage, its causes and treatment.

Mr. EARDLEY HOLLAND described a routine of examination and treatment which had been found successful in a certain number of cases. It began with an investigation of the history and a cursory gynaecological examination, following which the woman was given a prescription of thyroid gland in graduated doses. This first stage included an examination of the husband: he refused to have anything to do with the case unless the husband co-operated. The second stage of treatment, after three

brane nor by direct inhalation of spores into the lungs. Some patients had abdominal symptoms, which might be due directly to food, but sometimes were more complicated. A few had migraine, in which the cause of the trouble seemed to be either a food or a dust. All these conditions must depend upon local tissue sensitivity, and there was evidence that some organs and tissues were more sensitive than others. There was evidence also that the offending substance could enter the blood, and that helped to explain some of the remote symptoms. Deaths from asthma were uncommon, but a few had been reported. In a patient who had died of suffocation in an acute attack of asthma the lung was found to be studded with plugs of tenacious mucus. A series of hypertrophied and overactive mucous glands was also found in the wall of the bronchus. The real lesion in the lung was the hypertrophy and overactivity of these mucous glands, which continued to pour out a sticky material into the lumen of the bronchus. The mucous plugs would account for all the symptoms. They were not necessarily terminal appearances, but occurred in life, as he illustrated by lipiodograms of the lungs.

Treatment of Asthma

Professor L. J. WITTS said that the asthma problem was one of the most difficult in medicine. It was possible to desensitize those patients who were skin-sensitive, give vaccines to those who had infection of the bronchi, and in those numerous cases which showed neither of these phenomena various forms of non-specific treatment could be used. He recalled an important paper by Dr. Rackemann, who confessed that he thought he had cured a number of his asthma patients, but later discovered that the cure had not persisted. Some patients who had had one kind of sensitivity came back again with a different kind; to use Dr. Rackemann's expression, the gun had remained loaded though another trigger was now fired. He had found adrenaline and ephedrine useful, and it was worth pointing out that some of the most remarkable advances seen in medicine in recent years had been in respect of drugs which controlled abnormalities of muscle and secretion; he instanced ergotamine in migraine and prostigmin in myasthenia. The search for some general bodily disturbance which accompanied asthma seemed to him the most fundamental method of approach. Few of them believed that psychic causes were the principal ones, though they were impressed by the psychic factor.

Assessment of Results

Dr. E. R. BOLAND said that opinion differed as to whether medicine had any right to be complacent regarding the treatment of asthma, but the limitations of such treatment should at any rate be recognized. The fact that the assessment of the results of treatment was so difficult was a criticism of the therapeutic achievement. Superficially such assessment should not be difficult. The patient came for treatment, received it, and was better, going away loud in his praises. But if the physician had a sceptical streak doubts might well break through his self-satisfaction at such a result. The patient said that he was better, and by saying so he was better, but was there any objective evidence of real improvement? Such improvement as appeared might be due to chance or to the passage of time or change of season. If a patient really appeared to be cured he sometimes found that he had often been cured before, and if this time he remained cured the fact that allergic conditions not infrequently ceased of their own accord prevented the physician from feeling any real satisfaction. One had to beware of the personal good will of patients, and their anxiety to encourage the doctor by saying that a particular treatment had done them good, when in fact there was no objective evidence of such improvement. From a study of cases in the asthma research unit of which he was in charge

he had found it difficult to resist the conclusion that more than half the patients suffering from asthma showed improvement under general medical treatment alone, and if this was taken into consideration, as it must be, in the assessment of the results of specific treatment, much of the improvement which was at present credited to specific methods was not really due to them at all.

Psychological Factors

Dr. L. S. T. BURRELL thought that the psychological aspect of asthma had not received sufficient attention in the discussion, and he proceeded to describe a few cases in which this aspect seemed to be the important one. He remembered the case of a resident medical officer at a hospital who had an attack of asthma so severe that he was about to take to his bed when a telegram arrived announcing the death of his mother. He immediately got out his car and proceeded to drive the forty miles to her house. He had gone twenty miles when he suddenly remembered that from the time he received the news his asthma had totally disappeared. The recollection brought it on again, and he arrived at his mother's house almost in a state of collapse. Many years ago the speaker had an asthma clinic at Brompton Hospital, mainly for the treatment of children. Twenty years later, when he asked the lady almoner to look out the cases treated in that clinic, it was found that about 70 per cent. of them had "grown out of the asthma." There were patients whose asthma cleared up after an accident, and women who on becoming pregnant lost their asthma. He had in mind the case of one lady who for many years had been under treatment for asthma with no satisfactory result. She was injured in a motor-car accident, breaking several ribs, and from that time onwards she had no return of the trouble. He also mentioned the case of a woman who said she had an attack of asthma whenever she went to Waterloo Station; as she lived at Surbiton she had to go to Waterloo whenever she came to town. A certain amount of bluff was tried in this case. It was mentioned to the lady that some building work was proceeding at Waterloo and that she was no doubt sensitive to the brick dust. An injection of what she was assured was brick dust was administered, and she never had asthma thereafter!

General Discussion

Mr. FRANK COKE said that the claim of this country to be the first in the field of allergy rested on the extraordinarily accurate description by Hyde Salter of himself as a cat asthmatic—a description which could not be improved upon to-day, even though written seventy years ago. In the treatment of asthma an enormous advance had been made by the addition of adrenaline to the desensitizing doses of protein, thereby allowing much larger doses of the protein to be administered and the whole course of treatment to be speeded up. He also drew attention to the differential sedimentation test, by which an examination of the serum of a patient allowed the case to be placed into the allergic, microbic, or aspirin-sensitive group. The subdivision into these three groups allowed the effect of any one treatment, such as gold, to be tried and the results recorded. Work on allergy had rather overshadowed consideration of the bacterial types of asthma. Much attention was now being attracted to these types, and with success, so that even the aspirin-sensitive patient was becoming curable by vaccines made from organisms recovered from the nose and given in suitable doses. Dr. G. W. BRAY suggested that all protein foods, especially in allergic cases, were absorbed from the lymphatics of the stomach, passed direct through the thoracic ducts, and so into the lungs. Experimental findings, coupled with observations he had had the opportunity to make, seemed to point to the lymphatics as the primary route of absorption rather than the blood.

40.8 per cent. died. During 1936 at the Maudsley Hospital (where none but voluntary patients are treated) 959 persons suffering from early mental or nervous disorder were treated as in-patients and 3,811 as out-patients. A further 1,468 persons were treated as out-patients at psychiatric clinics established in association with the Maudsley at three of the Council's general hospitals north of the Thames. The total number of living mental defectives known to the Council at December 31, 1936, was 17,207, of whom 10,937 were under active care—a ratio of 4.16 per thousand of the population of the County of London.

Research on Mental Defect

On January 7 the board of directors of the Royal Eastern Counties Institution for the Mentally Defective, Colchester, entertained the members of the Darwin Trust to lunch at the informal opening of the research laboratories attached to the institution. Among those present were Sir Hubert Bond, Miss Darwin, Professor Adrian, Dr. Landsborough Thomson, and Dr. E. O. Lewis. Towards the cost of the building the Hon. Alexandrina Peckover contributed £2,200, the Hon. Lady Darwin £500, and it is hoped that other contributions will be received. The Rockefeller Foundation has given £700 and the Darwin Trustees £50 towards the cost of equipment, and the Rockefeller Foundation is making an annual grant of £600 for five years to provide additional research workers. Dr. L. S. Penrose, who is a member of the external scientific staff of the Medical Research Council, is directing the work. The permanent workers in the department are a social investigator, two laboratory technicians, and a biochemist. Attached to the department are Dr. Munro (Beit Fellow) and Mr. J. C. Raven (Medical Research Council grant). The building is single-storied, 77 ft. long by 40 ft. broad, on a site adjacent to Turner Village. It contains one laboratory suitable for biochemical and pathological investigations, another for microscopical work, a clinical room, dark-room for photography, three offices, testing-room, workroom, and lavatories. The heating and hot-water supply are provided by an automatic gas-fired boiler. Among the items of equipment is an electric calculating machine. A Medical Research Council special report, entitled "A Clinical and Genetic Study of 1,280 Cases of Mental Defect," which will give the results of the work of the last seven years, is to be published early this year.

The Welfare of Cripples

In its origin the word "cripple" meant "one who creeps," or perhaps, in the Scottish phrase, is "cruppen up," and the 1611 version of the Bible renders the phrase in the Acts of the Apostles "a creeple from his mother's womb." A revolution has taken place in crippleddom during the last generation, partly due to new orthopaedic treatment, and partly to a new care for the cripple from the social, educational, and vocational points of view. Special services for cripples are almost entirely a growth of the present century. It is true that a few institutions for cripples were established in the nineteenth century, and the first hospital reserved exclusively for orthopaedic cases, now the Royal Cripples Hospital at Birmingham, was founded as far back as 1817. But the first of the modern type of orthopaedic hospital was built in Cheshire in 1899 by the Royal Liverpool Children's Hospital to carry out the methods recommended by Sir Robert Jones, the pioneer of the new movement, and in the following year Dame Agnes Hunt founded the home at Baschurch which is now the orthopaedic hospital at Oswestry. All this and much more is described in the handbook issued by the Central Council for the Care of Cripples.¹ There are chapters on the discovery of the

cripple, by which is meant the search for those who are in need of orthopaedic treatment to prevent later crippling, the treatment of cripples when discovered, and their training and rehabilitation. The chapter on treatment is written for the layman, and is intended to give only a general idea of the treatment applied to orthopaedic cases, so that he may appreciate the reason why it is lengthy and the need for after-care. The considerable powers and duties of public authorities are clearly set out: extensive as these are, there is plenty of work remaining to be done by voluntary associations, and this is also described. The handbook gives some useful directions for the lay-out of an orthopaedic hospital, including the out-patient department and fracture clinic. The conditions which a rehabilitation centre should fulfil are noted. At present, while the treatment of injuries, restoration of function, and vocational training are provided to some extent at centres in different parts of England, there is still no provision for reconditioning, except for the small centre established by the L.M.S. Railway at Crewe. It is hoped that before long one such centre may be established on a large scale by way of experiment.

SCOTLAND

St. Andrews Institute for Clinical Research

The annual report of the James Mackenzie Institute for Clinical Research states that the institute has now accumulated a large number of records which promise to yield information of much value, and that the work of record-taking still goes on. During the year ended July, 1937, forty-eight new cases were taken and 806 notes were added to the existing cases. The annual classification of the records showed that 50 per cent. were complete, 22 per cent. required to be brought up to date, and 28 per cent. were incomplete, chiefly because patients had left the district. Periodic examination of children continued. Most of them had been under observation since birth, and in many instances the child's family and environment had been observed for a much longer time. Children were recalled to the institute for routine examination two or three times each year, while houses were visited and conditions correlated with those of the children. Early in 1937 a survey of congenital heart cases was started, and it was decided for control comparison to tabulate the case histories of some hundreds of children who had been observed from birth to about 10 years of age. This statistical survey is regarded as unique and capable of yielding valuable information. Since the foundation of the institute in 1919 the family doctors of St. Andrews have worked in full co-operation with the public health department in all activities affecting the well-being of the people, and the report considers that legislation shows a gradual trend "towards the creation of a system of public health administration similar to that in which has arisen out of Mackenzie's teaching." In the laboratory of the institute during the past year 693 investigations were carried out, and in the x-ray department 308 examinations. Various donations for research are recorded. The expenditure for the year amounted to £1,407, and the income to £1,039, but the funds still amounted to £14,870.

Scottish Universities By election

A writ for the combined Scottish Universities Parliamentary by-election caused by the death of Mr. Ramsay MacDonald is being issued this week. It will be a four-cornered contest. The candidates are the Right Hon. Sir John Anderson, lately Governor of Bengal, who is supporting the National Government as nominee of the Unionist Association of the Scottish Universities; Miss Frances Helen Melville, LL.D., late Mistress of Queen

¹ *Handbook on the Welfare of Cripples*. Published by the Central Council for the Care of Cripples, 34, Eccleston Square, S.W.1. (Is.)

months on thyroid, began with a more complete examination of the tubes, using lipiodol, which was much more reliable than insufflation. In a certain proportion of cases the lipiodol injection was followed by patency of the hitherto blocked tubes. The third stage of treatment was by means of hormones. In the large proportion of cases in which there was genital hypoplasia considerable doses of the follicular hormone might be given.

Correlation of Factors

Mr. KENNETH WALKER dealt with conditions in the male. He asserted that if it were possible to correlate all the factors in childless marriage it would generally be found that they were multiple, and that there were adverse factors on the side both of the male and of the female. He thought that the importance of such conditions as infection of the genital tract had been over-stressed in the past. Gonorrhoea, it was true, could produce absolute sterility, but in the usual cases of childlessness what was found was not absolute sterility but impaired fertility. Ten years ago in such a discussion he would have laid chief emphasis on local conditions; to-day he would lay chief emphasis on constitutional troubles. Endocrinology offered some hope, though he did not mean that every case was due to dysfunction of the endocrine glands.

Mr. V. B. GREEN-ARMYTAGE suggested that it was important that medical officers and matrons of girls' schools should carefully observe the time of onset and type of menstruation. Hypoplasia did not begin at the age of 25 when the woman came to the gynaecologist, but it began in early youth, and if care were taken at that period as to diet, exercise, and the giving of oestrogenic substances when necessary subsequent infertility might be lessened. Mr. Green-Armytage was convinced that contraceptive measures in the early days of marriage were inimical to pregnancy at a later date. He showed lantern slides of lipiodograms taken in various types of cases. Salpingography was carried out as a routine on the Continent, and if general practitioners realized its ease and painlessness more of these cases would be investigated. It had the advantage over insufflation in that it gave information as to whether both tubes were patent or only one, and whether there was any abnormality in the uterus.

Dr. F. J. McCANN referred to the importance of preventing certain childish ailments, which left a far more important imprint than was generally realized. Many of the exanthemata and other acute diseases of early life caused vulvo-vaginitis, forming adhesions, but they also left their mark on the ductless glands, and the result was seen only after puberty. Irregularity of menstruation in the young girl should be looked upon as a serious condition demanding treatment, the treatment being first diet, secondly exercise, and thirdly appropriate medication. Dr. McCann added his strong belief that contraceptive measures did delay fertility for a considerable time, and might cause sterility.

Others who participated briefly in the discussion were Dr. MALCOLM DONALDSON, Mr. G. J. SOPHIAN, and Dr. VAUGHAN PENDRED.

From recent reports in the Press supplied by Reuter it appears that Sister Elizabeth Kenny, whose methods of treating anterior poliomyelitis form the subject of an article by Dr. F. H. Mills at p. 168 of this issue and are commented on at p. 178, has been asked to supervise a test of her treatment which is to be carried out by the Government of Victoria. In the epidemic of poliomyelitis which is at present causing concern in Victoria, 1,600 cases and eighty-seven deaths have been notified up to the end of December. Twenty-two hospital beds have been placed at the disposal of Sister Kenny, and the results of her treatment will be watched by a medical panel which is to be set up by the Victorian Branch of the British Medical Association.

Local News

ENGLAND AND WALES

The Tuberculosis Problem in Wales

The Government inquiry into the new scheme of the Welsh National Memorial Association for combating tuberculosis in Wales opened at Cardiff this week, when Cardiff Corporation and several of the Welsh county councils raised objections to the estimates of the Association on the ground that they would cause an unjustifiable increase in expenditure during the next five years. The Memorial Association proposes a capital and extraordinary outlay of nearly £400,000 on hospitals, clinics, and sanatoria. The Cardiff City Council objects that items are introduced involving financial principles to which it declines to contribute. In its opinion the new hospital at Swansea, which the Memorial Association proposes should be built at a cost of £200,000, is not justified by the circumstances. It also takes exception to the basis of contribution, and argues that during recent years the increase in expenditure to combat tuberculosis in Wales has been out of all proportion to that of other health services. A statement prepared by Lord Davies, president of the Memorial Association, was read to the Committee of Inquiry before evidence was taken. The whole of the first day's session was given up to an examination of a long memorandum setting out the history and achievements of the Association and its recommendations.

L.C.C. Mental Health Services

Vol. VI of the Annual Report of the London County Council for 1936¹ deals with the administration of the Council's mental health services during the year ended March 31, 1937. On the last day of 1936 the total number of patients for whom the Mental Hospitals Committee was responsible was 38,282. The average annual increase in the number of mental patients for whom institutional care has been provided since 1920 was 584. The need for accommodation for persons who are mentally disordered is approximately in the ratio of 3 male beds to 4 female beds. The number of cases of mental disorder receiving institutional treatment shows a ratio of 6.62 per thousand of the population of the County of London. Nearly 70 per cent. of the direct admissions during 1936 were first attack cases, and prolonged mental stress was deemed to be the principal cause of mental breakdown in 520 of the 3,437 cases admitted directly. The total number of patients readmitted during 1936, after having been previously under treatment as certified, voluntary, or temporary patients, was 753, representing 21.2 per cent. of the total number of admissions. At the London County mental hospitals 11.27 per cent. of the certified patients were allowed parole in the hospital grounds, and 3.45 per cent. were permitted to be on parole outside the grounds; 11.90 per cent. were granted short periods of leave up to four days. An experiment is being made at one hospital to provide a few suitable voluntary patients, after recovery, with special training at educational institutions in trades for which they appear to have taste or aptitude in preference to some uncongenial form of prior employment, so that they may be able to take their place in the outside world again with a better chance of success and with less risk of a further mental breakdown. Some interesting figures are given relating to general paralysis of the insane before and after the commencement of the treatment by induced malaria. During the six years 1908-13, of the total number of such cases under care only 1.49 per cent. were discharged and 79.92 per cent. died, whereas during the six years 1930-5, 19.8 per cent. were discharged and only

¹ P. S. King and Sons, Ltd., 14, Great Smith Street, S.W.1. (Is., post free 1s. 2d.)

principle to meet the supposed needs of their prospective juvenile occupants, and the domestic staff having been promoted wholesale by the simple device of putting them into nurses' uniforms, nothing remains save to advertise widely and wisely. The former Minister of Public Health, M. Sellier, was so impressed by what he learnt of the activities of these mushroom institutions that he issued a circular on the subject in April, 1937. According to this circular "preventoriums" should be classified according as they belong to one or other of three well-defined groups. To belong to the first a children's "preventorium" has to be provided, among other things, with a resident medical officer, x-ray apparatus, a laboratory, and hospital beds; third-group institutions must provide sufficient material comfort, proper surroundings, and plenty of good food. At the present time the prefects throughout France are completing a survey of the children's "preventoriums" within their jurisdiction, and when their findings are available it is to be hoped that the selection of temporary homes for delicate, sick, or convalescent children will be made with more discrimination than has hitherto been possible.

Professor René Leriche

It will be remembered that the last occupant of the chair of medicine of the Collège de France was the late Professor Charles Nicolle. The Academy of Sciences, whose duty it is to recommend candidates for this vacancy, has headed its list with Professor René Leriche of Strasbourg. His work on the sympathetic nervous system, not to mention several other activities, earned him an international reputation many years ago, and his treatment of recent sprains by the prompt injection of local anaesthetics has attracted considerable attention. To epitomize the guiding principle of his career one might say he has made surgery the efficient servant of physiology.

"Perhaps" Surgery and the Forty-hour Week

When Dr. Georges Duhamel, literary star and ex-surgeon, addressed the Academy of Medicine on December 7 on the application of the forty-hour week to the Paris hospitals he created quite a sensation by the picture he drew of the demoralization which he believed had followed the application of this measure. With the operating theatre staff replacing each other at comparatively short intervals, surgeons, he said, would be informed that such and such an instrument just about to be used was "perhaps" sterilized. Much of the rest of his address was in the same strain. It quickly became a political issue in the lay press. On December 21, before the same forum, a vigorous counterblast came from no less a person than M. Mourier, who is at the head of the Paris Assistance Publique, responsible for 42,000 hospital beds. The gist of this counterblast was that if Dr. Duhamel had painted a true picture the new law would be reflected in a rise in the hospital mortality. In 1936, before the introduction of the forty-hour week, there had been 157,930 admissions and 11,879 deaths. In 1937, after the introduction of the forty-hour week, there had been 158,610 admissions and only 11,763 deaths. In other words, during the first seven months of the new law the hospital death rate had gone down, not up. Another of M. Mourier's points was that an inquiry instituted in most of the Paris hospitals since December 7 had shown that the patients received just as good treatment in the operation theatres as before. He added that no surgeon had reported to him any fatal lapse due to the new law. To which Dr. Duhamel retorted on the same occasion that the problem was not yet one of mortalities but of moralities. He added that the correspondence he had received from hospital physicians and surgeons in Paris and the provinces constituted a dossier whose cumulative effect was undeniable. Who is telling the truth? Both, surely, but slightly divergent aspects of it.

Correspondence

Pasteurization of Milk

SIR.—Dr. Norman Macfadyen's letter in your issue of January 15 (p. 148), coming from one who is not only a member of a local authority but a medical man, may be expected to carry some convincing weight. It is therefore to be assumed that in considering the matter in both capacities he has weighed every relevant factor before expressing himself so definitely in print. He makes no mention, however, of the effectiveness or otherwise of correct pasteurization in minimizing the risk of the organism of tuberculosis reaching the consumer. He has not said, in defence of "T.T." milk, what it could have done to prevent a communal tragedy such as occurred in this district in 1936: or others of the hundred or more outbreaks of infectious illness, streptococcal and otherwise, which have been recorded since 1912 in this country attributable to infection from raw milk, and which were in so many instances effectively checked by pasteurization.

May I refer Dr. Macfadyen to the most recent summary of available knowledge on milk generally in "The Milk Problem" (*Bulletin of the Health Organization of the League of Nations*, vol. vi, No. 3, June, 1937), and draw his and other troubled spirits' attention in particular to such references as on page 49—"Great Britain: *Brucella abortus*: milk from tuberculin-tested herds affords no exception, and as many as 74 per cent. of samples have been found infected"; on page 75, "So far from there being antagonism between pasteurization and clean milk production, there should be a very close association," and, "It is now abundantly clear . . . that milk treated by holder pasteurization . . . in properly designed and efficiently operated plants is free from living tubercle or *abortus* bacilli"; on page 79, "The provision of a safe milk supply to the human population is essentially a public health problem and can be solved satisfactorily only by compulsory pasteurization."

It is perfectly true that extracts apart from the whole context may put fallacies in the path of argument. I would, however, assure Dr. Macfadyen that my concern has been, first, to conserve the space of the *Journal*, and, secondly, to stimulate Dr. Macfadyen's enthusiasm to the extent of reading the whole illuminating and critical study to which I refer above.—I am, etc.,

R. J. MAULE HORNE.

Public Health Department, Poole, Jan. 15.

SIR.—Dr. Norman Macfadyen may be justified in his claim that "our certified T.T. milk" at Letchworth has produced better results than its local rivals. He must, however, be well aware that a supply of T.T. milk anything like adequate to meet the needs of the community is impossible, for the very sufficient reason that the herds to produce it do not exist, and, at the best, cannot exist for many years. Hence even if his prescription for the admitted ills of the milk supply is allowed to be theoretically effective, it is none the less useless as a practical measure.

Meanwhile, raw milk as distributed to the community contains in some 5 to 10 per cent. of the specimens examined living tubercle bacilli, and is, as recent events have illustrated, an agent in the distribution of epidemics of certain acute infectious fevers, while efficient pasteurization prevents these mischiefs and leaves the nutritive qualities of the milk practically unimpaired.

Margaret College, University of Glasgow, who is standing as an Independent; Professor A. Dewar Gibb, who holds the regius chair of law in the University of Glasgow and is standing as representative of the Scottish Nationalist Party; and Sir Peter Chalmers Mitchell, LL.D., D.Sc., F.R.S., who was adopted as Independent Progressive candidate at a meeting of Scottish graduates held in London last week. Sir Peter retired from the secretaryship of the Zoological Society of London in May, 1935; in earlier life he was for some ten years lecturer in biology and examiner in zoology at London University and the Royal College of Physicians. At his nomination meeting he declared himself an advanced left-wing progressive, a democrat who believed that any stable structure of society must be based on the will of the people expressed in complete freedom of religious and political opinion with equality of sex and race.

Training in Psychiatry

Dr. I. M. Sclare, consulting psychiatrist to the Public Health Department of Glasgow, recently addressed the Scottish Association for Mental Welfare on the subject of "Psychological Illness." He said that psychological disorders were evidenced by various disturbances of function, and might affect any organ of the body, even when the patient did not suffer from a specific bodily condition. Many thousands of people suffered from functional illness without any mental disorder, and some of these had a great dread of insanity. Psychological illness, moreover, should not be regarded as a halfway house between physical and mental disturbances, for functional illnesses often occurred in people of superior mental and physical attributes. The prevalence of this type of illness had been variously estimated to be the fundamental factor in from one-third to three-fourths of all sickness. The serious aspect was that the patient was deprived of his potential value to the community, and his illness might be unconsciously imitated by his children in later life, impairing them emotionally or intellectually. Crime, delinquency, and political extremism might be the ultimate result of such a condition. Medical students, he held, should be taught in a course of psychiatry to detect the psychological factors in all illness, and to recognize the need for specialist treatment when confronted by difficult problems. Doctors would then have a better understanding of their patients, and hospitals would be considerably less congested, while psychiatric clinics would spring up where functionally sick persons would willingly go for treatment.

The Nursing Problem

At the annual meeting of subscribers to Stirling Royal Infirmary an address was given by Miss F. N. Udell, organizer for Scotland of the College of Nursing, in which she said that they were faced with an acute problem in the grave shortage of suitable candidates for the nursing profession. It was sometimes stated that this was because conditions were bad, hours of work long, and nurses were treated like slaves; but nurses themselves did not think that these were the reasons. It was not proved that there was any decrease at the present time in the number of candidates coming forward; the shortage was really due to the tremendous extension of nursing services throughout the country. Figures recently collected showed that during the last ten years, in four of the large hospitals of Scotland alone, 300 additional nurses were required each year. In pre-war days, if a girl wanted to take up professional work she had practically to choose either nursing or teaching; to-day there was virtually no profession that a woman might not enter, so that nursing was now in competition with all the other professions open to women. With regard to nurses' hours, this question could not be dealt with by rigid legislation; there were emergencies which, every nurse of experience would admit, might make it necessary to work longer hours. The work

of the nursing profession was not going to be served in the best way if it was reorganized by outside bodies knowing nothing of the rather peculiar difficulties that the profession had to meet. The speaker appealed to the public to recognize as much as they could the difference between a trained nurse and other persons who called themselves nurses. They wanted to educate the public and the medical profession to the fact that nurses were now State-registered, and that untrained women were not serving the best interests of the profession. Dr. P. F. McFarlan said it was admitted that nurses had long hours, but these hours were shorter than they used to be. Complaints were sometimes made that discipline in hospitals was too severe, but discipline was necessary if nurses were to be properly trained for their duties in life, and hardship in the nursing profession was not overwhelming during training. The superannuation scheme which had lately been started by the College of Nursing ought to be made universal and interchangeable between all hospitals. It was, he thought, little short of a catastrophe that a regulation of the profession of nursing should tell a probationer on the threshold of her career that she should not work more than forty-eight hours in a week.

FRANCE

[FROM OUR CORRESPONDENT IN PARIS]

Freak Deaths

Several correspondents have lately exchanged experiences in that admirable fortnightly journal *Le Siècle Médical* with regard to freakish and often disconcerting deaths among their patients. The best story of the bunch is that told by Dr. Parrique, who in any but a highly respectable medical journal would be suspected by his readers of romancing. Some years ago he was called to a patient suffering from a bulky pleural effusion on the left side. The heart was displaced, dyspnoea was severe, and the patient was cyanosed. Aspiration seemed urgently indicated, so he thrust an artificial pneumothorax needle into the chest. Before he could withdraw the stylet and proceed to aspiration the patient collapsed and died within a second of the puncture, which was made in the customary position at the back of the chest. Three hours later he was called to a very similar case, and the patient's death at the moment of introducing a needle into his chest was as prompt and spectacular as in the first case. In the evening of the same day the really rather unfortunate Dr. Parrique was summoned to a third patient suffering from heart disease and a large bilateral hydrothorax. It is easy to understand the hesitation to which he confesses. But after all puncture seemed to be the only rational method to relieve the patient's distress, and Dr. Parrique had just steeled himself to do his duty and defy fate when the patient suddenly died before even his skin had been pricked—*Lex coincidentiae!*

Massive Hospitalization of Children

The comparatively young and still potentially fertile national sickness insurance in France has resulted in a prodigious crop of hospitals, convalescent homes, "preventoriums" *et hoc omne genus* for children. What has been lacking in quality has been more than made good—or bad—by quantity and, above all, by variety. The owners or tenants of buildings ranging from mansions to bungalows and huts have obeyed the call of profitable altruism and have turned them overnight into nursing homes, convalescent homes, etc. In catering for children it is apparently quite easy to turn a drawing-room into a modern nursery by plastering the walls with childish pictures and spraying the floor with toys. The other rooms of a house having been "converted" on the same

referring to circumscribed glands which can be felt with the fingers but to a diffuse enlargement of the anterior triangle of the neck which is visible. All other forms of tonsillitis which may resemble diphtheria either never cause swelling of the neck or only do so after many days.—I am, etc.,

Reigate, Jan. 11.

HAROLD J. FARDON.

Lymphangioplasty

SIR,—My attention has been drawn to the interesting article on lymphangioplasty by Mr. Harold Hartley and Dr. R. A. Kemp Harper in your issue of November 27 last (p. 1066).

It is some testimony to the vitality and value of my operation that thirty years after its introduction it is the subject of an article in your columns, and that I have recently been asked to write a chapter on the subject for an American book. My own opinion on the operation as regards the lower extremity is that it has been superseded by Kondoleon's operation of fenestration of the deep fascia, which gives the lymph of the superficial tissues access to the subfascial (muscular) tissues where the lymphatic vessels are usually intact and able to absorb it. The valves of the deep lymphatics combined with intermittent muscular contractions form a pump mechanism which can overcome the action of gravity. In lymphangioplasty no such pump action comes into play, and gravity in the lower limb is too powerful to be overcome by the wick action of the buried silk threads.

For these reasons, while congratulating Mr. Harold Hartley on the brilliant success of his case, I am half inclined to agree with his modest conclusion that his operation had nothing to do with it. But such a verdict is against the weight of the evidence, for after the operation the condition of the patient, previously static or deteriorating, steadily improved. Mr. Hartley fails to consider the possibility—a very important one—that the operation may in favourable cases exert a permanent effect by breaking a vicious circle. When a tissue is in a state of solid oedema the pressure upon the veins of the exuded fluid, and of the fibrous hypertrophy which follows, must greatly increase transudation and so continually aggravate the oedema. If by silk drainage this pressure is relieved, even if only temporarily, transudation from the blood vessels will decrease, pressure upon any remaining patent lymphatics will diminish, and the "vis medicatrix naturae," to which Mr. Hartley gives all the credit, may complete the good work by the formation of new lymphatic vessels.

Dr. Kemp Harper's radiological evidence shows that silk threads may remain unabsorbed in the tissues for twenty-four years "without causing the slightest trouble," and is good criticism of Madden, Ibrahim, and Ferguson's conclusion that the wick action of the silk would soon cease owing to absorption of the silk. Madden's conclusion that silk as soon as it became encysted by fibrous tissue would lose its wick action is a pure hypothesis.

Let us now consider the upper extremity. Broadly speaking, the operation is only required for severe brawny oedema of the arm due to breast cancer. It must only be used for carefully selected cases where pressure on nerves is not present, where the threads will not have to pass through cancerous tissue, and where pleural effusion is absent. In such cases lymphangioplasty gives immediate relief from pain and restores the use of the arm for a period determined by the intrathoracic progress of the disease. The period may be short, but even so the relief is precious. It may be as long as five years. In these cases Kondoleon's operation is inapplicable, since all the

lymphatics round the shoulder-joint, deep as well as superficial, have probably been reduced to solid fibrous threads by permeation.—I am, etc.,

London, W.1, Jan. 14.

W. SAMPSON HANDLEY.

Lower Abdominal Pains of Cervical Origin

SIR,—Professor James Young, in the *Journal* of January 15 (p. 105), has described a fairly clear-cut syndrome due to disease of the cervix—namely, the type of chronic cervicitis associated with retention cysts. He states that by treating such cases by dilatation of the cervix, radial cauterization, deep puncture with the electric cautery, and the evacuation of the gland cysts, he obtained cure or partial relief in about 80 per cent. In a number of unsuccessful cases a second operation produced relief. In other words, the proportion of successful cases (especially when one considers the type of patient) is, I think, creditably high. Despite this, Professor Young now combines these simple and harmless procedures with nerve blockage of the inferior hypogastric plexus, using 85 per cent. alcohol, or, more recently, procaine.

The technique of alcohol injection of Frankenhäuser's plexus was ably described by A. A. Davis in the *Lancet* (1936, 1, 80), but Davis limited himself to the injection of but 1 c.cm. of alcohol on each side. It would be interesting to know whether Professor Young has seen any bladder complications following the much larger amounts that he uses. What I am still more concerned about is the possibility of such injections producing a pathology of their own. It is a regrettable fact that the exhibition of alcohol invariably produces tissue damage, with subsequent fibrous-tissue replacement. A fairly large experience of intrathecal injections of absolute alcohol for the relief of severe pain associated with cervical malignancy has made me chary of using alcohol, because I have now obtained histological proof that degenerative changes follow in the posterior nerve roots and the posterior columns of the cord adjacent to the site of injection. Recently other observers have reported similar findings. In consequence I feel that one should restrict such therapy to patients with a limited expectation of life, and I ask whether alcohol injections can safely be given into the base of the broad ligaments? It would be of interest to learn whether Professor Young knows of any late sequelae such as intractable neuritis or ureteral obstruction. I have been much struck by the frequency of ureteral obstruction in association with parametrial fibrosis, and presumably such injections, which are given in close proximity to the ureter, might be productive of similar late effects.

The biggest stumbling-block with all such therapeutic measures is undoubtedly the fact that we are largely dependent on subjective phenomena for our deductions. When dealing with severe and intractable pain the necessity for morphine, the prevention of sleep, and the willingness to undergo major operative procedures provide us with criteria which, to a certain extent, allow scientific deductions to be made. In the type of case discussed by Professor Young these criteria are not to hand, and in consequence it is extremely difficult to make observations carrying scientific weight. Personally, I think that the impracticability of obtaining sufficient comparable controls in which some of the known accessory (if not precipitating) factors can be adequately supervised is an almost insuperable difficulty. This type of case will continue to furnish us with an infinite variety of impressions, the effectiveness of any particular line of therapy being camouflaged by factors beyond our control, such as the family budget, coitus interruptus, or domestic upheavals. As a corollary, successful therapy will be associated very largely with the

The discussion of an ideal non-existent milk supply may be an interesting exercise in rural retreats, but in the world of practical affairs the choice, in fact, is between a safe and an unsafe milk supply. To the consideration of safety Dr. Macfadyen does not seem to have applied his mind. Everyone would agree that milk should be pure—that is, free from adulterants—and clean—that is, free from dirt; also that its bacterial count should not be excessive. Surely, however, it is particularly the responsibility of the medical profession to insist that milk should be safe—that is, free from the risk of communicable disease. Such representative medical organizations as the Royal College of Physicians, the British Medical Association, and the Joint Tuberculosis Council have publicly and repeatedly recognized this obligation, and have urged the protective value of pasteurization in the general interest. Dr. Macfadyen finds this policy a “cunning” attempt to influence public opinion. The original meaning of this adjective I take to be “kenning” or “knowing,” and in this sense the term may be accepted as a compliment. Later and perhaps more common meanings include such equivalents as “artful,” “crafty,” and “sly,” and I am sure Dr. Macfadyen would not so label the activities of his professional colleagues. These activities, I agree, are based on “knowing,” and Dr. Macfadyen is good enough to say so.—I am, etc.,

London, Jan. 17.

C. O. HAWTHORNE.

Gastro-enteritis due to *Bact. sonnei*

SIR.—In the third paragraph of his interesting paper on Sonne dysentery (*Journal*, January 8, p. 64) Dr. Reginald Miller makes two statements about the so-called epidemic gastro-enteritis with which I cannot altogether agree—namely, that it is essentially a summer disease and strictly confined to infants. Epidemic gastro-enteritis is, of course, an ill-defined condition, and doubtless Dr. Miller refers to the disease, if such it can be called, known formerly as summer diarrhoea. This was endemo-epidemic in type, with large summer outbreaks attended by a high infant mortality. But the cases were, and still are, by no means confined to children. O. H. Peters, in a masterly field study entitled “Observations on the Natural History of Epidemic Diarrhoea” published in the *Journal of Hygiene* for 1910 traced the infection of fatal cases in children to mild cases in adults. For example, some signalmen working in the same signal box, and infecting each other with diarrhoea, conveyed the infection to the children in their own homes situated widely apart.

The summer epidemics were shown by a number of observers to be due to fly-borne infection. With the increased control over the breeding places of flies the time of the seasonal outbreak has become later in the year, and the greatly reduced peak now commonly falls in October. In some years the maximum number of deaths from “gastro-enteritis” occurs in the first quarter of the year. This winter peak is clearly not due to a specific infection, being secondary to droplet-borne respiratory infections, often associated in young infants with mastoid disease. Outbreaks of Flexner dysentery, as Dr. Miller points out, cause fatal cases in older children. From time to time a family outbreak of this disease occurs in Liverpool and fatally affects children of 2 to 5 years of age; a clinical diagnosis of Flexner dysentery has always been confirmed by bacteriological examination. To what extent the disease known formerly as summer diarrhoea was caused by the *Bact. sonnei* is a matter for conjecture. Examination of material from cases of infantile diarrhoea

has not, in Liverpool, shown any large proportion of Sonne infections. On the other hand, a recent outbreak of mild diarrhoeal infection on a training ship revealed a number of cases of this type among adolescent youths.—I am, etc.,

Liverpool, Jan. 11.

C. O. STALLYBRASS.

Use and Abuse of Antiseptics

SIR.—Professor Alexander Fleming in his letter under the above title in your issue of January 15 (p. 141) compares the effects of acriflavine on leucocytes and bacteria *in vitro*. The experiments are cited presumably in order to suggest that such antiseptics cannot be efficacious in combating infections. The general question is discussed in my Cameron prize lecture.¹ Here I shall refer only to two sets of conclusive experiments carried out on infected animals. In the first the infection of recent wounds in guinea-pigs was cured by the brief application of acriflavine²—mere washing with hypertonic or isotonic saline was ineffective. Secondly, infection of the peritoneal cavity in mice with virulent streptococci was cured by the subsequent injection into the peritoneum of acriflavine or certain anilquinoline antiseptics of the series to which quinamil belongs.³ In the last case it has been established that the therapeutic effect was not due to the rapid killing of the organisms by the antiseptic, but that cure was brought about by the co-operative action of the drug and the natural tissue defences. The effort to prove by *in vitro* tests that a chemotherapeutic agent cannot cure an infection when it actually does bring about cure in the living body reminds one of the conception of a tragedy attributed to Herbert Spencer—namely, a beautiful deduction slain by an ugly fact.

As to sulphanilamide, the rationale of its remarkable action in generalized experimental streptococcus infections is by no means elucidated as yet.—I am, etc.,

Glasgow, Jan 15.

C. H. BROWNING.

Early Diagnosis of Diphtheria

SIR.—As medical officer of a provincial isolation hospital I am greatly concerned at the delay in sending cases of diphtheria into hospital. Every practitioner should be aware that in any virulent case of diphtheria in which the patient is not producing his own antitoxin serum must be administered on the first or second day of the disease in order to save life. Yet there are still many practitioners who do not regard these cases as urgent.

Any virulent case of diphtheria can easily be recognized clinically on the second day. The swelling of the neck alone tells the tale. There is no other form of sore throat which produces a diffused swelling of the glandular and periglandular tissues of the neck by the second day of the disease. Every case of diphtheria which, if not treated, is virulent enough to prove fatal will reach the “bull-neck” stage by the fourth day, and the early stages of that “bull-neck” appearance are quite recognizable on the second day. If every practitioner who is called in as early as the second day to a case of diphtheria would recognize this diagnostic feature of the disease and realize that this is an indication for immediate administration of at least 40,000 units of antitoxin many lives would be saved. To take a swab and await the result in cases of this sort is to throw away a life. I am not of course

¹ *Edin. med. J.*, N.S. (IVth), 1937, 44, 497.

² Browning and Gulbransen. *British Medical Journal*, 1925, 1, 688.

³ Browning, Cohen, Ellingworth, and Gulbransen. *J. Path. and Bact.*, 1931, 34, 592.

Insulin for Local Sepsis

SIR.—No doubt Mr. Nevil Leyton will proceed to test the efficiency of insulin in the treatment of chronic local sepsis in a variety of ways, but I trust that if he adopts the suggestion made by Dr. R. D. Lawrence—namely, that "one half of the wound should be dressed with active insulin, the other with heated—and so inactivated—insulin solution"—he will be careful to satisfy himself that the insulin he uses is really inactivated. If he simply boils a therapeutic solution of insulin it is doubtful whether its activity will be destroyed. Cheadle autoclaved insulin at 125° C. for twenty minutes at pH 2 and found the loss of activity was 20 per cent., whilst at pH 4 the loss of activity was much greater. Ordinary insulin solution has a pH 3 to 3.5, and therefore just boiling the solution would probably reduce its activity by less than 50 per cent.

Although it appears unlikely that insulin can have any local action even when the sugar content of the skin is above the normal—a condition which may exist without hyperglycaemia—nevertheless it is far from impossible. A number of years ago an attempt was made in my wards to determine the relative efficiency of horse serum and weak lactic acid in chronic ulceration of the skin. Horse serum contains a substance which neutralizes the proteolytic ferment liberated by the leucocytes; lactic acid hinders the activity of the ferment, which works best in a slightly alkaline solution. I reluctantly came to the conclusion that horse serum was the more efficacious. Insulin is destroyed by this proteolytic ferment, but its destruction may be accompanied by fixation of the ferment. If insulin proves to be really beneficial the cost should not be prohibitive. Pure dry insulin can be produced at less than threepence per hundred units, and sterilization, standardization, and various other tests would not be necessary for a preparation for outward application.—I am, etc.,

London, W.1, Jan. 15.

O. LEYTON.

Lymphoid Tissue of the Alimentary Canal

SIR.—With reference to Mr. H. Gordon Thompson's recent article on the lymphatics of the alimentary canal (*Journal*, January 1, p. 7), it would be of interest to know whether there is any great increase in the number of cells migrating through the intestinal wall from other parts of the intestines at the same time as, or a short time after, the migration occurs from the appendix. If there were an increase, it would prove that such migration was not only a local defence reaction, but that either by direct connexion through the lymphatic system or by other intermediate means there was a protective stimulation. I, personally, do not expect this to be the case.

It would be interesting to decide by further experiments whether the lymphocytes secreted into the intestinal tract contain antitoxic or bacteriolytic ferments which they did not possess before the invasion of the appendix by pathogenic organisms. This could be proved by incubating the secretions of the appendix which contain lymphocytes before and after inoculation with different quantities of pathogenic organisms. If an increased autolysis of the bacteria or an increase in the antitoxic substances could be demonstrated, it would mean that we have in this lymphatic tissue a highly effective general intestinal defence mechanism. This would explain the value of oral vaccine therapy, and it would also explain why, after a certain time, toxic organisms in the intestines disappear from them, as in typhoid fever, though they

are still present in other parts of the body. If one takes into account the much larger number of lymphocytes than that usually accepted secreted into the intestinal lumen, which was proved by the author, one can understand that such a general intestinal purifying action is possible from a comparatively small amount of lymphatic tissue. The reason why comparatively few lymphocytes are found on examination of the bowel contents is probably that these cells exert their destructive action by autolysis.—I am, etc.,

Bristol, Jan. 9.

ERNST PHILIPP.

Treatment of Pneumonia

SIR.—We have waited so long and patiently for a really satisfactory serum treatment for pneumonia that it was very depressing to learn from the leading article in the *Journal* of January 8 (p. 76) that another long wait may be before us whilst a new serum prepared from the blood of rabbits is being tested.

For this reason may I be allowed to break a silence that has lasted for eleven and a half years by referring to a treatment I introduced for pneumonia in a paper I was privileged to publish in this *Journal* (1926, 2, 109) under the title of "The Thyroid and Manganese Treatment"? First, may I remark that the observations and results therein recorded came from the practices of four colleagues with whom I had been working, as well as my own, and that they represented what all of us had learnt from the first forty cases that underwent the treatment. It was with their knowledge and consent that the paper opened with these words: "How has it become possible to state categorically, and with no fear of contradiction, that ordinary pneumonia, unaccompanied by intercurrent affections or occurring at too advanced an age, is one of the easiest diseases to arrest and cure?" Now as this statement has remained uncontradicted since the day it was made and observers in New Zealand, Australia, and America have published evidence in support of the opinions they hold with regard to the treatment's specific action in all types of pneumonia, and as Dr. Max H. Weinberg of Pittsburg proved that a cerebrospinal fluid that was teeming with pneumococci in a moribund case of pneumococcus meningitis Type III became sterile after forty-eight hours' application of this treatment (*J. nerv. ment. Dis.*, 1931, 74, 38), perhaps others may find some use for it while waiting for the serum treatment to arrive.—I am, etc.,

HERBERT W. NOIT, M.R.C.S., L.R.C.P.

Guildford, Jan. 10.

Correct Footwear

SIR.—I have been following with interest the correspondence on correct footwear. It is indeed a field for preventive medicine. No one so far has complained about heels. I suppose the previous correspondents have never had to suffer from the sort of heel that is put on to "smart" women's shoes. High heels seriously impair that flexibility of movement which I believe is necessary to foot health. I suppose they were invented because raising the heel foreshortens the foot and makes it look smaller as well as giving the appearance of a higher instep. I believe a heel is a disadvantage rather than a necessity. I suffered from metatarsalgia and tried various kinds of shoes and pads without much benefit until I came across a firm which makes shoes without heels and with a straight inner border. These seem to me as anatomically correct as any shoe can be. Unfortunately

personality of the individual doctor. In the present instance I would plead for the restriction of treatment to the simpler measures advocated by Professor Young—namely, dilatation of the cervix combined with thorough cauterization. To quote Professor Young's own *obiter dicta*, "In a large proportion of cases treatment of a simple nature directed to the underlying lesion is strikingly successful."—I am, etc.,

Manchester, Jan. 16.

T. F. TODD.

Shortage of Calcium in the Diet

SIR,—In discussing the alleged shortage of calcium in the "poorer-class" diet, Dr. Katharine Coward and her co-workers (*Journal*, January 8, p. 59) arrive at the startling conclusion that the child receives only 430 mg. of calcium while his daily requirements are 900 mg. But surely this amazing discrepancy arises in large part from the manner of calculation. The calcium content of the child's diet has been calculated from the analysis of the basal diet fed to rats—a basal diet to which was added in some groups of animals either calcium or milk. This diet contains almost no dairy produce, yet more than 55 per cent. of the calcium intake is derived from this source in the diet even of the poorest (Cathcart and Murray, *Med. Res. Council Rep.*, No. 218, 1936). In the diet of the poor child milk, and very often cheese, are included, the amount of the former being commonly augmented by free distribution in schools.

Accepting the figure of 430 mg. as the calcium content of the diet excluding dairy produce, it will be noted that the addition of three-quarters of a pint of milk alone would bring the figure up to 900 mg. Although it is admitted that all "poor" diets tend to be deficient in calcium, it seems to me that Dr. Coward and her co-workers in the experiments described have not established conclusively that there is a "serious shortage of calcium in the mixed 'poorer-class' diet." A fairer conclusion might be that milk and dairy produce, such as cheese, are desirable in larger quantities in the diet—a point which was urged by Professor E. P. Cathcart in the recent Hastings Lecture. Incidentally, the determination of the mineral needs of a relatively slow-growing organism like the child from experiments on a rapidly growing animal like the rat seems to be fraught with danger.—I am, etc.,

Glasgow, Jan. 10.

IAN MURRAY.

Treatment of Burns

SIR,—I have read profitably Mr. Mitchiner's article on the treatment of burns and scalds in your issue of January 1 (p. 27). I had been of the opinion that drastic mechanical cleansing of these injured areas under such light anaesthesia that it could scarcely be termed anaesthesia contributed largely to shock, and that loss of tissue fluids, dirty bacteria-laden fluids, in the first twenty-four hours after such accidents, as opposed to absorption, was desirable and therefore not a contributory factor to the mortality.

Noting Mr. Mitchiner's preference for a weak tannic acid solution, 2 per cent. rather than 5 per cent., I should like his opinion of the treatment by picric acid weaker than the 2 per cent. he refers to. Perhaps he could give his view of the following rather old-fashioned treatment.

Without any preliminary cleansing, gauze packs, wrung out in a solution made up of picric acid 90 grains, industrial spirit 3 oz., distilled water 40 oz., diluted with an equal quantity of warm water, are applied covered with a liberal quantity of wool and bandaged slackly. The dressings are changed easily next day since they will be saturated with dirty

tissue fluids and gross dirt, while considerable coagulation has taken place. The next gauze dressings are left *in situ* and moistened from the outside daily with the same weak picric acid solution till such time as they become non-adherent.

—I am, etc.,

Haydon Bridge, Northumberland, Jan. 11. RICHARD BELL.

Rehabilitation Centres for Injured Workmen

SIR,—I have read with interest the memorandum of the Joint Committee of the British Medical Association and the Trades Union Congress on the subject of rehabilitation centres for injured workmen, a report of which was published in the *Supplement* to your issue of December 18, 1937.

No one can deny the value such centres would be to bridge the gap which at present is inadequately covered by "suitable light work." The organization suggested is admirable and the necessary personnel and accommodation clearly and succinctly set out in a way which reflects great credit on the members of the Committee. Is it wise, however, to jeopardize the realization of such useful centres by serious overstatement of facts? I refer, of course, to the sentence concerning the percentage of permanently disabled men:

"Now that the establishment and reorganization of fracture clinics is developing favourably, it may be anticipated that the proportion in the country as a whole will approximate to that of the fracture clinics already established, where experience has shown that permanent incapacity is inevitable in less than 5 per cent. of industrial injuries. With the continued advances of orthopaedic and traumatic surgery even this figure should be improved upon."

Where are these remarkable fracture clinics to be found? The insurance companies who have a serious financial interest in this do not know them and can produce some surprising figures. One large combine recently asked me if I knew of anything they could do to reduce the period of disability in their insurees and to bring their figures to within even measurable distance of the figures published by the British Medical Association Fracture Committee in 1935. They made the statement that 35 per cent. of men insured under them sustained some permanent incapacity, and that taking each hospital separately this figure did not vary very much whether the hospital had an organized fracture clinic or not. The reason for this similarity in organized and unorganized clinics can easily be explained: the latter tend to transfer their worst cases to the former, improving their own percentage and increasing the percentage of the organized service. But this will not wholly account for the discrepancy between the figures of the British Medical Association Committee and those of the insurance companies. If by permanent incapacity is meant total incapacity, let this be made clear; but I cannot think this is the explanation, for I am sure no hospital, however badly organized, could produce 20 to 30 per cent. total incapacity in the injured admitted to its out-patient department.

I raised such a storm of protest when last I criticized the figures of the B.M.A. Fracture Committee (a criticism which has since been justified) that it is with some hesitation that I enter your columns again. But if, as is suggested, we are to hope for Government support in this excellent system of rehabilitation centres, let us be certain of our facts and figures, in case the Government make further inquiries and discover the overstatement, bringing discredit on the whole scheme and possibly delaying the formation of these centres for some considerable time.—I am, etc.,

Liverpool, Jan. 11.

W. J. EASTWOOD, M.Ch.(Orth.).

When this restriction becomes universal, as it is destined rapidly to do, the competition from the Royal Colleges must automatically disappear, for the exclusively Conjoint student will no longer obtain admission to the medical schools. There can be no doubt that the Royal Colleges have seen the red light of danger from this recent development if Dr. Gray has not. Indeed, it is this threat which explains the present agitated efforts by the Colleges and their supporters to secure an agreement with London University which they hope would avert that exclusion before it becomes actually effective.

Six representatives of the Senate, of whom I am one, sit upon the Court. Had any such consideration as Dr. Gray quite unwarrantably suggests actuated the Court as that an improved entry should be secured by lowering the standard of the final M.B. it would have been the duty of the Senate representatives to protest, and they would not have failed to do so. No such implications can be read into the pronouncement by the Court. The revised regulations for the medical examination of the University, following upon the reform of the curriculum, are designed to make the degree more accessible and would most probably have that result without lowering its standard.

Dr. Gray does not seem to realize that the pious aspiration of the Faculty Board that "the standard of the degree must be firmly maintained" is incompatible with the actual proposition offered by the Board—namely, that the examination in medicine, surgery, and midwifery for the final M.B. (much the most important subjects of the whole curriculum) should in effect be conducted by the Conjoint Board on its present standard. I believe that the great majority of medical educationists would support the unanimous opinion expressed by the Haldane Commission, that the proposed arrangement (essentially the same then as now) would inevitably result in lowering the standard of university education in medicine, where such lowering is least desirable.

The issue raised by the present controversy is of vital importance, for it is to decide which body shall ultimately control medical education in London—the University of London or the Royal Colleges. Largely because of the economic position—namely, the impossibility of carrying out any adequate education of medical students without the aid of grants from the State—the medical schools in London, all of which now accept these grants, are increasingly under the obligation to maintain the university standard in their teaching. London University is alone among universities in being faced with the competition of the "relatively easy (Conjoint) qualification," the existence of which, as Dr. Gray quite properly points out, "affects materially the number who obtain a degree." How that position can be improved by consultation with the Royal Colleges seems difficult to explain. The Colleges cannot be expected to commit *felo de se*.

The rapidly growing importance of the medical profession in the modern State surely calls for the highest possible training of its members, especially university graduates, from whose ranks future teachers are so largely drawn. It would indeed be a disaster if London University, which has so proud a record as a pioneer in raising the standard of its medical examinations when the medical examinations of the other universities were deplorably low, should lead the way now in reducing the standard for its qualifying examination. Happily portents all point to another defeat of this retrograde proposition, so decisively defeated in the past.—I am, etc.,

London, W.1, Jan. 14.

E. GRAHAM-LITTLE.

Who Owns X-Ray Negatives ?

SIR.—The literal reply to this regrettable heading—and at such a season!—is that many people do: for example, all radiologists, most hospitals, some radiographers, a few general and consultant medical practitioners, a number of industrial concerns, and those members of the general public who have purchased the negatives from radiographers, with the addition of hordes of patients who have been given them by their medical advisers.

If, as I suspect was the intention, the question is confined to x-ray negatives taken by or under the instructions of a radiologist, it has been adequately dealt with in the reasoned statement of Dr. Asten and in the United States cases quoted by you. To these, for the benefit of people who insist upon legal pronouncements, may be added at least one in the British Isles—in the case of *de Cadiz v. Dr. O'Hea*, April and June, 1931, when judgment was given for Dr. O'Hea, following the decision of *Boucas v. Cooke* (1903), 2 K.B., 227.

The more serious objection to the heading is that it does not cover the subject-matter, and the correspondence to date shows involvement of the following three questions, of which there is a simple and definite reply to the first only, and that appears to be the least important in the minds of the writers. (A) Who owns a radiologist's x-ray negatives? (B) What should he do with them? (C) What should be their ultimate fate?

(A) In my opinion it would be in the interests of all concerned if the B.M.A. would urge the medical profession to dispose permanently of this question by accepting the view, which is correct both morally and legally, that the negatives are the property of the radiologist, and by educating patients accordingly. It would then be established that a radiologist may retain or call for the return of negatives of a case of particular interest to him or of importance to the furtherance of radiological knowledge, and that he is consulted for the benefit of his experience and special knowledge of radiology, and not as a purveyor of "pictures."

(B) It follows that he should never give them to the patient, and I should be surprised to hear that this is in any way common practice. In my opinion he should give to the referring practitioner a report on his radiological findings, together with any advice which he considers pertinent, and such radiographs as are likely to amplify the report or assist in the diagnosis, prognosis, or treatment of the case. In most cases prints or copies are perfectly adequate for these purposes, and he will not expect them to be returned. If he sends the original negatives and asks for their return they should be returned, but if he does not ask for their return it may be presumed that he is relinquishing ownership. He should be prepared to send the original negatives on request, but not necessarily to allow unrestricted handling of special negatives. If the patient goes to the radiologist without informing his medical adviser the radiologist should stipulate that the name of a medical practitioner be given, with whom he may discuss the case and to whom he will send the report as above.

(C) The ultimate disposal of radiographs of which he has relinquished ownership is not in the province of the radiologist, but I feel that uniformity of procedure in this respect is desirable. The soundest method would appear to be for the patient's medical adviser to retain them with the notes of the case, and to transfer them when necessary to another medical practitioner—for example, if the case or the patient should leave his care—but as many medical practitioners permit or even encourage the

they are expensive, though, as Dr. Jordan says (*Journal*, January 8, p. 96), a correct shoe wears so much better than a "fashionable" one. In "ordinary" shoes one can get a straight inner border for children until they come to size 3. Then (I am thinking of girls) they come under the category of "ladies" and the big toe begins to be deflected outwards. Even canvas "gym" shoes have this fault. One cannot expect the manufacturers to supply a thing for which there is no demand. How does a sense of values change? How did it happen that people began to see "wasp" waists as ugly instead of desirable? How did the Chinese lose their admiration for bound feet? Can we not launch a campaign of articles in the popular press written by orthopaedic experts who could explain the necessity for a "change of heart" about feet? I believe the public look upon hallux valgus, corns, and other preventable troubles as evils that come "out of the blue" and have to be endured. I do not think they have any realization of their cause.—I am, etc.,

London, N.W.1, Jan. 10.

DOROTHY E. MASON.

The Problem of the Final M.B., B.S.Lond.

SIR,—The late Sherlock Holmes was reported (by an M.D.Lond.) to have said of the "agony" column of the *Times* that it amused without fatiguing the intelligence. Had he been spared how he would have enjoyed Dr. A. M. H. Gray's contributions to educational literature!—for instance, Dr. Gray on the economic problems of students (or their parents). Of course, officially speaking, the Board of the Faculty of Medicine has as much to do with the economics of the University and its students as with the economics of rearmament; but Dr. Gray on economics is quite good fun, and we are still near Christmas. Unless either the Colleges or the University will remit their fees (in whole or part) his plan will cost the students more. Of the 399 students who completed the second M.B. in 1926-7 and reached the *Medical Register*, 250 graduated M.B., B.S.; of the 149 who did not 86 never sat for the final M.B. at all, and so saved some fees. Of course if the University waived its fees there would be a saving. But a financially simpler way of reaching the result desired by Dr. Gray would be for the University to take over the whole profitable business of examining. Financially the tacit assumption that the Colleges must have a monopoly of licensing is naive. When the Colleges established their joint board the University of London was what the Colleges still are, only an examining body, and the general educational level of London medical students was so low that but a small proportion even matriculated. Now a large proportion are undergraduates and the University is a teaching as well as examining body. Financially, by entering into direct competition the University could put the Conjoint Board out of business as effectively as the railway companies ruined the stage coach companies, and for much the same reason. The Conjoint diploma is a mere licence to practise; all who take it (save a few stalwarts who protest annually in Lincoln's Inn Fields) recognize it for what it is. A licence granted by the University of London, having the additional advantage of exempting the holder from some part of the final M.B., would be much more attractive. That purely financial argument can only be countered by sentimental or educational arguments.

So we may leave the kindergarten economics of Dr. Gray—with a humble tribute of admiration to his belief that "economic matters are of no interest to the

Universities of Oxford and Cambridge." Indeed, before embarking on economics Dr. Gray should have consulted a senior relative who contributed to your columns some years ago—I will call him Dr. Gray, sen. The occasion was this. At present a large proportion of Cambridge medical students never graduate in medicine (about one-third), but practically all of them are graduates of their university. Sir Ernest Graham-Little wrote to you and suggested that Londoners who had passed the second M.B. might, on fulfilling minor conditions, be admitted to a degree equivalent to that of B.Sc. Professor Lovatt Evans, who knows almost as much about scientific standards as the Gray family, saw no scientific objection, and I (*mea culpa*) urged an economic advantage—namely, those (a small but not quite negligible proportion) who had to give up the medical course altogether might be helped by the possession of a degree. But Dr. Gray, sen., perceived what Professor Lovatt Evans and I had missed—the danger to the prestige of the B.Sc., the possibility, as he put it, that the new degree might come to be thought of as equivalent to Failed M.B., B.S. I am sure that this wise and witty veteran would have reminded young Dr. Gray of the poet who said that presbyter was but priest writ large, and would have warned him of the danger that M.B., B.S. might be thought of as M.R.C.S., L.R.C.P. written in four instead of eight letters. Young Dr. Gray should stick to educational arguments, to which I return.

It is an axiom that, *whenever possible*, the examining and the teaching body should be identical. My italics are the only answer Dr. Gray's boyish attempt to make mischief between "external" and "internal" sides deserves. The University is, in my opinion, competent to control *all* medical undergraduate teaching and examining done in London. If it is a fact that the 40 per cent. of our undergraduates who do not graduate in medicine are, educationally speaking, worthy to do so, it is the duty of the Senate so to rearrange its own examinations that these students do graduate, and to make that rearrangement without reference to the views of financially interested corporations. Dr. Gray and his friends urged the Senate to co-operate with Oxford and Cambridge in an educational inquiry; then they imposed on the teachers and administrative staff of the University the weary business of revising curricula and examinations in accordance with the findings of the joint investigation. Now they tell the Senate and the world that all this will make little or no difference to the proportion of students graduating and that a wholly different plan should be tried. Why was this advice not given three years ago? Is it possible that shrewder politicians than Dr. Gray are afraid that either the reform of the curriculum will be effective or that the absurdity of paying tribute for ever to two corporations will be realized by persons more powerful than any of us medical folk.—I am, etc.,

Loughton, Jan. 16.

MAJOR GREENWOOD.

SIR.—Dr. A. M. H. Gray sees no connexion between my demonstration that the medical schools are increasingly restricting their admission of pupils to university students and my prediction of improvement in the number of students in those schools ultimately taking university degrees. I should have thought the connexion was too obvious to labour. This restriction, initiated by my own school, St. Mary's Hospital, has been in actual operation for less than two years, and yet figures for 1936-7, available only within the last few days, show that two-thirds of the students at London medical schools in that year were reading for a university degree and one-third for non-university qualifications, chiefly Conjoint Board.

of election less cumbersome and more equitable than the present one.

Whatever may have been one's experience, whether as candidate or elector, I think most truthful observers are agreed that there is often no rhyme or reason for what actually happens. It may be urged that a candidate has done no original work; or that he is such a good scientist that his clinical acumen is in doubt. His field of interest may be regarded as too generalized or too specialized. He may be lacking in personality, or have such an attractive one as to threaten other people's popularity. He may suffer, or be favoured, because of belonging to a certain hospital. Prejudice is not limited to the more obvious channels; thus I have heard Welshmen and Scotchmen spoken of disparagingly as such; an Australian was turned down without serious consideration—as if Gallipoli had never been; an English-born sunburnt applicant was excluded because of a suspicion that his melanin was a fat back racial admixture—I subsequently heard that his father was a distinguished Army officer. Some physicians will not support an applicant in their own specialty—others will seek one in order to lighten their own hospital work. A man is often chosen because he will make a good colleague and "be easy to work with"; and yet this proves to be the case no more often than with a more independent-minded person. Many hospital staffs are divided up into cliques. For this very reason an applicant may stand a poor chance because the chief or group he has served does not belong to the "powerful group," or to those who concern themselves more energetically with elections. A candidate may fail to get on his own teaching hospital for one or more of the above reasons, or because there is no vacancy for his particular specialty at the time he is in a position to apply. It may be true that a good man will be stimulated to greater effort and will overcome all difficulties; but many good men will fall by the wayside and will be virtually lost. Others will become embittered and cynically materialistic. They may fail to make their contribution to scientific medicine or surgery because the most creative years of their life have been spent in uncertainty and insecurity, literally wandering from door to door, hospital to hospital; and gradually but insidiously their self-respect and spirit may become undermined.

In another direction Sir Arthur Hurst has recently drawn attention to the appalling lack of co-ordination among the various teaching hospitals in London; and Lord Dawson has also intimated a similar state of affairs in a wider circle. Surely many of the evils of hospital elections could be abolished by a London central election board; or perhaps by groups of hospitals associating together for staff appointments, as do the colleges at Oxford or Cambridge for scholarship purposes. Personal or personality difficulties are usually fantasies that disappear on closer acquaintance, and an interchange of men from different centres could not fail to revitalize and quicken the medical and scientific activity of all hospitals.

—I am, etc.,

London, Jan. 7.

INGENUOUS.

Autophytic Dermatitis

SIR,—Some years ago in China I had as a patient a British schoolgirl, aged 13, who on several mornings had developed oval patches of moist dermatitis about the size of the top joint of her thumb or finger. They were all on the face, and a fresh one appeared each day. I took her into hospital, and after a few days instructed the nurses to keep away all irritants or disinfectants, but the patches

still continued to appear and spread to the arms. They healed in two or three days.

After about two weeks I rubbed a piece of sterile gauze over a fresh patch, then rubbed a piece of healthy skin on her arm with the gauze, and sealed the part with gauze and adhesive plaster to prevent it from being touched. Next morning a similar patch of dermatitis appeared. I told the girl that the previous patches must have been self-inflicted, whether intentionally or in her sleep, and that they must now cease. They did cease, and she went back to school life. She had the reputation of trying to get out of school work.—I am, etc.,

Worthing, Jan. 13

FRED H. JUDD.

Cataract Extraction during Narcosis

SIR,—I am grateful to Mr. Basil Graves for the elucidation of many points raised in my letter. Referring to his remarks (*Journal*, December 25, p. 1303) concerning scopolamine and morphine, I cannot recall any cases of cataract in which their use produced vomiting. As regards psychical disturbance, it occasionally occurs irrespective of any narcotic influence: I am doubtful of its greater frequency after the use of scopolamine and morphine. Of course there is hardly a drug to which some patient or other will not react in an unexpected way.

What stands out from the correspondence is that as an alternative to scopolamine and morphine paraldehyde is a well-tried, efficient narcotic which could be administered either by mouth or per rectum in most cases without fear of any harm arising to the patient therefrom.—I am, etc.,

Eastbourne, Jan. 15.

D. V. GIRI.

Treatment of the Common Cold

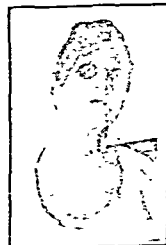
SIR,—I was most interested to read Dr. Elyan's experiences in the treatment of the common cold with prontosil (January 15, p. 146). The results he obtains closely resemble those that I am in the habit of obtaining with bicarbonate of soda—one heaped teaspoonful in a half-pint tumbler of hot water, morning, noon, and night for a minimum of twenty-four hours and a maximum of seventy-two. For children, half that quantity.—I am, etc.,

Jan. 16.

SURGEON COMMANDER R.N.

Large Lipoma simulating Goitre

SIR,—I enclose a photograph which if reproduced may be of interest to readers of the *British Medical Journal*. It shows a lipoma of the space of Burns which simulated a pendulous goitre in a single lady 53 years of age. It will be noticed that the resemblance to a goitre was very close. The large rounded lipoma was removed by a curved incision over the upper part of the sternum.—I am, etc.,



Wanganui, New Zealand
Nov. 17, 1937.

H. KENRICK CHRISTIE,
Ch.M., F.R.C.S.

An investigation to determine the relative values of raw and pasteurized milk, produced under typical commercial conditions, has revealed no significant differences in the nutritive value of the two products. The feeding experiments were carried out on calves. The investigation, conducted at the Hannah Dairy Research Institute, Ayrshire, is described in the current issue of the *Journal of Dairy Research*.

patients to demand the radiographs for themselves the inception of such a procedure as routine would present difficulties. I would strongly advise that the patient should not in any case be given possession of the radiographs while treatment of the injury or disease is still being carried out. One reason for this is the difficulty experienced by radiologists in obtaining previous films in "follow-up" cases, and there are other reasons which may affect the patient or the medical adviser, or both.

The above observations are not materially affected by the remarks of Mr. Fairbank (*Journal*, January 8, p. 92), who admits that he is treading on difficult ground, and whose letter applies to an even more restricted type of case than he suggests—namely, that in which the presence of fracture has been established. In the undiagnosed case of suspected injury to a bone or joint the radiologist's opinion may be of supreme importance, and even in the true fracture case his report should be of assistance to the clinician, and therefore of value to the patient. All fracture cases are not sent to surgeons, and all medical practitioners are not sufficiently conversant with radiographic appearances to dispense with advice additional to their personal interpretation thereof.

To those accustomed to them x-ray negatives afford more detailed information than do prints, but I consider that well-prepared and carefully selected and arranged prints, in conjunction with a reasoned radiological report, should be at least as helpful in most cases, and although I do not personally advocate routine prints of fractures they would probably be adequate for "follow-up" purposes. They are infinitely preferable to full-size films from the point of view of transport and storage, and have the added advantage that if they are destroyed or lost they are not irreplaceable, as are the original negatives.

I have indicated above that I sympathize with the medical practitioner who prefers to view the original negatives, and I should always fall in with his wishes in this matter, but the actual ownership of the negatives undoubtedly vests in the radiologist, and I cannot sympathize with the suggestion that in any circumstances the patient should be "entitled to any and all of the films that have been taken."—I am, etc.,

Worthing, Jan. 10.

R. BOULTON MYLES.

SIR.—At the risk of incurring the displeasure of my radiological colleagues, I venture to support some of Mr. Fairbank's contentions (*Journal*, January 8, p. 92).

While I have always held that skiagrams without an expert's report are valueless, I have also always held the converse: that, if the radiologist himself requires skiagrams for the preparing of the report, then this report is useless unless the skiagrams accompany it. I hold therefore that skiagrams should always be furnished, with the report, to the medical man who has requested the x-ray examination.

I also accept the view that the skiagrams are only incidental to preparing an opinion and therefore are the property of the radiologist. He can therefore, if he wishes, insist on their return, but in special cases, such as when the patient is going to a distant part of the country or abroad, he will of course waive this right. In the patient's interest it would be best for the radiologist to keep the skiagrams, because both the doctor and the patient usually lose them and they are not available when a subsequent examination is required. In practice the radiologist will probably find it best not to insist on their return, and then the onus of the subsequent production of the old skiagram will be upon the medical practitioner, or on the patient if they have been given to him. The radiologist

would of course keep a copy of his report indefinitely. I have been asked to produce skiagrams fifteen years after they were taken.

With regard to hospital practice, I always allow a medical practitioner to have the loan of skiagrams, provided they are returned to the hospital, but I make an exception if I think there is an attempt to exploit the hospital for medico-legal purposes.—I am, etc.,

London, W.1, Jan. 15.

N. S. FINZI.

SIR.—Mr. H. A. T. Fairbank, in his letter in the *Journal* of January 8 (p. 92), appears to confuse a difficult and complicated question which in other respects was becoming reasonably clear as a result of the correspondence in your columns. We all know that an orthopaedic surgeon has sufficient knowledge of radiographic interpretation to read skiagrams of simple fracture cases, but I do not know why Mr. Fairbank finds it necessary to write at considerable length in order to point out that in this instance he considers a radiologist to be virtually a "glorified photographer." Every specialist of experience acquires a reasonable knowledge of the work carried out by those of his colleagues with whom he associates, and I am constantly called upon by medical practitioners, particularly in the country, to decide whether or not a bony injury requires the services of a surgeon. I do not think that Mr. Fairbank would be pleased if anyone referred to an orthopaedic surgeon as a "robot who put crooked bones straight." Recently an orthopaedic surgeon for whom I have a profound respect requested me to make my reports on all difficult cases as detailed as possible, remarking that "two brains are better than one," and I fully agree with this observation.

I always provide my colleagues with the evidence on which I base my report, and should a patient change his locality or seek other advice I think that every radiologist would be guided by common sense and courtesy in doing what was required of him. I do not propose to occupy your columns by repeating what has already been said on a number of occasions in a clear and able manner, but I do suggest that we adopt the decision which has been made in the American courts, and which has the support of the majority of radiologists in this country—namely, that x-ray films are the property of the radiologist.—I am, etc.,

Ipswich, Jan. 13.

C. H. C. DALTON.

SIR.—So far as I know, the question of who owns an x-ray film has not yet arisen since the article to which you referred lately in an editorial footnote was written. Dr. W. Asten may, however, be interested in the American decisions enumerated by Dr. S. W. Donaldson in his book *The Roentgenologist in Court*.—I am, etc.,

London, E.C.4.

D. HARCOURT KITCHIN.

* * Dr. Donaldson's book is reviewed on p. 174 of this issue.—ED., *B.M.J.*

Applying for Hospital Posts

SIR.—The recent correspondence on this subject shows that the question of the method of election to hospital appointments, especially of the honorary staff, has only to be mentioned to reveal the numerous hardships the present system entails. Time-wasting and sore feet are the least disputed but possibly the least pernicious defects. It is also obvious that any system might fail to receive more than a minority unqualified approval, since the majority constitute the disappointed ones. Nevertheless it should not be beyond the intelligence and ingenuity of those who might be thought responsible to devise a system

Prussia, aged 84; Professor OTTO KRON, senior physician to the department for cutaneous and sexual disease of the Municipal Hospital, Vienna, aged 61; Dr. MANUEL A. SANTAS, formerly professor of paediatrics at the Buenos Aires Faculty of Medicine; Professor JOSEF LANGE, an eminent paediatrician of the German University of Prague; Professor ARTHUR THOST of Hamburg, a pioneer in otology and laryngology, aged 83; Dr. PAUL ERNST, formerly professor of morbid anatomy at Heidelberg; and Geh. Sanitätsrat Dr. ALFONS STANDER, for many years co-editor of the *Münchener medizinische Wochenschrift*.

EMMET RIXFORD, former president of the American Surgical Association, died in the Peter Bent Brigham Hospital, Boston, on January 2, aged 72. An enthusiastic hiker, one of the peaks of the Sierra range in California is named Mount Rixford in his honour.

Universities and Colleges

UNIVERSITY OF LONDON

A course of lectures and clinical instruction on mental deficiency and allied conditions, arranged by the University Extension and Tutorial Classes Council in co-operation with the Central Association for Mental Welfare, will be given from Monday, March 28, to Saturday, April 9. It will be based on the requirements for the University of London Postgraduate Diploma in Psychological Medicine, and is intended for medical practitioners, more especially those who are engaged as school medical officers, certifying officers to local authorities under the Mental Deficiency Acts, or as medical officers of institutions, or who are otherwise definitely concerned with the care of subnormal or abnormal persons. The course has been re-organized and Part I has been extended to a fortnight in order that considerable time may be given to practice in mental testing under the supervision of a psychologist. Part II of the course, devoted to the problems connected with the retarded and difficult child, formerly held immediately after Part I, will this year be held in the autumn. All lectures will be delivered at the Senate House of the University, W.C., unless otherwise stated on the students' time-tables, and will be given from 10 to 12.30 each morning, with some late afternoon lectures from 5 to 6. The clinical work will be arranged for each afternoon, except Saturday, approximately from 2 to 4 (later in the case of visits to homes and institutions). Detailed time-tables will be sent to each person proposing to attend the course not later than March 21, and forms of application should be filled in and returned by March 7. The University will grant certificates of attendance to those students who attend regularly taking both theoretical and practical work. The registration fee, to be paid at the time of application, is 10s. 6d., and the fee for Part I of the course is £5 15s. 6d. All communications should be addressed to Miss Evelyn Fox, C.B.E., c/o University Extension Department, Senate House, University of London, W.C.1.

Mr. Philip Geoffrey Scott, B.Chir., F.R.C.S., chief assistant in the aural department of St. Bartholomew's Hospital, has been reappointed to the Geoffrey E. Duveen Travelling Studentship in Oto-rhino-laryngology for a further year (1938).

The following candidates have been approved:

M.D.—Branch I (Medicine): J. Apley, C. G. Baker, Jean M. Cass, Lynette Dowsett, E. A. Hardy, G. W. Heam, C. A. Lillcrap, W. N. Mann, S. K. Squires, R. J. Vakil. Branch II (Pathology): D. G. ff. Edward. Branch IV (Midwifery and Diseases of Women): T. L. S. Baynes, P. J. Boyd (University Medal), Anne A. Craig. Branch V (Hygiene): M. Sendak (University Medal).

UNIVERSITY OF MANCHESTER

The Council has approved the appointment of Dr. James Davson as assistant lecturer in pathology.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council was held on January 13, with the President, Sir Cuthbert Wallace, Bt., in the chair.

The Hallett Prize, awarded on the result of the Primary Examination for the F.R.C.S., was granted to Bertram Alfred Edward Johns of the University of Birmingham.

It was reported that at the recent Primary F.R.C.S. examination held in New Zealand seven candidates out of fourteen were successful in passing the examination.

Mr. Hugh Lett was appointed the representative of the College on the Council of Queen's Institute of District Nursing. Mr. W. Sampson Handley was appointed Hunterian Orator for 1939; Professor R. E. Kelly, Bradshaw Lecturer for 1938; and Sir Humphry Rolleston, Thomas Vicary Lecturer for 1938. Mr. William Frederick Davis was appointed Assistant Secretary to the College.

Diplomas

A Diploma of Membership was granted to David Allan Richmond of the University of Manchester.

The following diplomas were granted jointly with the Royal College of Physicians:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—T. J. K. Brownlee, D. F. Buckle, J. P. Child, H. B. Craigie, A. G. Crisp, H. Fishgold, W. H. Fraser, Gertrude M. Jefferson, J. Littlewood, K. O. Milner, J. D. Richardson, P. H. Sandifer, M. Singh, Pauline W. M. C. Stirling, F. H. Taylor, J. C. S. Thomas, J. Walsh.

DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—A. S. de B. Coeks, G. S. Dhillon, G. A. M. Knight, H. P. Lawson, G. Phillips.

Diplomas in Anaesthetics were granted, under the special conditions of the Regulations, jointly with the Royal College of Physicians to the following candidates:

W. E. Brown, A. H. Diamond, H. Hunter, Kathleen M. Lyon, Kathleen L. Oldham, E. S. Rowbotham.

The following hospitals were recognized for the six months' surgical practice required of candidates for the final Fellowship: Royal Hospital, Richmond (resident medical officer and senior house-surgeon); St. John's Hospital, Lewisham (resident surgical officer and house-surgeon).

SOCIETY OF APOTHECARIES OF LONDON

The Court of the Society has awarded the Gillson Scholarship in Pathology for 1938 to Dr. R. H. S. Thompson of the Rockefeller Institute Hospital.

The Services

THE ARMY DENTAL CORPS

The War Office invites applications from dental surgeons for appointment to a limited number of commissions in the Army Dental Corps. Candidates will be selected for these commissions without undergoing competitive examination, but will be required to present themselves in London for interview and physical examination. They must be registered under the Dentists Acts or Medical Acts, and be not over the age of 28 years. Successful candidates will, in the first instance, be given short-service commissions for six years, at the end of which period they will retire with a gratuity of £1,000 unless they have been granted permanent commissions. Full particulars and forms of application may be obtained from the Director, Army Dental Service, the War Office, London, S.W.1.

The third International Congress for Microbiology will be held at the Waldorf-Astoria Hotel, New York City, September 2-9, 1939, under the auspices of the International Association of Microbiologists. It will be composed of the following nine sections: general biology, variation and taxonomy; general biology, microbiological chemistry and physiology; viruses and viral diseases; rickettsiae and rickettsial diseases; protozoology and parasitology; fungi and fungous diseases; medical and veterinary bacteriology; agricultural and industrial microbiology; immunology. The general secretary is Dr. M. H. Dawson, College of Physicians and Surgeons, 620, West 168th Street, New York City. The registration fee is \$5.00, which does not include the cost of a banquet ticket or a copy of the *Proceedings*. A World's Fair will be held in New York City during the summer of 1939, and those who wish to attend the Congress for Microbiology should therefore make plans promptly. The American Express Company has been appointed official travel agency. The honorary secretary of the National Committee for Great Britain and Northern Ireland is Dr. R. St. John-Brooks, Lister Institute, Chelsea Bridge Road, London, S.W.1.

Obituary

News comes from Zululand of the sudden death on December 5, 1937, of Dr. DOUGLAS GARNETT STOUTE, district surgeon for Mtunzini and medical officer to the Amatikulu Leper Institute. He had been playing in a local cricket match at Eshowe, and after scoring 66 not out collapsed. The weather was intensely hot, and the game followed a period of strenuous work and long distances of travel. Dr. Stoute was 47 years of age, and graduated M.B., Ch.B. of Edinburgh University in 1916. During the war he served in Salonika, was mentioned in dispatches, and retired with the rank of major, R.A.M.C. He went to Zululand shortly after the war, and soon began to interest himself in social organizations on the Natal coast, particularly sporting bodies. He was chairman and president of various societies, and his practice extended from Mtunzini to Tugela. He leaves a widow and a son.

Dr. ROBERT CROSS, who had practised at Mapplewell, near Barnsley in Yorkshire, for thirty-four years, died on December 27, 1937, not many months after retirement from active work. Born in County Tyrone, Ireland, in 1864, he obtained the L.R.C.S.I. in 1884 and the L.R.C.P. Ed. in 1887. Dr. Cross was well known and much respected throughout the neighbourhood, and especially by the colliery workers of the village, whose "pit doctor" he had been for many years. When any accident occurred at the colliery Dr. Cross was always to be found in attendance on the injured. In September last he received a presentation case of cutlery and an appreciation on vellum from the inhabitants of Mapplewell and Staincross in acknowledgment of his long and faithful service to the community. He had been a member of the Barnsley Division of the British Medical Association for the past thirty years.

Dr. WALTER HOLCROFT CAM, who died last month at the age of 54, was the son of the late Rev. W. H. Cam of Oxford, and from Marlborough went to study medicine at Gonville and Caius College, Cambridge, taking his B.A. with first-class honours in the Natural Sciences Tripos of 1905 after holding an exhibition and a scholarship. At the London Hospital he won the Anderson prize for clinical medicine, and having qualified M.R.C.S., L.R.C.P. in 1909 served as house-surgeon there. He obtained the M.B. and B.Ch. degrees in 1912. During the war he was a battalion medical officer with a temporary commission in the R.A.M.C., and later joined the Royal Flying Corps. In 1921 he began practice at Ross in Herefordshire, and became a member of the honorary medical staff of the Ross and District Hospital. He was also for a time assistant surgeon to the Savernake Hospital, and medical officer of health and inspector of schools for the Marlborough urban district. Dr. Cam was chairman of the Hereford Division of the British Medical Association in 1930-1, and had been president of the Hereford Medical Society. His death from pneumonia is deplored by a large circle of patients and friends who held him in the highest esteem.

By the death of Dr. WILLIAM L. M. GABRIEL on December 30, 1937, the county of Northumberland has lost a loyal and devoted servant and the Territorial Forces a very enthusiastic officer. He was born at Keighley in Yorkshire forty-six years ago, and was a student at Leeds University at the outbreak of the great war. In August, 1914, he accepted a commission in the 2nd West Yorkshire Regiment (P.W.O.) as a combatant officer, and went to France with the 2nd Battalion early in 1915. A few months later he was badly wounded at Aubers Ridge and was returned to England for convalescence. He then completed his medical studies at Leeds University, and

graduated M.B., Ch.B., with second-class honours, in 1917. For a little time he was resident medical officer at the Leeds Public Dispensary, and in 1918 he took a commission in the R.A.M.C. Special Reserve, and for some time was medical officer in charge of the Royal Army Ordnance Department at Chilwell, Notts. From 1923 to 1933 he was medical officer attached to the Tynemouth Heavy Brigade, and he also served with the 149th Field Ambulance Brigade, succeeding to the command of this unit two years ago, representing it at the Coronation last year, when he received the Territorial Decoration for efficiency. In 1920 he was appointed an assistant medical officer under the Northumberland County Council, and remained in its service until his death, acting as medical officer of health for the Gosforth Urban District Council since 1932. In 1933 he obtained the D.P.H. and B.Hy. of Durham University. At the time of his death he had just resigned the last appointment to take over the duties of senior assistant county medical officer of health. "W. F. J. W." writes: Tall and of commanding appearance, with a deep baritone voice and good manners, Gabriel was a charming companion, with what appeared to be a bright future in front of him. He leaves a widow and one small son to mourn his loss. By his own express desire he was cremated, but a memorial service, held in Holy Saviour's Church at Tynemouth on January 3, was crowded, representatives being present from every department of the Northumberland County Council, the Gosforth Urban District Council, Tynemouth Corporation, Newcastle City Council, the British Medical Association, the Society of Medical Officers of Health, and the Reserve Forces Lodge of Freemasons. *Requiescat in pace.*

Dr. ADOLPHUS VAUGHAN BERNAYS, who died on January 8, aged 80, joined the British Medical Association as long ago as 1884, and had practised for many years at Solihull in Warwickshire. His father, the Rev. L. J. Bernays, rector of Stanmore, sent him to Cambridge; he graduated B.A. in 1880, and continued his medical study at St. Thomas's Hospital, taking the M.B. in 1882 and the M.R.C.S. in the following year. He then put up his plate in Solihull, and gradually acquired a large practice, which in more recent times became a partnership of seven. Dr. Bernays was the friend and confidant of generations of patients and took a prominent part in the public life of the neighbourhood. He was a Justice of the Peace, chairman of the Education Committee of the Warwickshire County Council, bailiff of the Governors of King Edward's School, Birmingham, and an alderman of the city of Birmingham.

We regret to announce that Dr. DAVID MALCOLMSON BARCROFT of the Glen, Newry, Co. Down, died on January 13. He was formerly well known as a general practitioner in the west of London, and had been president of the Chelsea Clinical Society. A son of the late Henry Barcroft, D.L., of Newry, he was born in 1875, his elder brother being Sir Joseph Barcroft, F.R.S., lately professor of physiology in the University of Cambridge. David Barcroft studied medicine at the University of Edinburgh, graduating M.B., Ch.B. in 1907 and taking his M.D., with commendation, in 1912. While at Edinburgh he was president of the Royal Medical Society and resident physician at the Royal Hospital for Sick Children. In London he held for some time the appointments of physician to the Margaret Street Hospital for Consumption, and honorary physician to St. Vincent's Cripples Home at Pinner and St. David's Home for Disabled Soldiers and Sailors at Ealing. He was much interested in the treatment of pulmonary tuberculosis, and contributed papers on tuberculin dispensaries and on the administration of tuberculin to the *British Journal of Tuberculosis*.

The following well-known foreign medical men have recently died: Dr. WERNER KÖRTE, for many years surgical director of the Urban Hospital, Berlin, and president of the Central Committee for Postgraduate Instruction in

EPIDEMIOLOGY NOTES

Diphtheria

Diphtheria notifications in England and Wales continue to increase each week; those for the week under review are appreciably greater than those in the corresponding week last year and very much greater than the median value for the last nine years. It is not possible to ascertain what proportion of the cases notified are suffering from clinical diphtheria. When diphtheria is prevalent in an area swabs are taken of the throat and nose in the presence of infections other than diphtheria, and the accidental finding of the organism usually leads to notification as diphtheria, although it may have no relation to the primary disease. During periods of epidemic prevalence of diphtheria the proportion of carriers to cases may be 4 to 1, or even higher, and the presence of carriers in a well-immunized community is common; thereby the specific immunity index of the population is maintained. The discovery of persons harbouring diphtheria organisms among selected groups, such as hospital wards, may have little significance other than that the organism is prevalent in the community. The number of carriers reported may be higher than the actual numbers, as a virulence test for the organism is not invariably applied.

In the last fortnight there were 21 cases of diphtheria, which included six nurses and one ward sister, in the King Edward VII Hospital, Windsor, but no fresh cases were reported after January 13. Three out of five wards were placed temporarily in quarantine, and the children's ward is to remain in quarantine for another week. Five cases of diphtheria have been reported among the domestic staff of the Throat, Nose, and Ear Hospital, Golden Square, London, but patients were not affected. Admission of fresh cases to the wards has been suspended temporarily, but the out-patient department was kept open. A small outbreak affecting four patients was reported last week in the children's ward of the Chesterfield Royal Infirmary. In each instance the measures taken to control the outbreaks appear to have been successful, but the admission of fresh carriers may be expected unless swabs are taken before admission.

Dysentery

The fall in dysentery notifications in England and Wales recorded last week as compared with the previous week has not been maintained. It is possible that the low figures recorded last week were in some measure artificial, due partly to a tendency during the holiday period to postpone notification, and partly to delay in obtaining the reports from outlying districts. The reason to believe that dysentery is still widely prevalent is that because of its mildness it resists the measures usually taken for its control and has acquired the explosive character associated with food poisoning. The outbreak at Bedford last week exemplifies this character well; 70 persons were affected in one day with an attack of Sonne dysentery from a source which has been traced to milk taken from one farm on the outskirts of the town. Pasteurization of the milk supply has been promptly applied and no further cases have been reported.

Although dysentery has only recently been much in the public eye, the present widespread prevalence of the disease, which is not limited to this country but is found also in Germany, Denmark, Norway, Sweden, and Italy, dates from the middle of last year. During the early part of 1937 there was no unusual increase in dysentery in this country. The number of cases notified for the second half of the year shows for the week ending July 3 a total of 35 cases in England and Wales, of which 22 occurred at Walthamstow. For the next two months weekly notifications for England and Wales ranged from 10 to 25. There was a large increase for the week ending September 4 to 154, of which 152 were in Luton: cases

here in the subsequent three weeks caused the returns for the country to be higher than usual. The next outbreak was one of 18 cases in Bilston, Staffordshire, in the week ending October 23. The notifications for England and Wales for the week ending November 6 were 117, this increase being due largely to 43 cases in Farnham, Surrey. Other parts of Surrey were affected in the following week, when 109 cases altogether were notified. London had had on an average less than ten cases each week, but from the middle of September for a few weeks the incidence rose to an average of 20. In the week ending November 20 69 cases were notified. More cases occurred in the following week, and in the week ending December 4 the number of notifications rose to 124. Over 100 cases were notified in each of the next two weeks over a wide area, 25 of the 29 metropolitan boroughs being affected. There was a fall in the week ending December 25, followed by a slight rise in the next week. Concurrently with the rise in the incidence in London in the week ending November 20 there was a rapid rise in the notifications from the rest of the country, when 226 cases were notified. Of the counties, Surrey had the largest number with 43, many of these being at Carshalton. Cases were also notified from Essex, Middlesex, and Kent, from Devon and Dorset, and in some of the large towns such as Birmingham and Sheffield. The 256 cases notified in the country apart from London in the week ending November 27 followed much the same distribution, though Dorset was more heavily affected by reason of 28 cases in Dorchester; during the same period 25 cases were notified from Pewsey, Wiltshire. The incidence of the infection was still greater in these districts in the next week, when a total of 453 cases were notified (of which 124 were in London). The disease appeared in Norfolk, West Sussex, and North Riding for the first time; the Norfolk cases were limited to Norwich and the Yorkshire cases to Easingwold. The week ending December 10 showed the peak of notifications received from the country (excluding London). There had been cases in most of the towns lying to the north of London, the incidence being heaviest in Enfield. Essex in this week continued to receive notifications from Southend, Brentford, and Billericay, while East Sussex recorded 19 cases, of which 13 occurred at Cuckfield. There was a fall in the incidence for the country in the next week, when an interesting contrast was shown in the returns. Devon's 42 cases were scattered throughout 15 districts, while of the 22 in the county of Nottingham 21 were notified from Nottingham itself. There was a further rapid decline in the following week, in which 270 cases were notified, 71 of these occurring in London, while in the last week of the year there were 247 notifications, of which 77 were in London. The notifications of dysentery probably do not provide an exact guide of the true incidence of the disease at all times. After the first case, or perhaps cases, have been proved, whether in an institution or an area, increasing attention is paid to intestinal disorders and a high proportion of cases will be recognized and notified; on the other hand, when the disease remains sporadic many cases are probably completely missed. It is perhaps significant that in non-epidemic times most of the notifications are received from the larger boroughs, such as Newcastle, Liverpool, and London, and it is possible that the heavy incidence in the Home Counties is directly related to notifications from foreign countries. Some importation undoubtedly took place after the war, on the return of troops from Gallipoli, Salonika, Mesopotamia, and Palestine, and even from Flanders. The Flexner organism was the most common strain during the post-war period, but it appears to have been less common in recent years, being replaced by the Sonne variant, which was first identified during the war.

At a recent meeting of the Franco-German Society in Hamburg Professor Mühlens, the director of the Hamburg Institute for Tropical Diseases, presented the Bernhard Nocht medal to Dr. Fournau of the Pasteur Institute of Paris.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 8, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	37	5	12	—	3	33	3	6	1	—		
Deaths		1	1				3	3				
Diphtheria	1,584	149	234	85	43	1,353	179	203	42	66	1,255	180
Deaths	49	8	10	5	—	44	5		3	4		
Dysentery	256	58	126	—	4	16	7	11	—	—		
Deaths												
Encephalitis lethargica, acute	3	—	1	—	—	3	—	—	—	—		
Deaths		2										
Enteric (typhoid and paratyphoid) fever	24	10	5	10	2	18	3	4	4	5	23	—
Deaths	8	1	—	—	—	1	1	—	—	—		
Erysipelas			98	5	6			57	6	13		
Deaths		1					2					
Infective enteritis or diarrhoea under 2 years	64	19	19	4	4	52	15	11	10	3		
Deaths												
Measles			911		594*			21		1		
Deaths	36	5	14	3	11	7	—	—	2	—		
Ophthalmia neonatorum	112	4	32	—	—	74	7	24		1		
Deaths												
Pneumonia, influenzal§	1,624	155	26	3	15	1,542	289	68	1	22	1,911	263
Deaths (from Influenza)	77	7	11	—	3	325	128		—	5		
Pneumonia, primary			377	8				249	9			
Deaths		28		19	29		49		36	18		
Polio-encephalitis, acute	2	1				—	—					
Deaths												
Poliomyelitis, acute	5	—	—	—	—	2	—	—	1	—		
Deaths												
Puerperal fever	†	2	13	3	2	46	9	16	3	2		
Deaths		—					2‡					
Puerperal pyrexia	190	26	30		7	150	24	18		5		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths												
Scarlet fever	2,139	141	518	104	94	1,933	226	346	99	72	1,999	265
Deaths	5	1	2	—	—	6	—	1	3	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			24		10			136		15		
Deaths	20	4	1	1	1	28	7	9	5	—		
Deaths (0-1 year)	514	93	106	27	45	487	125	94	54	27		
Infant mortality rate (per 1,000 live births)	86	77				78	103					
Deaths (excluding stillbirths)	6,279	1,274	1,076	215	206	6,808	1,771	736	287	192		
Annual death rate (per 1,000 persons living)	15.5	16.0	20.1	14.5	18.3	17.0	22.1	15.1	19.9	18.4		
Live births	7,137	1,297	1,006	330	248	6,593	1,293	861	321	246		
Annual rate per 1,000 persons living	17.6	16.3	20.6	22.3	22.0	16.4	16.1	17.7	22.3	23.5		
Stillbirths	275	52				302	44					
Rate per 1,000 total births (including stillborn)	37	39				44	33					

(i) 122 great towns in 1937

(ii) 12 " " "

(iii) 9 " " "

* 592 cases in Belfast alone.

† All cases notified as puerperal pyrexia after October 1, 1937.

‡ Deaths from puerperal sepsis.

§ Includes primary form in figures for England and Wales and London (administrative county), Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE BRITISH MEDICAL JOURNAL. Antiology
Westcent, London.

SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumshugh Gardens, Edinburgh (telegrams: *Asciante, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 62550 Dublin).

QUERIES AND ANSWERS

Hair Dye

"G.P." writes from Ceylon: Will some reader recommend a good and reliable dye for black hair which has gone prematurely grey in a patient aged 30 years, and where it can be obtained.

Incapacitating Diarrhoea

"SRUG" writes: I shall be interested to see the replies to "Emdee's" query (*Journal*, December 11, 1937, p. 1206), as I have been suffering from a similar condition for the past year. In my case, too, all the usual investigations, which have been undertaken in two nursing homes, have failed to indicate any specific cause. Indeed, "rectal ramming," whether undertaken for sigmoidoscopy, x-ray examination, or wash-outs, has always caused greatly increased and prolonged exacerbations of the diarrhoea. In an unsuccessful attempt to keep on in a good whole-time appointment, I have studied colitis to the point of obsession, and it seems to me that the actual cause of this condition is a localized dysfunction of the sympathetic nervous system, resulting in neuromuscular failure with consequent spasticity and atonia. In addition to a history of abdominal symptoms in childhood, perhaps there may also have been some perityphilitis, not necessarily appendicular in type, but possibly tuberculous in origin. Opium in one form or other seems to be the only effective drug, and I have found it best to apply the principle of "little and often" to the diet and to limit drinking to sipping between meals. Charcoal is sometimes useful, a tonic may be tried, and, of course, attention should be given to the balance between rest and exercise and the avoidance of exposure to cold. If a specific causal organism has been found the relevant vaccine may be tried, though even in cases in which none has been discovered anti-dysenteric serum may be effective. There is also bacteriophage therapy, which may be of use.

The Squatting Position in Defaecation

"VIS MEDICATRIX" writes: Everyone who does not adopt the squatting position in defaecation is suffering from partial constipation. Our waste-paper baskets are daily filled with literature on how to cure constipation and avoid its sequelae. John Chiene, late professor of surgery in the University of Edinburgh, and known to thousands of Edinburgh men as "Honest John," gave us a very interesting lecture on his return from the South African campaign on the squatting position. He described how, by carefully weighing his faeces as passed in this position on the veld and as passed in the ordinary pedestal water closet, he found that in ordinary civilian life the rectum was never sufficiently evacuated.

He claimed that the *vis a fronte* suction, or syphonage, moved on the contents of the transverse and ascending colon and prevented the formation of a caecal cesspool. The outstanding advantages of this are too obvious to require stressing. He invented a cataphysical water closet which rather alarmingly precipitated its user into the squatting posture. I think this, and its price of about £5, did not tend to popularize it. Some six or seven years ago I got an advertisement of a simple device that fitted round the base of the pedestal, with jointed foot-rests that folded back out of the way when not in use and could be brought forward into position when required. This cost 10s. 6d. I unfortunately lost this, and have been unable to trace it. Could anyone please advise me where these can be obtained? I feel convinced that if practitioners would adopt the squatting position and ascertain the benefit for themselves, and then instruct their patients accordingly, there would very possibly be much less appendicitis and other pelvic and abdominal troubles and a better level of general health. However small the benefit, it costs nothing, and I am not one of those who believe that because a thing costs nothing it is worth nothing. A further use of this position is during labour: the gains are obvious—for example, gravity acts directly, extra powers of expulsion from pressure of thighs on abdomen, shortening of the third stage, etc. In these days of ante-natal work it is easy to train patients.

* * We cannot trace the device mentioned by our correspondent; but J. A. Hornibrook in *The Culture of the Abdomen* describes and figures an appliance marketed by Messrs. Doulton and known as the "health closet," with a low seat higher in front than at the back.

The Development of Obstetrics

Dr. JOHN LOGAN (Lincoln) writes: On lately reading Playfair's *Midwifery*, printed in 1886, I was impressed by the stress laid on the operations of craniotomy, cephalotripsy, etc., practised in cases of gross disproportion. From the numbers quoted such operations appear to have been far more frequent then than is the case to-day; no mention is made of trial labours. Are the pelvis of the women of this century broader, and the musculature better developed, or is there less interference with Nature and better diagnosis? Caesarean section is described as a desperate last hope, only to be resorted to when even a mutilated foetus cannot be extracted. Commonly it was attempted from two to six days after the onset of labour, following the failure of attempted cephalotripsy, and with the patient moribund. Since transfusion at that time was commonly by the arm-to-arm method, irrespective of blood grouping, or perhaps after a preliminary defibrination of the donor's blood by whipping with a twig, and since even the injection of whole sheep's blood was undertaken, we can well realize the hopelessness of the Caesarean operation. I would like to hear an authoritative pronouncement, telling in detail the indications for these two distinct attacks upon the foetus *in utero*, and indicating whether the approach per vaginam is still used or whether it has been discarded mainly in favour of abdominal section. In my experience even the application of forceps (never by chance allowed me when putting in my number of cases as an intern in a lying-in hospital) is fast becoming a mysterious art, almost beyond my capabilities, to be attempted only when conservative treatment has failed. When *laissez-faire* has brought those obstinate cases of inertia of the uterus and bony disproportion to a standstill, a speedy removal to a maternity hospital or nursing home and the care of a specialist in the art disposes of the resulting embarrassing situation.

LETTERS, NOTES, ETC.

Angiospasm and Head Injuries

Dr. N. PINES (London, E.1), in connexion with the papers by Professor E. Mapoither and Dr. J. P. Martin published in the *Journal* of November 27, 1937 (pp. 1055 and 1051), writes: In many cases of so-called traumatic neurosis a proper examination of the vascular system will reveal a state of angiospasm in different parts of the body, affecting sometimes the cerebral blood pressure, as measured by the method of Baillart: the method is difficult, but once mastered is invaluable and certain. It is a great pity that in this country the study of angiospasm is not pursued actively.

VITAL STATISTICS, ENGLAND AND WALES, 1937

We are indebted to the Registrar-General for the following statement regarding the provisional birth rates and death rates, and the rates of infantile mortality, in England and Wales and in certain parts of the country during 1937. The statement is issued for the information of medical officers of health.

ENGLAND AND WALES

Birth Rate, Death Rate, and Infant Mortality for the Year 1937
(Provisional Figures)

	Rate per 1,000 Resident Population		Deaths under 1 year per 1,000 Registered Live Births
	Live Births	Deaths (Crude Rates)	
England and Wales	14.9	12.4	58
125 county boroughs and great towns, including London ..	14.9	12.5	62
148 smaller towns with estimated resident populations of from 25,000 to 50,000 at the 1931 Census	15.3	11.9	55
London (administrative county)	13.3	12.3	60

Note.—The birth and death rates for England and Wales as a whole are calculated on the estimated mid-1937 population, but those for the towns' aggregates and for London are calculated on the estimated mid-1936 populations.

The birth rate for 1937 is 0.1 above that for 1936, 0.2 above that for 1935, and 0.5 above that for 1933, the lowest recorded.

The crude death rate is the highest recorded since 1929, and is 0.3 above that for 1936, an increase which is largely associated with the heavy influenza mortality of the first quarter of the year.

The infant mortality is 1 below that of 1936, and only 1 above that of 1935, the lowest recorded.

Medical News

The Wandsworth Division of the British Medical Association and the London Panel Committee have arranged a meeting, to which all insurance medical practitioners in the London area are invited, to be held at Wandsworth Town Hall on Tuesday, February 1, at 9 p.m., when Dr. H. Guy Dain will give an address on "How Far has National Health Insurance Practice become More Exacting?"

The Marylebone Division of the British Medical Association has arranged a meeting, to be held at the Medical Society of London, 11, Chandos Street, W., on Wednesday, January 26, at 8.30 p.m., when Dr. Charles Hill, Deputy Secretary of the Association, will open a discussion on "The Osteopath and State Registration," and will be followed by Sir Robert Stanton Woods, Dr. C. B. Heald, Dr. Kelman Macdonald, and Dr. N. J. Macdonald. All interested are invited to attend.

A business meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday, January 28, at 5 p.m. At 6 p.m. Dr. S. W. Fisher, H.M. Medical Inspector of Mines, will speak on "The Health of the Coal Miner." The discussion will be opened by Dr. A. J. Amor. A demonstration of radiology and pneumoconiosis will be given by Drs. S. W. Fisher, A. J. Amor, E. R. A. Merewether, C. L. Sutherland, and A. Meiklejohn. The dinner of the association will be held at 8 p.m. On Saturday, January 29, at 10 a.m., there will be a visit to the Home Office Industrial Museum, Horseferry Road, S.W.

A meeting of the Medical Section of the British Psychological Society will be held at the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Wednesday, January 26, at 8.30 p.m., when a paper will be delivered by Professor J. E. Marcault on "Relationship of Consciousness and the Functional Activities of the Organism."

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, January 27, at 8.30 p.m., when a paper will be read by Major D. P. Lambert, I.M.S., on "Some Aspects of Medico-Legal Work in India."

The Association of Clinical Pathologists has arranged a scientific meeting, to be held in London at St. George's Hospital on Saturday, January 29, at 9.30 a.m. The annual general meeting of the Association will be held after the tea interval.

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on January 5, with Mr. V. Warren Low, president, in the chair. Two new members were elected and the death of one was reported. A sum of £2,183 15s. 5d. was voted for the payment of the half-yearly grants to the sixty-one widows and five orphans in receipt of relief. Three special grants of 50 guineas per annum were made to three orphans who had reached the age of 16, when ordinary grants cease, to enable them to continue their education. A first application for relief was received from the widow of a deceased member, and she was voted £50 per annum from the ordinary funds and £25 per annum from the Brickwell Fund. A further legacy of £167 16s. 3d. has been received from the executors of the late George Cattlin, bringing the total amount received from this source up to £4,242 19s. 7d. As the society celebrates the 150th anniversary of its foundation this year it was decided to hold a dinner on October 29, to which all members should be invited, together with distinguished guests. The details of the function will be further discussed at the April meeting of the court. A cordial vote of thanks was passed to Dr. Morland, who, owing to increased pressure of work, has resigned the chairmanship of the propaganda subcommittee. Dr. Morland has done strenuous work in endeavouring to obtain new members. He pointed out that at least twelve new members should be elected every year to keep the membership at its present total. Membership of the society is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Relief is only granted to widows and orphans of deceased members. Full particulars may be obtained from the secretary of the society, 11, Chandos Street, Cavendish Square, London, W.1.

The *Archives de Médecine des Enfants*, edited by the veteran paediatrist, Dr. Jules Comby, assisted by his daughter, Dr. Marie-Thérèse Comby, has just completed its fortieth year of publication. An interesting history of its career is given by the editor in the January issue.

The Press Association was informed at the offices of Mr. E. R. Kisch, a London solicitor, on January 13, that he had issued a writ that day on behalf of a Croydon resident, claiming damages from the Croydon Corporation. The claimant alleges negligence and breach of statutory duty in connexion with the typhoid epidemic.

Between 1903 and 1916 the American Medical Association regularly published summaries of the fireworks injuries sustained on each Fourth of July, which is a legal holiday in every State of the United States. In 1916—the first year without a single case of tetanus—these reports were discontinued for twenty-one years. Last year the *Journal of the American Medical Association* (November 27, 1937) again took up the story with a summary of the 1937 Fourth of July casualties, reporting twenty deaths and two cases of tetanus which recovered. The total number of injuries was 7,205, a figure which admittedly errs on the side of underestimation. Some of the eye injuries were appalling, and many children will bear their scars for the rest of their lives.

The British Red Cross Clinic for Rheumatism has benefited to the amount of £1,113 14s. 5d. from the Red Cross Ball held at Grosvenor House on November 24, 1937.

Sir Samuel Brighouse, who is now aged 88, has just completed fifty-four years as coroner for South-West Lancashire, during which time he has held 25,000 inquests.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

62

Anterior Poliomyelitis

H. WILLI (*Schweiz. med. Wschr.*, December 25, 1937, p. 1227) describes an epidemic of infantile paralysis in Zürich in 1936. During that year cases in the whole of Switzerland numbered 1,269—an incidence of 3.15 per 10,000 inhabitants, as compared with the previous maximum of 0.87 (1931). The common seasonal peak in August and September was shown, but the curve of incidence showed no relation to variations in the atmospheric temperature. Other common epidemiological findings here confirmed were: (1) radial extension from thickly populated epidemic centres; (2) different distribution in the country and in towns—in the former a greater absolute and relative frequency, in the latter repeated relatively small epidemics; (3) a much greater frequency in the country of multiple infections in one family. The town of Zürich, with 300,000 inhabitants, had 2.6 cases per 10,000 inhabitants; small country towns (2,000 to 8,000 inhabitants) had as many as 18 to 117 cases per 10,000 inhabitants. The total Swiss mortality was 9 per cent.; in one canton 42 per cent. of adults attacked died. In small and relatively isolated communities it was common for widespread, apparently influenzal attacks of illness to appear, followed by a few cases with paralytic symptoms. Abortive cases were much more frequent than paralytic cases. Striking and unexplained inequalities of incidence were seen in adjoining and similar districts in Zürich. From an analysis of cases in small communities it seemed clear that infection was chiefly conveyed either by healthy carriers or by those who had had the disease in an abortive form unattended with paralysis. Willi believes that in prophylaxis the use of serum from convalescents is of more value than adult serum; he found both useless in the paralytic stage, and often disappointing in that preceding it. An effective tested serum is not available in Switzerland; among the difficulties is the fact that not every convalescent serum is protective—its degree of efficacy must be established by tests in monkeys. The value of active immunization by an attenuated virus, as recently tried in America, has yet to be proved.

63 J. HASS (*Wien. klin. Wschr.*, December 10, 1937, p. 1670) draws attention to the fact that despite serum therapy in anterior poliomyelitis greater or less paralyses must be reckoned with in 50 per cent. of cases. Prevention of the contractures due to disturbance of normal muscular antagonism is of primary importance. When contractures are present they may in some cases be overcome by a series of small pulling movements which do not give rise to pain. Strengthening of the musculature is produced by baths, massage, electricity, and gymnastics. Warm spring therapy—that is, swimming and gymnastic exercises in warm water—has been advocated in America. Hass urges the necessity for getting patients on their feet again. He points out that even when complete paralysis is present suitable apparatus can make walking possible. By these means muscle and joint atrophy is prevented. Of operative measures tendon transplantation has given the most brilliant results. Arthrodesis after the age of 18 is of benefit to certain patients. The indications for this operation require to be gone into very thoroughly. The author believes that the treatment of paralyses following anterior poliomyelitis should be carried out in special hospitals equipped with special apparatus, for treatment, however costly, involves less expense than complete crippling.

64 Cerebrospinal Fever in the United States

S. E. BRANHAM (*Bull. Off. int. Hyg. publ.*, October, 1937, p. 2148) states that the years 1930 to 1935 may be regarded as an endemic period of cerebrospinal fever in

the United States. The number of cases fell to a low level, and the mortality in several hospitals was only 20 per cent. At that time there was a certain increase in the relative incidence of Type II meningococcus. In 1935 the disease resumed epidemic proportions, and in 1936 the notifications were higher than they had been at any time since 1930, the highest incidence being east of the Mississippi. The gravity of the outbreaks varied considerably, the mortality being only 20 per cent. in some places and 50 per cent. or more in others. Moreover, while in some localities complications such as deafness and blindness were frequent, in others they were completely absent. In the epidemics of 1928 to 1930 meningococci of Types I and III predominated; about 90 per cent. of the strains found during the period 1930–5 are of the same types.

65

Prognosis in Syphilis

G. WILLNERS (*Nord. med. Tidskr.*, October 30, 1937, p. 1784) has investigated the after-histories of the patients treated for recent syphilis with mercury at the St. Göran Hospital in Stockholm in 1913. Of the 364 patients 270 were males whose average age was between 27 and 28. The follow-up investigations concerned the male patients, eighty-three of whom could not be traced. The state of health of the 140 still alive was not ascertained, but among the forty-seven who had died there were five whose deaths were due to such diseases as aortitis, dementia paralytica, and cerebral thrombosis. There were eighteen patients the possible connexion of whose deaths with syphilis could not be verified. It could not, for example, be established whether the four cases of drowning and one case of death by hanging in this group of eighteen had or had not any connexion with the syphilis of 1913. In the remaining twenty-four cases death was notified as being due to such non-syphilitic diseases as tuberculosis (ten cases), pneumonia, influenza, cancer, etc. The author concludes that there should have been only thirty-two deaths instead of the forty-seven actually recorded if the expectation of life for men in Stockholm between 1921 and 1930 be taken as a standard for comparison. The life insurance societies are therefore justified in regarding the expectation of life in male syphilitics whose first infection dates as far back as 1913 as subnormal.

Surgery

66

Sarcoma of the Breast

S. SAILER (*Amer. J. Cancer*, October, 1937, p. 183) points out that as primary sarcoma of the breast is a rare condition the prognosis following surgical treatment and the biological reaction of these tumours to radium and x rays are still imperfectly known. Malignant connective-tissue tumours of the breast may arise in pre-existing fibroadenoma or may spring from any part of the pectoralis major fascia, the trabeculations of which constitute the supporting septal framework of the breast. The fat, nerve, and underlying muscle may also give rise to sarcomatous neoplasms. Mammary sarcomata constitute only about 1 per cent. of malignant breast lesions. Fifteen cases of primary sarcoma of the breast are analysed and described. Twelve of these are simple, being derived from a single type of connective tissue: three were of the mixed type. Five cases were of the spindle-celled type of fibrosarcoma; two of these arose in fibroadenoma with slow growth until malignant change took place. Of these five patients one is known to be alive and well ten years after the removal of the tumour. Two tumours classified as fibromyxosarcomata showed marked differences in the amount of myxomatous tissue. There were three examples of polymorphous fibrosarcomata which appeared to be rapidly infiltrating tumours. One

The Cause of Acute Rheumatism

Dr. G. ARBOUR STEPHENS (Swansea) writes: Professor McNee is reported on p. 1089 of the *Journal* of November 27, 1937, to have said that none of the hypotheses of the cause of acute rheumatism—streptococci, allergy, or filterable virus—was at all convincing. May I be allowed to draw attention to the last medical report to the Colonial Office in the Falkland Islands, in which, it is stated, there is permanently damp weather with little sunshine, the houses are damp, the soil acid, the food so poor that the school children wear dentures, and septic tonsils full of streptococci are very prevalent. Whilst all the conditions necessary for the streptococci to act are present, yet there are no cases of acute rheumatism. Does not this dispose of the streptococcal theory? My belief is that acute rheumatism occurs in children of the "acid class" (whose pH is increased), the determining factor being a protozoon carried by an insect such as harvest bug, midge, or flea. On the Islands it is obvious the children are of the "acid class," but there are no insects, no fleas, bugs, or midges to bite these children, and so no protozoal parasite is carried.

The Care of the Hypodermic Syringe

No one will deny that the hypodermic syringe is one of the most important weapons in the doctor's armamentarium. Some may even think that its use is so thoroughly understood that it is a work of supererogation to discuss it. There are, however, a few points in its management which will bear emphasizing, even to a generation which is so familiar with its employment. It would be superfluous to labour the need for absolute asepsis, a lesson of the medical student's cradle. That this lesson has been thoroughly learned is proved by the rarity of sepsis as a result of hypodermic medication. The next point is the advisability of causing the minimum of pain. Patients do not like being hurt, and here two considerations must be borne in mind. The needle must be the finest possible and irreproachably sharp. It is not very difficult to keep a needle sharp provided that care is taken not to boil it for long periods. Needles must be boiled, but they should only be immersed for a few seconds at a time. In these days it is more expensive to have needles resharpened than to buy new ones, which luckily are quite cheap, and if there is an extravagance which is pardonable on the part of a doctor it is in keeping himself well supplied with hypodermic needles of blameless acuity. Oily and viscous solutions, which are not readily drawn up into a narrow tube, often have to be injected through a needle of fine bore. But when such a solution is once introduced into the barrel of the syringe it can be forced out through a comparatively fine needle if sufficient finger pressure is supplied to the piston. For this reason it is often advisable for filling purposes to detach the needle, dip into the oily solution the glass nozzle, and draw the oil straight up into the barrel; after which the needle can be replaced and the desired dose administered through it. But care must be taken in doing this to hold the base of the needle with the finger and thumb firmly against the glass nozzle so that the firm pressure needed to force the oil through the narrow metal tube does not cause it to part company with the barrel, thus wasting the contents. From time to time one hears of cases where the needle breaks off and the distal portion becomes buried under the patient's skin. This accident, which has been known to lead to legal proceedings, is not really difficult to avoid. Fracture of the needle always takes place at its junction to the base. This is where corrosion is liable to set in, and is another argument for never using the same needle too long and too often; but in any case the danger of burying the needle in the patient can always be avoided by taking care not to plunge it in right up to the hilt. Provided this precaution is taken, even if the needle should break there will be a projecting portion, which can easily be grasped and drawn out. As regards the care of the glass barrel of the hypodermic syringe, the chief risk to its integrity occurs during the frequent boilings to which it must be subjected. The risk becomes much increased in the case of large syringes such as are used more and more nowadays for intravenous injections. Heat-resisting glass has been introduced for this reason, but syringes constructed of this material are much more expensive than others, and the life of ordinary glass barrels is much prolonged if care be taken to keep them from resting on the bottom of the sterilizer. Everyone knows that the barrel should never be boiled with the piston *in situ*, and it is a good plan to

support the barrel, and the piston also if made of glass, in the metal frame invariably supplied by the makers for holding them in their case. This ensures that the whole barrel is heated evenly and does not bump on the bottom of the sterilizer. It need hardly be said that the barrel of the syringe should be carefully cleaned every time it is used, but this is not always quite easy. Some of the solutions and emulsions for which it may be employed are liable to leave adherent deposits behind them. A great deal can be done with a pledget of cotton-wool grasped in a pair of fine forceps, but even this is not always adequate to remove the last traces of a mercurial or bismuth cream. In such cases an effectual cleansing may usually be obtained by passing either benzine or petrol through the syringe, afterwards removing all traces of it with methylated spirit.

Infection from Fresh-water Molluscs

Dr. F. GORDON CAWSTON writes from Durban, South Africa: The occasional reports of human infestation with trematodes and the regretted death of a conchologist from carcinoma of the liver suggests that more use be made of the eosinophil count in persons who handle fresh-water molluscs, and are thus liable to attacks of free-swimming cercariae. Ignorant persons, and especially natives, should not be encouraged to handle these molluscan hosts, and, where an obscure disease of the liver occurs in a collector, early attention to the presence of infection may save a parasitic condition from becoming malignant.

Osler in 1877-8

Dr. A. D. WEBSTER (Edinburgh) writes: The note on "Osler's First Appearance in Print" in the *Journal* of November 20, 1937 (p. 1026), prompts me to send the following reminiscence. Osler was professor of physiology in McGill University, Montreal. His habit was to invite the class to come at 8 p.m. to the General Hospital mortuary to follow up any particular case in his wards that had died. He was at that time particularly interested in pernicious anaemia, and of cases of these he examined every organ of every system. The very old basement room is fixed on my memory. He would work to the end and we would preserve the parts of the various tissues that he would examine later. How he toiled hour after hour—all of us nearly frozen; sometimes the hours went on beyond twelve before he would be satisfied. I see him now, his hands in the body and asking one of us to use his handkerchief for him, he hardly raising his head from his work. Such was dear Osler in those early days of his career.

Convalescent Homes for the Poor

A short sixpenny history of the Metropolitan Convalescent Institution (14, Victoria Street, S.W.1) has been compiled by an anonymous authoress. The Institution was founded nearly a hundred years ago by Theodore Monro, a promising young St. Bartholomew's physician, who died at the age of 24. He was making his round at the hospital when he was touched by the distress of a woman who was about to be discharged to her slum dwelling, with no means of getting the country air which the doctors said was necessary to complete her recovery. Thereupon he summoned a meeting in Wigmore Street, and the movement was started for providing homes wherein convalescent care for the Institution has well-equipped and pleasant homes at Walton-on-Thames, Bexhill, Broadstairs, and elsewhere, and since its foundation 400,000 men, women, and children have enjoyed the benefit of such provision. The story of this modest, unpretentious work was well worth recording.

Disclaimer

Dr. MICHAEL ELYAN writes: The use of my name in the public press in connexion with a letter published in last week's *British Medical Journal* was without my consent.

Corrigenda

A strange blunder crept into an annotation on Robin and John Adair on December 25 last. In speaking of General Wolfe we referred to his death "on the Plains of Abraham outside Montreal." As all the world should know, the Plains of Abraham lie close to the city of Quebec. Our notice of Dr. John Rickman's *General Selection from the Works of Sigmund Freud* (January 15, p. 125) gave the name of the publishers incorrectly. The book is published by the Institute of Psycho-Analysis and the Hogarth Press.

Anaesthesia

72

Anaesthesia in Cerebral Surgery

G. KAYE (*Austral. New Zeal. J. Surg.*, October, 1937, p. 134) discusses at length the problem of anaesthesia in cerebral surgery, and emphasizes the importance of team work. His conclusions are based on seventy-seven operations on sixty-three patients, in which most varieties of anaesthesia were used. Chloroform only appears twice, as a supplement to local anaesthesia, being found too depressing for general use. Gas and oxygen by endotracheal inhalation (Magill) is favoured, and has latterly tended even to replace local anaesthesia, which may be unacceptable in the lengthy modern operations, and which is undesirable for children. Should general anaesthesia be required at all it is best given from the first, since induction during operation may lead to difficulties. The endotracheal route ensures a free airway at all times, and allows adequate artificial respiration in the event of serious collapse. Any tendency to anoxaemia is dangerous and leads to shock; therefore the oxygen percentage must be kept as high as possible throughout. The anaesthetist should carry out a complete preliminary examination, assess the risk, and order the premedication. The latter presents difficulties, due to the uncertainty of response and the need for avoiding undue depression. Generally, before local anaesthesia morphine grain 1/6 to 1/4 proved most satisfactory, with hyoscine grain 1/200 to 1/150. Before giving gas and oxygen, morphine grain 1/6 to 1/4 was used, with 1½ grains of nembutal orally in nervous persons. During operation shock should be avoided as far as possible by maintaining warmth, careful haemostasis, a free airway, and an adequate oxygen supply. Close observation for the early detection of shock, as indicated by a systolic blood pressure of less than 80 mm. Hg or a diastolic pressure of less than 60 mm. Hg for longer than twenty minutes, is ensured by recording and charting the pulse and respiration rates, systolic and diastolic pressures, and general condition every five minutes. The behaviour of the pulse rate cannot be relied on in estimating shock, as in general surgery, for in the presence of a falling blood pressure it may rise, fall, or remain unaltered. Shock is most commonly due to haemorrhage, and its treatment is suspension of the operation, if possible, pending transfusion with saline, or blood when available, up to one pint. Drugs were generally of little value, though pituitrin and coramine were occasionally useful in emergencies. A remarkable feature of this form of surgery is the way in which the most profound degrees of collapse may be tided over by early and adequate treatment and the operation successfully terminated.

73

Local and Intravenous Anaesthesia

P. FELDWEIG (*Schmerz Narkose-anaesth.*, October, 1937, p. 104) claims that the adoption of local anaesthesia has materially diminished post-operative mortality and morbidity in the Pforzheim Women's Hospital, where previously anaesthesia by means of punction followed by ether had been the routine. Many operations, notably Caesarean sections, can be carried out with local infiltration alone; where further anaesthesia is required small amounts of evipan or eunarcon are given intravenously. The author shows that in one and a half years of administering ether anaesthesia the total operative mortality was 2.4 per cent., and in two and a half years in which local anaesthesia was the routine only 0.8 per cent. Considering laparotomies alone, during these periods the mortality of 192 cases anaesthetized with ether was 5.5 per cent.; of 198 under local anaesthesia (139 Caesarean sections), nil; and of 271 under local with intravenous anaesthesia 2.2 per cent. He claims that the most valuable prophylactic against thrombosis and embolism is immediate standing and walking after operation, and holds that

the longer or more severe the operation and the worse the patient's condition the more important is it that she should walk at least a few steps immediately afterwards. The doses of evipan, etc., are therefore kept as small as possible. Of about 400 patients who underwent laparotomies and were kept in bed, four died of embolus, but there were no deaths from this cause among the last 250, who were made to walk at once.

74

Closed Circuit Gas-Oxygen Anaesthesia

J. DEMIRLEAU and T. COSTET (*Anaesth. et Analgés.*, November, 1937, p. 442) report enthusiastically upon nitrous oxide and oxygen given in closed circuit with carbon dioxide absorption, after an experience of 164 cases of diverse character. They use a Foregger machine, and in 20 per cent. of cases intubate the larynx, the endotracheal tube having an inflatable cuff to exclude air. Ninety-six cases without intubation needed on an average 4½ drachms of ether: twenty-seven with intubation required an average of 9½ drachms. Soneryl by mouth and morphine and scopolamine are given as premedication, while very nervous patients are induced in bed with evipan. During operation the pulse, blood pressure, respiration, and general condition are observed and charted every five minutes. The advantages of the method are the pleasant induction and recovery, with few after-effects; smooth anaesthesia with quiet breathing; conservation of warmth and water vapour; absence of shock; and, with intubation, safe control of the airway. The method is also economical. The authors enumerate and refute the various objections which have been brought against gas-oxygen anaesthesia.

75

Spinal and Intravenous Anaesthesia

R. JARMAN (*Brit. J. Anaesth.*, October, 1937, p. 20) considers that all patients should be rendered unconscious before spinal anaesthesia, for their comfort and for the prevention of psychic shock, and should be kept so throughout the operation. The technique he recommends is as follows: (1) omnopon grain 1, 3 with scopolamine grain 1/150 is given one hour before operation; (2) pentothal sodium 10 c.cm. of a 5 per cent. solution is administered intravenously while the patient is still in bed; (3) 10 to 14 c.cm. of a 1 in 1,500 solution of percaine at body heat is injected intrathecally in the second or third lumbar space, with the patient in the sitting position (Etherington Wilson). The actual injection should take twenty seconds, and the level of anaesthesia depends on the length of time the patient is subsequently kept upright: twenty-five seconds gives anaesthesia to the level of the pubes, thirty-five to the umbilicus, and forty-five to the epigastrium. For chest operations eighty seconds or even more may be needed. After the correct time has elapsed the patient is placed flat, the table tilted 15 degrees, and the operation may be begun. The author claims an entire absence of post-operative headache or backache with this method.

76

Analgesia and Anaesthesia in Obstetrics

W. BOURNE (*N.Y. St. J. Med.*, November 15, 1937, p. 1905) discusses analgesia in labour and briefly reviews the methods in use. In the early stages he favours pentothal orally, as it is free from toxic effects, shortens the duration of labour, and does not cause restlessness or excitability. A dose of 4 grains, to which may be added 1/150 to 1/100 grain of hyoscine, is given at the onset of labour, followed by 2 or 3 grains of pentothal every half to one hour as required. Later he favours intermittent gas and oxygen, if skilled assistance is available, but he condemns all methods of self-administration and warns against the dangers of anoxaemia. Cyclopropane is preferable to nitrous oxide on account of the abundant oxygen available, and is always desirable in the terminal

patient died from lung metastases six months after the removal of a small tumour. There was one case of a neurogenic sarcoma and one of a rhabdomyosarcoma; in the latter case the course was rapid, metastases developing in the lungs, intestine, liver, and lymph nodes. Of the three patients with complex tumours one with a chondromyxofibrosarcoma died within six months of a biopsy of the breast, but another with an osteochondrofibrosarcoma is alive and well two years after a simple mastectomy. In a third case, diagnosed as carcinosarcoma, death occurred five days after operation from cardiac failure. It is seen that these sarcomata are in general very malignant, but the degree of malignancy varies greatly with the type of tumour.

67 Operative Treatment of Fractured Patella

K. MEISSNER (*Zbl. Chir.*, November 20, 1937, p. 2685) states that from 1926 to 1935 ninety-one fresh cases of fractured patella were treated in Böhler's clinic in Vienna. He believes that all cases of fractured patella with separation of the fragments require operation. Conservative treatment is reserved for those without separation, for its application in cases showing some degree of separation is always attended by some loss of function. Meissner was able to follow up thirty-one cases on which operation was performed. All ages from 10 to 80 years were represented. He is of the opinion that operation may and should be performed at any age provided that the patient is in good condition. He describes in detail the case of a man of 77 with separation of the fractured fragments of the patella in which operation was completely successful.

68 Gangrene of the Scrotum

A. E. GOLDSTEIN and B. M. JAFFE (*Urol. cutan. Rev.*, November, 1937, p. 779), who record two personal cases and review the literature, state that this uncommon condition was first described by Boerhave in 1753, in a man aged 40, following retention of urine. Its cardinal features are: (1) sudden onset in apparent health; (2) rapid development of the mortification; (3) apparently total absence of any of the usual causes of gangrene. Gangrene of the scrotum and penis occurs with no particular predilection for any age. The authors' two cases occurred in men aged 56 and 63. The first patient died suddenly a week after excision of the right testicle and part of the cord, and the second patient, a diabetic, made a complete recovery after excision of the gangrenous tissue.

69 Danger of Urethral Instillations of Oil

T. KATZ-GALATZI (*J. Urol. méd.-chir.*, October, 1937, p. 300) points out the danger which may result from the practice of injecting oil under pressure into the urethra in cases of stricture or other conditions. There is always a possibility that the oil may pass into the general circulation and form an oil embolus, with fatal results. In modern urethrography iodopine or lipiodol is the oily substance most commonly used. It is urged that the introduction of these substances into the urethra has been known to cause a fatal embolus during such an examination, and several instances are quoted in which the opaque fluid has penetrated into the veins. The essentials demanded of a fluid to be used for urethrography are that it shall be sufficiently opaque, non-toxic, non-irritant, of a stable composition, and that it may be easily sterilized. It has been found as the result of a study of some hundreds of cases that solutions of uroselectan (30 per cent.) and of thorotrast have proved most satisfactory as regards opacity and are not accompanied by the dangers which attend the use of lipiodol or other oily substances. Three cases are fully described in which urethrography was carried out, and although the liquid was seen to penetrate into the veins there were no ill effects of any kind.

Therapeutics

70 High Altitude Treatment of Asthma

U. CARLBORG (*Hygiea*, Stockh., August 31, 1937, p. 600) has undertaken a study of the 518 asthmatics who, in the period 1923 to 1933 were given institutional treatment at about 450 metres above sea-level, under the Swedish national health insurance scheme. To qualify for high altitude treatment the patients had to be considered capable of obtaining permanent improvement from it, and a certain economic level was imposed above which insured asthmatics could not receive this treatment. The age limits were between 5 and 55, and active pulmonary tuberculosis disqualified for treatment. A geographical study of the homes whence the patients, recruited from the whole of Sweden, came showed that low-lying and damp areas yielded a particularly high number of cases. The males represented 61 per cent. of the total, and the age incidence was highest between 15 and 25. The number of patients over 45 was comparatively small. There was a family history of asthma in about 20 per cent., of neurosis or psychosis in about 15 per cent., and of pulmonary tuberculosis in about 15 per cent. The asthma had begun before the age of 9 in 35 per cent., and before the age of 15 in every other case. It was very rare for the asthma to begin after 45. In about 50 per cent. a protracted attack of bronchitis was credited with starting the asthma, which in twelve cases had begun in connexion with pneumonia; and in nineteen with whooping-cough. Throughout the institutional treatment, or with the exception of the first few days, about 70 per cent. of the patients were completely free from attacks, and only in about 4 per cent. was no benefit obtained. An intermediate group was represented by the patients who became fit for work but were still subject to slight and occasional attacks. The group of twenty-one refractory cases included most of the eight patients with aspirin idiosyncrasy, and in this connexion the author notes that Storm van Leeuwen has also found that the asthmatic who is sensitive to drugs such as aspirin is apt to prove refractory to any and every treatment. The author's study did not include a follow-up investigation of the patients after the high altitude treatment ceased.

71 X-Ray Treatment of Leukaemia

F. BARDCHZI and P. MLEJNECKY (*Münch. med. Wschr.*, October 29, 1937, p. 1737) discuss the x-ray treatment of leukaemia. They base their experience on the observation of thirty cases of chronic myeloid leukaemia and twenty-five cases of chronic lymphatic leukaemia. They consider the acute myeloid leukaemia as somewhat akin to certain forms of septicaemia. For this acute leukaemia radiotherapy is useless; it does not even delay the early fatal end. But both myeloid and lymphatic leukaemia are favourably influenced by irradiation of the spleen, and in the case of lymphatic leukaemia the glands also. The authors begin the treatment with small doses of 20 to 30 r units, and increase the dose gradually according to the reaction of the patient. In some cases it may be necessary to increase the dose to 60, 120, or even 240 r units. The course of treatment is usually completed within three to six weeks. By that time the spleen should have shrunk to almost normal size, and the number of white blood cells should have been reduced to about 15,000. The authors do not aim at inducing a leucopenia. In case of recurrence the second course should be postponed for at least six to twelve months. In the later stages of the disease, when the leukaemic tissue has infiltrated the internal organs, the authors recommend the irradiation of the whole body with small doses of x rays. They believe that radiotherapy cautiously carried out not only makes the patient comfortable but actually prolongs life by months or possibly even years.

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Obstetrics and Gynaecology

77

Alexander-Adams Operation

U. MASSARI (*Arch. Ostet. Ginec.*, September-October, 1937, p. 427) summarizes from the literature 2,100 cases of mobile retroversion of the uterus treated by the operation of Alexander and Adams, with about 6 per cent. only of recurrences. He further records 113 cases operated on at Siena from 1929 to 1936; no recurrence had been observed within one to eight years of operation among the sixty-one patients who could be traced. Nine of them had conceived, gone to term, and had uncomplicated labours. He concludes that the Alexander-Adams operation is the best among round ligament operations, and that no advantage is to be gained from making the procedure intraperitoneal. The removal of the distal end of the ligament, which has been proved to be the weakest, is of undoubted advantage. The last of several separate sutures to the external oblique aponeurosis should include the pillars of the external abdominal ring and give firm fixation to the symphysis pubis.

78

Early Diagnosis of Pregnancy

A. STÁBILE and C. BECH-MORELLI (*Arch. Uruguay. Med.*, October, 1937, p. 393) mention two methods for the early diagnosis of pregnancy: (1) Bercovitz's pupillary reaction, and (2) Gilfillen and Gregg's intradermal pregnancy reaction. The pupillary reaction consists in anisocoria (usually miosis) after instillation of two drops of citrated blood into the conjunctival sac of one eye (1 c.cm. of the patient's blood is mixed with 0.2 c.cm. of a 10 per cent. solution of sodium citrate). The authors state that they have not had sufficient experience of this reaction to express any definite opinion. Gilfillen and Gregg's reaction consists in the intradermal injection of two or three drops of an extract of the anterior pituitary (gonadotropic hormone) into the skin of the anterior aspect of the forearm. The theory on which the reaction is based is that when the skin is already overloaded with gonadotropic hormone, as in pregnancy, the effect of the injection is negative, whereas in the absence of any such hormone in the skin the injection gives rise to a papule which rapidly increases in size and is surrounded by an erythematous zone. The reaction usually makes its appearance about a quarter of an hour after injection and persists for about one hour. The authors state that though some workers have apparently obtained a very high percentage of successes with this reaction, their own results in ninety-five cases were far from successful. They consider that this particular reaction has not yet advanced beyond the experimental stage, and cannot take the place of the Aschheim-Zondek and Friedman reactions in the diagnosis of pregnancy.

Pathology

79 Antiscorbutic Limitations of Synthetic Ascorbic Acid

A. ELMBY and E. WARBURG (*Ugeskr. Laeg.*, October 28, 1937, p. 1141) have investigated the reaction to a daily dosage of 300 mg. of ascorbic acid in twenty-nine patients showing a haemorrhagic diathesis (revealed by Göthlin's capillary test) and a low ascorbic acid content of the serum (Lund and Lieck test). After ten days of this treatment the haemorrhagic reaction of Göthlin was no longer demonstrable, and the ascorbic acid content of the serum was

restored to normal in twenty-six cases. In the remaining three cases no such improvement was observed, even when the oral administration of ascorbic acid was followed by the intravenous injection of 300 mg. of ascorbic acid daily for ten successive days. But when the three patients were given the juice of ten lemons daily for ten days the response was rapid. A characteristic feature of all three cases was intestinal disease which had lasted for several years. After giving details of these three cases the authors conclude that the absorption and retention of ascorbic acid require the presence in the body of a substance, a co-vitamin, which is evidently present in lemons and perhaps in small quantities in other articles of food, but is absorbed with difficulty by patients suffering from certain intestinal diseases. The authors are now investigating the possibility of this substance being identical with the vitamin P found by Szent-Györgyi.

80

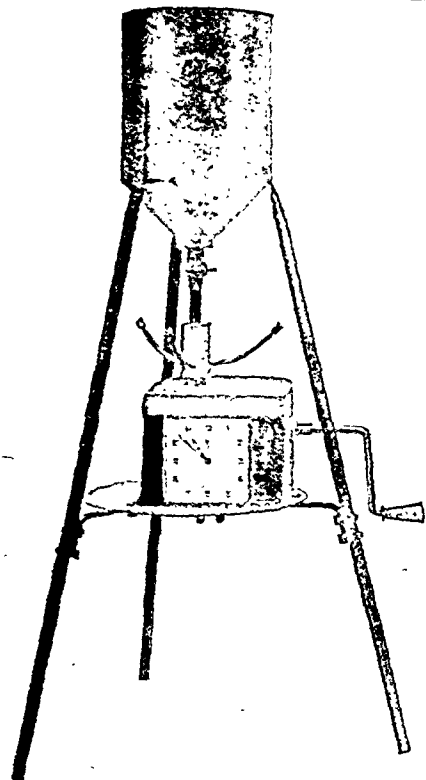
Thyroid Tumours of the Ovary

According to H. O. NEUMANN (*Arch. Gynäk.*, 1937, 163, 3, 600), who has found thyroid tissue in some 10 per cent. of ovarian teratomata, it is possible in the majority of cases to recognize with the naked eye both thyroid and other organized tissues; so-called "pure struma ovarii," consisting solely of thyroid, has been described, but almost certainly after incomplete microscopical examination. Microscopically the same varieties of parenchymatous and colloid goitre are shown by ovarian as by cervical thyroid tissue; microscopical diagnosis is much more reliable than that based on biological tests such as estimation of blood-iodine or the Reid-Hunt reaction. It is exceptional for women bearing thyroid-containing ovarian teratomata to show clinical signs of thyrotoxicosis; four cases have been described, however, in the literature. To these Neumann adds a fifth—that of a woman, aged 27, with a pulse rate of 120, a systolic blood pressure of 170 mm. Hg, tremor, and a 40 per cent. increase in the basal metabolic rate; a cystic ovarian teratoma weighing 880 grammes and containing much solid colloid-containing thyroid tissue was removed. The signs of hyperthyroidism disappeared during convalescence, and pregnancy was not long delayed. Trapl has described a case of compensatory enlargement of the cervical thyroid following a similar operation.

81

Aetiology of Epidemic Hepatitis

T. THUNE ANDERSEN (*Acta med. scand.*, 1937, 93, 1-2, 209) notes that at present Denmark is the only country in which epidemic hepatitis has been made a notifiable disease, and that since 1928 the number and geographical distribution of the cases have been recorded under the national health insurance scheme. The fact that the sickness rate is about eight times greater in the country than it is in Copenhagen suggests that the disease is not spread by contact or droplet infection, but is more likely to be an alimentary infection. Noting that pigs suffer from a form of jaundice which resembles epidemic hepatitis in man, the author has compared the number of jaundiced pigs arriving at the abattoirs between 1930 and 1934 with the outbreaks of epidemic hepatitis in man in the same period. The correlation thus established is, in his opinion, indicative of a causal relationship between the jaundice of pigs and that of man. He suggests that the low sickness rate in Copenhagen and Aarhus is due to the fact that the control of the meat supplies of these two towns is more effective than elsewhere. In support of his opinion that jaundice in pigs is an infectious disease, the author gives an account of his own experiments, in the course of which he has succeeded in transmitting jaundice from one pig to four others, and from two of them to two more by feeding healthy pigs with jaundiced pig's liver. He concludes that veterinary opinion as to jaundice in pigs being a non-infectious disease is incorrect, and that the regulations governing the sale of pork from jaundiced pigs must be made more strict.



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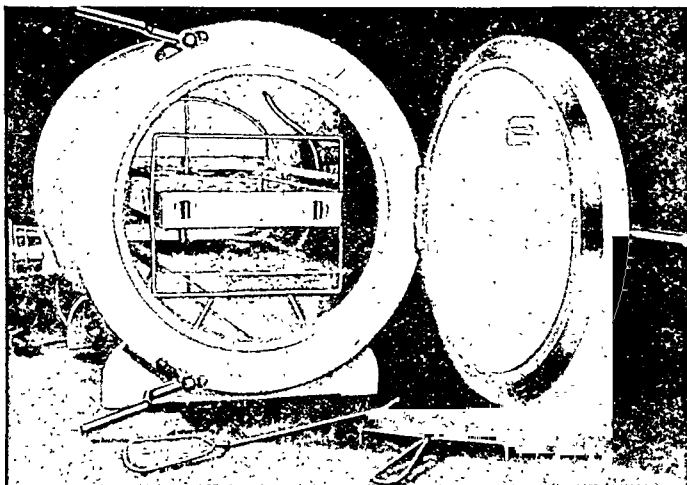
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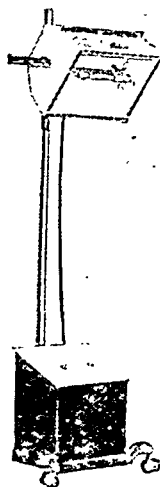
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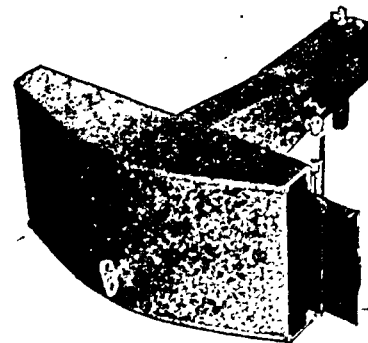
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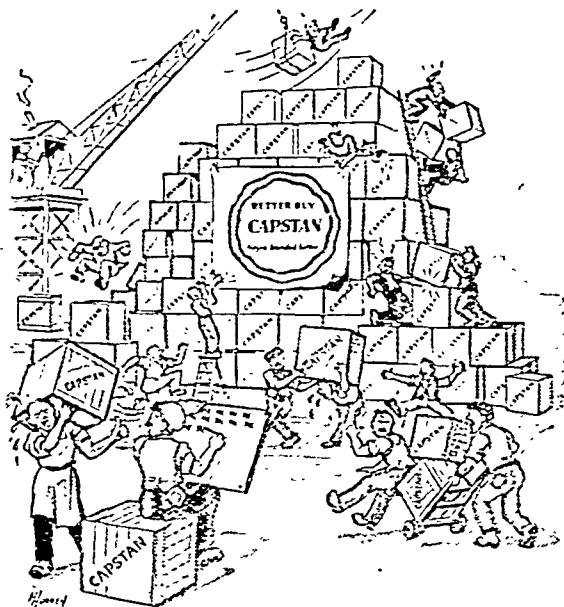
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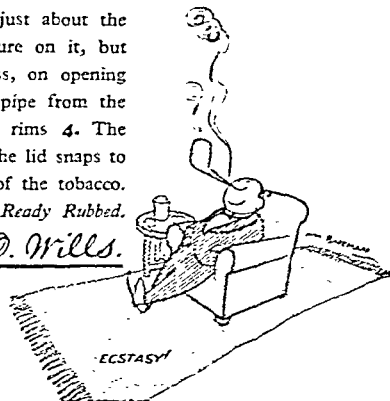


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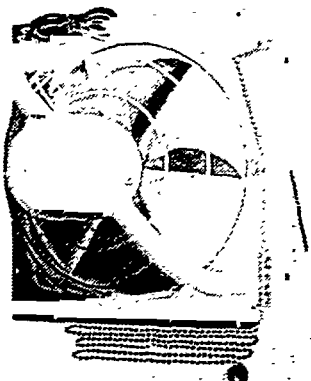
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Statement of Accounts, December 31, 1937

LIABILITIES

	£
Capital paid up	15,152,811
Reserve Fund	12,404,799
Current, Deposit and other Accounts ...	497,796,590
Acceptances and Confirmed Credits ...	12,079,911
Engagements	8,650,035

ASSETS

Coin, Notes and Balances with the Bank of England	53,968,247
Balances with, and Cheques on other Banks	18,700,856
Money at Call and Short Notice	25,449,442
Investments at or under market value...	117,386,191
Bills Discounted	30,625,876
British Treasury Bills	52,532,678
Advances to Customers and other Accounts	208,198,218
Liabilities of Customers-for Acceptances, Confirmed Credits and Engagements	20,729,946
Bank Premises at Head Office and Branches	8,837,516
Other Properties and work in progress for extension of the business	843,533
Shares in Yorkshire Penny Bank Ltd.	937,500
Capital, Reserve and Undivided Profits of:	
Belfast Banking Co. Ltd.	1,755,707
The Clydesdale Bank Ltd.	3,141,173
North of Scotland Bank Ltd.	2,540,326
Midland Bank Executor and Trustee Co. Ltd.	436,537

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S. Railway Station at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 300 acres. Voluntary Patients of both sexes are also received for treatment. Special accommodation for Lady Voluntary Patients is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the Main Hospital. For particulars as to terms, etc., apply to—G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M., Medical Supt.

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Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm gardens and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness. Voluntary Patients, Temporary Patients, and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician.

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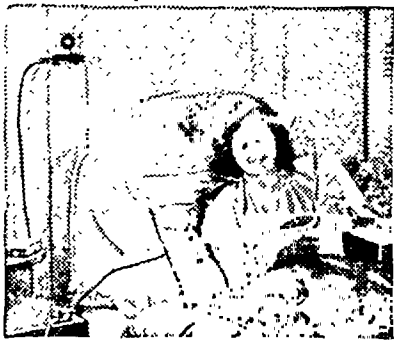
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Including Alcoholism and other Addictions

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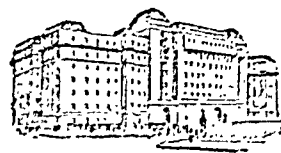
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Drugs and Dressings free (other than Proprietary Articles).
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BRITISH POSTGRADUATE MEDICAL SCHOOL

DEPARTMENT OF PATHOLOGY

A Course of Three Lectures on
**NEURO-PATHOLOGY: THE REACTION
OF NERVOUS TISSUES TO DISEASE**

will be given by

Dr. J. G. GREENFIELD, M.D., F.R.C.P.,

on

**FEBRUARY 2nd, 9th & 16th, 1938, at
4.30 p.m.**

DEPARTMENT OF SURGERY

A Course of Three Lectures on
**SURGERY OF THE SPINAL CORD
AND PERIPHERAL NERVES**

will be given by

**Prof. LAMBERT ROGERS,
M.Sc., F.R.C.S., F.A.C.S., F.R.A.C.S.,**

on

**FEBRUARY 4th, 11th & 18th, 1938, at
2.30 p.m.**

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

A Course of Four Lectures on

HYGIENE OF NEWBORN CHILD

will be given at 3.30 p.m.

Feb. 3rd. MATERNAL NUTRITION AND THE PRE-NATAL CHILD.

Feb. 10th. GENERAL HYGIENE AND EMERGENCIES, JAUNDICE, HAEMORRHAGE, RESPIRATORY FAILURE.

Feb. 17th. FEEDING OF THE NEWBORN INFANT (Breast and Artificial)

**Feb. 24th. FEEDING OF THE NEWBORN INFANT—
(continued)—Care of the Premature Infant**

**Prof. VERNON MOTTRAM,
M.A.**

**Dr. A. A. MONCRIEFF,
M.D., F.R.C.P.**

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, to medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12.

SOUTH GLOUCESTERSHIRE (M.O.H.) JOINT COMMITTEE.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH

The Joint Committee invite applications for the above appointment from duly qualified and registered Medical Practitioners between the ages of 30 and 50, who, in addition to the qualifications prescribed by any Statute, are also registered in the Medical Register as holding a Diploma in Sanitary Science, Public Health or State Medicine.

The appointment will be subject to the provisions of the Local Government Act, 1933, the Sanitary Officers' (Outside London) Regulations, 1935, and the approval of the Minister of Health.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under the relevant Acts and Orders, and will also be required to carry out such other duties as the Joint Committee may from time to time direct. He will be required to reside in one of the Areas concerned, and to devote his whole time to the duties of the office. He will not be permitted to engage in private practice.

The successful candidate will be required to commence his duties on April 1st, 1938.

The inclusive salary will be £800 per annum, together with a travelling allowance of £100 per annum. All fees receivable in respect of any duties must be paid into the Joint Committee's account.

The post will be designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, in due course. The successful candidate will be required to pass a medical examination and to contribute towards any Superannuation Fund.

The Officer will be required to give three months' notice to terminate the appointment, which will be subject to the provisions of Section 110 of the Local Government Act, 1933.

The constituent Authorities of the Joint Committee consist of the Urban Districts of Kingswood and the Rural Districts of

and the total combined
as follows:
3,160
acres.

Applications, stating qualifications and experience, accompanied by copies of three recent testimonials, must be delivered to the undersigned not later than Tuesday, February 8th, 1938.

Canvassing is prohibited.

Council Offices, E. A. E. STEVENTON,
Kingswood, near Bristol. Clerk.
January 14th, 1938.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.

SCOTTON BANKS SANATORIUM.

Appointment of SENIOR ASSISTANT MEDICAL OFFICER AND DEPUTY MEDICAL SUPERINTENDENT.

The County Council of the West Riding of Yorkshire invite applications from registered medical practitioners (female) for the appointment of Senior Assistant Medical Officer and Deputy Medical Superintendent (resident) at the Scotton Banks Sanatorium, near Knaresborough, for women (100 beds) and children (100 beds).

Candidates should have previously held an appointment as House Physician or House Surgeon, and experience in Pulmonary and Non-pulmonary Tuberculosis and Anaesthetics will be an advantage. Salary £450 per annum, rising by annual increments of £25 to £550 per annum.

Further particulars and forms of application may be had from the undersigned, and applications, together with not more than three recent testimonials, must be sent to me not later than Monday, January 31st, 1938.

County Hall, J. CHARLES McGRATH,
Clerk of the County Council.
January, 1938.

CITY OF SHEFFIELD. CITY GENERAL HOSPITAL.

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men for the appointment of ASSISTANT MEDICAL OFFICER (Grade I) in the above hospital. There are two vacancies.

Candidates should have previous hospital experience and, in addition, for one appointment should have special experience in obstetrics.

For the other appointment special experience in surgery is required.

Salary £350, rising by £25 to £450 per annum, with the usual residential allowances. The medical officers may be required for a time to live outside the hospital, and for this an allowance for subsistence will be paid.

These appointments are designated under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be sent to THE MEDICAL SUPERINTENDENT, City General Hospital, Sheffield, S. 1, on or before January 25th, 1938.

STAFFORDSHIRE COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from fully qualified medical men or women for the post of whole-time Assistant Medical Officer for maternity and child welfare.

Candidates should have had at least three years' experience in the practice of their profession and special experience of practical midwifery and antenatal work subsequent to qualification. It is desirable that applicants should hold the Diploma of Public Health.

The salary will be at the rate of £600 per annum rising by annual increments of £50 to £800 per annum, subject to a deduction of 5 per cent established under the Local Government and Other Officers' Superannuation Act, 1922.

The successful candidate will be required to undergo a medical examination and produce a birth certificate. The appointment will be subject to three calendar months' notice on either side.

Forms of application may be obtained from the undersigned and should be returned by first post on February 3rd, 1938, together with copies of not more than three testimonials.

Candidates must state in their applications whether or not they are related in any way to any member of the County Council.

Canvassing, either directly or indirectly, will be a disqualification.

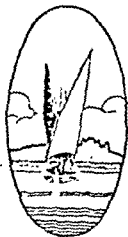
H. L. UNDERWOOD,
Clerk of the County Council.
County Buildings, Stafford.
January 17th, 1938.

HEREFORDSHIRE COUNTY COUNCIL

ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH

The Herefordshire County Council, the Ledbury and Ross-on-Wye Urban, and the Dore and Bredwardine, Ledbury and Ross and Whitechurch Rural, District Councils require a Medical Officer who will act as Assistant County Medical Officer and as Medical Officer of Health for the Areas of the District Councils named.

Salary: £800 per annum, with travelling expenses. Applications on the prescribed form, which may be obtained from the Clerk of the Council, Shirehall, Hereford, must be received by him on or before February 5th, 1938.



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(Near Nyon, on Lake Leman)

Tel.: Nyon 95,926.

Carefully discriminated and graduated treatments of all nervous and mental affections. Happy environment, magnificent country, temperate climate.

Pathopsychological Institute annexe (Pupillography, &c.). Villa for abnormal children

Head Physician: Dr. W. BOVEN, Professor of Psychiatry and Characterology at the University of Lausanne (Consultation Room at Lausanne, by appointment; Tel.: Lausanne 25838.)

Collaborators: Dr. O. Löwenstein, formerly Professor at the University of Bonn, inventor of the pupillographic method
Madame Dr. Calame.

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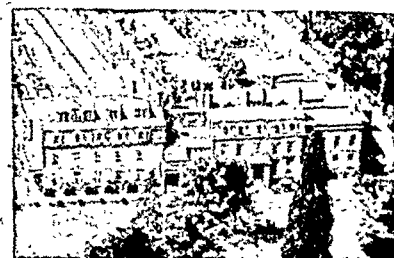
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The well-regulated Diet Department for the supervision of individual diets; the Physiotherapy Departments, including Hydrotherapy, Electrotherapy, Light Therapy, Occupational Therapy in addition to outdoor amusements and the lawns and gardens make The Stanboroughs very desirable for rheumatic and metabolic disturbances, neuroses, and fatigue states.

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Medical Superintendent—

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LONDON HOSPITAL MEDICAL COLLEGE

F.R.C.S.

A COURSE OF INSTRUCTION for the FINAL FELLOWSHIP EXAMINATION will begin on Monday, February 21st, 1938. Fees (exclusive of Operative Surgery), 25 guineas. Operative Surgery, 10 guineas.

Further particulars may be obtained from:
Dr. A. E. Clark-Kennedy, M.D., F.R.C.P., Dean, London Hospital Medical College, Turner Street, London, E.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

LICENCE IN DENTAL SURGERY.

Notice is hereby given that the Examination for the Licence in Dental Surgery will commence on the date stated below.

FINAL PROFESSIONAL EXAMINATION.
Friday, February 18th, 1938.

Candidates who have complied with the necessary requirements, and who desire to present themselves for Examination, must apply in writing to the Examination Hall, 8/11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination.

HORACE H. REW, Director of Examinations

EXPERIENCED COACHING IN PHYSIOLOGY, Pathology, and Medicine, by M.D. Lond. (Hon.), M.R.C.P. Lond., B.Sc., Physiology, Lond. All exams. Claves held.—Address, No 7902, B.M.A. House, Tavistock Square, W.C.1.

SHAFTESBURY HOUSE,

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Mr. Liverpool.

Specially built and licensed for the care and treatment of a limited number of Ladies and Gentlemen suffering from Nervous and Mental breakdown. Voluntary and certified patients received. Ladies also admitted as Temporary Patients without Certification. Terms moderate.

Apply, RESIDENT PHYSICIAN, who may be seen at 31, Rodney Street, Liverpool, by appointment.

Tel.: No. 8 Formby.

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For the treatment of Alcoholism, other Drug Habits, Insomnia, Neurasthenia, Functional Nervous Disorders. Fees 6 to 8 guineas. Special terms for paying guests or long term patients. Billiards and various amusements. Charmingly situated. Under new management with added accommodation. Ladies and gentlemen admitted for treatment. For Prospectus apply to the Medical Superintendent or Matron.

*Phone. Chislehurst 451.

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KINGSWINFORD, STAFFORDSHIRE

An old-established PRIVATE HOME for the care and treatment of Ladies and Gentlemen mentally afflicted. Probationary cases and non-certified patients are received, as well as those regularly certified.

The home is beautifully situated in its own grounds of 40 acres.

Full particulars as to reception terms, etc., may be obtained from the Resident Medical Officer.

THE GRANGE,

near ROTHERHAM.

A HOME licensed for the reception of a limited number of Ladies suffering from Nervous and Mental disorders. Both certified and voluntary patients received. Approved for temporary Patients. This is a large country house, with beautiful grounds and park, five miles from Sheffield. Tel. No. 40010 Ecclesfield Res. Phys.: GILBERT L. MUIR, L.R.C.P., M.R.C.S. Stanion Grange Lane L. & N.E. Ry.

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PRIVATE HOME for the CARE and CURE of ALCOHOLIC PATIENTS (Ladies). Large mansion, beautifully situated in 100 acres of park land. Extensive views. Home farm R.C. Chapel. Under the management of the Sisters of the Good Shepherd. Apply, Rev. Mother. Tel.: Staplehurst 61.

WYE HOUSE, BUXTON

For the treatment of Ladies and Gentlemen mentally afflicted. Voluntary Boarders received. Situated 1,200 ft. above sea-level, facing S. 14 acres of grounds.—For terms, apply to the Resident Medical Sup., W. W. HORTON, M.D. Nat. Tel. 130.

THE GROVE HOUSE,

CHURCH STRETTON, SHROPSHIRE.

A private Home for the care of and treatment of a limited number of Ladies mentally afflicted. Voluntary and Temporary Patients received under the new Mental Treatment Act, 1930.

Medical Superintendent, Dr. MCCLINTOCK

CITY OF LONDON MENTAL HOSPITAL,

DARTFORD, KENT.

Ladies and Gentlemen received for treatment under certificates, and without certification, as either VOLUNTARY or TEMPORARY PATIENTS, at a weekly fee of TWO GUINEAS and upwards.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. Pre-eminent success in education and treatment of "stammering," "speech defects," "Lancet," "Principles," "correct and perfectly" "Gazette."

Stammering, Cleft Palate Speech, Lipping, 3/9 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

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M.S. LONDON. M.C. CANTAB.

and all Higher Surgical Examinations. For particulars of short Intensive Postal and Oral Revision Courses apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1

NORTH-EAST LONDON, POST-GRADUATE COLLEGE.

PRINCE OF WALES'S GENERAL HOSPITAL, N.15.

The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. Browning ALEXANDER, M.D., Dean

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes—H. C. ORRIS, F.R.C.S., Surgeon's Hall, Edinburgh.

IRAQ GOVERNMENT. APPOINTMENT OF BRITISH SURGICAL SPECIALISTS.

The Iraq Government invite applications from British Medical and Surgical Specialists (male) for the following vacant appointments.

1. OBSTETRICIAN AND GYNAECOLOGIST.

Duties: To be Professor of Obstetrics and Gynaecology in the Royal College of Medicine, Bagdad, and Chief of the Unit of Obstetrics and Gynaecology in the Royal Hospital, Bagdad.

Salary: Iraq Dinars 150 per mensem.

2. EAR, NOSE, AND THROAT SPECIALIST.

Duties: To be Lecturer on Ear, Nose, and Throat diseases in the Royal College of Medicine, Bagdad, and Chief of one of the Units for these diseases at the Royal Hospital, Bagdad.

Salary: Iraq Dinars 120 per mensem. In special circumstances if it is considered that the candidate's qualifications and experience justify it a salary in excess of this amount, but not exceeding 150 Dinars per mensem, may be granted.

3. GENERAL SURGICAL SPECIALIST.

Duties: To act as Surgical Specialist in any hospital of the Iraq Health Service as required and to assist in the teaching of Surgery in the Royal College of Medicine, Bagdad, if required.

Salary: Iraq Dinars 120 per mensem.

Candidates must be experienced in operative work and must hold a Specialist's diploma in their branch of work, such as F.R.C.S., M.C.O.G., or D.L.O.

Age must not exceed 45 years. Successful candidates will be required to enter into contracts for a period of five years. Consultant practice is allowed provided that it does not interfere with the performance of official duties. The teaching at the Medical College is in the English language.

One Iraq Dinar is equivalent to one Pound Sterling. Salaries will be subject to Iraq Income Tax which is:—150 dinars exempt, the next 150 dinars subject to 6% tax, and the remainder of the income 9%.

Forms of application and copies of the Form of Contract can be obtained from the Iraq Minister, the Royal Iraq Legation, 22, Queen's Gate, London, S.W. 7. Particulars as to the Provident Fund, leave, and passage allowances are given in the Form of Contract.

No application can be considered unless received *on the prescribed form* not later than February 18th.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

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DENTAL EXAMINATION?

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PRINCIPAL CONTENTS:

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gical Examinations.

The M.R.C.P.

The D.P.H. and how to obtain it.

The Diploma in Tropical Medicine.

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The Diploma in Ophthalmology.

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Do not fail to get a copy of this Book
before commencing preparation for any
Examination. It contains a large
amount of valuable information.
Dental Examinations in special dental
guide.

Send for your copy now!

The Secretary.

MEDICAL CORRESPONDENCE COLLEGE,

19, Welbeck Street, Cavendish Square,
London, W.1.

Sir,—Please send me a copy of your "Guide
to Medical Examinations" by return.

Name

Address.....

Examination in }
which interested }

AUCKLAND HOSPITAL BOARD. NEW ZEALAND.

THE AUCKLAND HOSPITAL BOARD INVITES
APPLICATIONS FOR THE FOLLOWING
POSTS:

1 RADIOTHERAPIST (X-Ray Therapy and
Radium).

The successful candidate will be required to
take full control of the Therapy Section of the
Radiological Department.

The appointment is whole-time.
Salary will commence at £1,000 per annum, rising
by annual increments of £100 to £1,200 per annum.

2 RADIOLOGIST (Diagnosis)
To take full charge of the Diagnostic Section
of the Radiological Department.

The appointment is whole-time.
Salary will commence at £1,000 per annum, rising
by annual increments of £100 to £1,200 per annum.

Preference will be given to candidates possessing
the D.M.R.E. or equivalent qualification.

Full information and forms of application may
be obtained at the office of the High Commissioner
of New Zealand, 415, Strand, London, W.C.2.

H. A. SOMMERVILLE.

Secretary.

Auckland, New Zealand.

December 9th, 1937

UNIVERSITY EXAMINATION POSTAL INSTITUTION

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M.S.(Lond.).	1901-36 (including 4 Gold Medallists)	24
M.B., B.S.(Lond.).	Final 1918-36 (Completed Exam.)	251
F.R.C.S.(Eng.).	Primary 188 Final 183	
M.R.C.P.(Lond.).	1919-36	270
D.P.H.	(Various) 1906-36 (Completed Exam.)	342
F.R.C.S.(Edin.).	1918-36	63
M.R.C.S., L.R.C.P.	Final 1919-36 (Completed Exam.)	587
M.D.	Various. By Thesis	Many successes

Preparation for the above, also for Medical
Preliminary, and all examinations leading up
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versities, also for M.R.C.P.(Edin.), D.P.M.,
D.O.M.S., D.T.M. & H., D.L.O., D.C.H. D.A.,
D.M.R.E., M.M.S.A., L.M.S.S.A., D.C.O.G. and
some exams. of Dominions Universities.

ORAL CLASSES

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Tutors, etc., on application to the Principal, 17,
Red Lion Sq., London W.C.1 (Telephone:
Holborn 6313.)

UNIVERSITY OF CAPE TOWN.

SENIOR ASSISTANT IN ANATOMY.

The University of Cape Town invites applications
for the post of Senior Assistant in the Department
of Anatomy; salary £800 per annum, rising by
annual increments of £25 to a maximum of £900
per annum.

Candidates must hold a medical qualification and
should have had previous teaching experience. The
successful candidate will be expected to undertake
research work in addition to his teaching duties.
Ability to teach in both official languages (English
and Afrikaans) will be a recommendation.

Applications must reach the Secretary, Office of
the High Commissioner for the Union of South
Africa, South Africa House, Trafalgar Square,
London, W.C.2 (from whom forms of application
(quadruplicate) and a memorandum giving the
conditions of appointment may be obtained), not
later than February 15th, 1938. Applicants, in
addition to submitting copies of testimonials, must
give the names of three referees, and must state the
earliest date on which they would be able to
assume duty.

UNIVERSITY OF ABERDEEN.

LECTURESHIP IN BACTERIOLOGY.

The University Court will shortly proceed to the
appointment of a Lecturer in Bacteriology in the
University of Aberdeen.

The salary proposed is £500 to £600 according
to qualifications and experience.

Persons desirous of being considered for the
office are requested to lodge their names with the
Secretary to the University on or before February
18th, 1938.

The conditions of appointment and form of
application may be obtained from the undersigned.
H. J. BUTCHART.

Secretary to the University of Aberdeen

The University, Aberdeen.

ADVICE ON THE CHOICE OF SUITABLE SCHOOLS AND TUTORS

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of charge to parents stating age of pupil, dis-
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APPOINTMENT OF SENIOR RESIDENT
MEDICAL OFFICER.

Applications are invited from qualified Registered
Medical Practitioners for the above-mentioned post.
The salary attached to this position, which is whole-
time, is at the rate of £600 per annum, plus free
house, water, light and sanitation. A double-
storied dwelling-house is shortly to be erected in
which the successful applicant will be required to
reside, but pending its completion he will be
allowed an amount of £10 per month in lieu of
quarters and incidental costs.

The successful applicant is to assume duty on
July 1st, 1938, and to enter into contract of service
for three years (which may be renewed), the first
year to be on probation.

The Hospital has 154 beds (22 European, 132
Native), but this accommodation will be increased by
approximately 60 beds in the near future. Duties
include assisting at operations, anaesthetics, radiology,
the general ward work of a resident medical
officer, lecturing to nurses, and the general super-
intendence of the whole Hospital.

Applicants to state full particulars of:

(1) Their Medical and, in particular, Radiological
and Surgical experience.

(2) Nationality, age, and whether married or
single.

(3) Whether fully conversant with both English
and Afrikaans

Applications, with copies of three recent testi-
monials and health certificate, must be lodged with
the undersigned not later than noon on March 15th,
1938.

Umtata, C. E. DEVAN,
Cape Province, South Africa. Secretary.

GOVERNMENT OF BAHRAIN. PERSIAN GULF.

Qualified doctor required as GOVERNMENT
MEDICAL OFFICER to take charge of new
hospital, medical and surgical, village dispensaries
and public health.

Age between 30-40, British born.

Initial salary Rs. 1,400 per month, rising by
bi-annual increments of Rs. 50 per month to
Rs. 1,800 per month. (One rupee = 1s. 6d.)

Provident fund Rs. 150 per month. Agreement
in first place for five years. Leave after every
two years' service at rate of 45 days for each
year's service. Free passage on joining and once
in every four years when proceeding on leave.
Free furnished house and car.

Applications accompanied by copies of three
testimonials to be sent by Air Mail to THE
ADVISER, Bahrain Government, Bahrain, Persian
Gulf.

COUNTY OF THE CITY OF WORCESTER

ASSISTANT MEDICAL OFFICER (Female)

Applications are invited for the above appoint-
ment from women of not more than 35 years of
age, who are duly qualified Medical Practitioners
holding a Diploma in Public Health. The duties
will include work under the School Medical Service
and the Maternity and Child Welfare Service, and
experience in this work is desirable. Special ex-
perience in refraction and ante-natal work will be
an advantage.

The Officer appointed will work under the
direction of the Medical Officer of Health, and will
be required to assist him in other duties as directed.
The salary offered is £500, rising by annual in-
crements of £25 to £700, and the post is designated
for purposes of Superannuation.

Further particulars and a form of application
may be obtained from the Medical Officer of
Health, to whom applications should be returned
not later than January 29th.

Canvassing, directly or indirectly, will be a
disqualification.

Guildhall, C. H. DIGBY-SEYMOUR,
Worcester. Town Clerk.
January 11th, 1938.

MIDLAND HOSPITAL, EASY ROW, Birmingham. (50 Beds.)

Applications are invited for the post of HOUSE
SURGEON. Duties to commence immediately.
Salary £200 per annum, with board, residence, and
laundry. Applications, stating when at liberty, etc.,
and qualifications, together with copies of recent
testimonials, to be addressed to the undersigned.

OLIVE FURNEUX,
Secretary

BURY INFIRMARY (LANCS) (127 Beds)

APPOINTMENT OF CASUALTY OFFICER (male).

A vacancy, at above, arises on the Resident Medical Staff about the end of February, and applications are invited for the post.

The Resident Staff consists of an R.S.O., a House Surgeon, a House Physician, and a Casualty Officer.

In addition to his duties in the Casualty Department, the Casualty Officer is also responsible for the In-patient and Out-patient work in connection with the Eye and Ear, Nose and Throat Department.

The appointment is for six months at a salary at the rate of £150 per annum, with board, residence and laundry, and the successful candidate will be expected to commence duties on or about February 26th.

Applications, stating age, qualifications and nationality, together with copies of three recent testimonials, are to be forwarded to the undersigned as soon as possible, endorsed "Casualty Officer." Further particulars may be had on application.

H. WILKINSON,
Superintendent.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds)

Applications are invited for the following Resident (male) posts for the six months commencing April 1st, 1938:

SENIOR HOUSE SURGEON. Salary £150 per annum.

The above post is recognized by the Royal College of Surgeons of England for the six consecutive months' appointment in charge of general surgical patients required of candidates before admission to the final examination for the Fellowship.

SECOND HOUSE SURGEON. Salary £100 per annum.

HOUSE PHYSICIAN. Salary £100 per annum.

CASUALTY OFFICER. Salary £100 per annum.

All with board, residence and laundry.

Applications, stating age, nationality and qualifications, together with three recent testimonials, to reach the undersigned by February 20, 1938.

W. H. DANIELS, F.C.S.,
Secretary-Superintendent.

CARDIFF ROYAL INFIRMARY. (Associated with the Welsh National School of Medicine.)

Applications are invited for the post of **RESIDENT SURGICAL OFFICER.** Duties will include case record-keeping and teaching, and Surgical work under the direction of the Honorary Staff.

Candidates must be Masters in Surgery of a University of the United Kingdom, or Fellows of one of the Royal Colleges of Surgeons in the United Kingdom, and must have previously held a Resident Hospital post.

The salary will be at the rate of £200 per annum, with board, residence and laundry. The appointment is for one year, and the holder will be eligible to apply for reappointment and may retain office for three consecutive years.

Further particulars may be obtained from the Medical Superintendent, to whom applications (endorsed "R.S.O."), with not more than three testimonials (copies), must be sent by noon on Monday, January 31st, 1938.

By Order of the Council,
R. ARMSTRONG,
Medical Superintendent.

CARDIFF CITY MENTAL HOSPITAL, Whitchurch, Glam.

HOUSE PHYSICIAN (male), are not exceeding 30 years, required for above hospital (750 beds). Salary £200 per annum, with apartments, board, attendance and laundry. Six-monthly appointment, renewable for a further six months. The Hospital provides facilities for all modern psychiatric treatment, is equipped with Research Laboratories (biochemical and pathological) under a whole-time Director of Research, conducts out-patient clinics and is associated with the Welsh National School of Medicine for the teaching of Psychological Medicine.

Applications, together with copies of three recent testimonials, to be forwarded to the Medical Superintendent.

CLAYTON HOSPITAL, WAKEFIELD.

Applications are invited for the post of **HOUSE SURGEON** for six months (renewable) from February 12th, 1938. Candidates should be of British nationality, male, and single. Salary at the rate of £200 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, together with three recent testimonials, should be sent to the undersigned by January 28th, 1938.

T. F. MACKENZIE,
Superintendent and Secretary.

COUNTY MENTAL HOSPITAL, LANCASTER.

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER (male).**

Candidates must be single and under 35 years of age. Commencing salary £541, rising by annual increments of £25 to £660, with further increase on promotion, subject to a deduction of 3 per cent. under the Asylum Officers' Superannuation Act. There are no emoluments.

The selected candidate will be required to live in the Hospital, and be provided with board, lodging, etc., for which a charge of £150 a year is made.

The possession of a Diploma in Psychological Medicine will entitle the Officer to an additional £50 per annum.

Applications, giving full particulars, with testimonials (copies only), should be forwarded to the Medical Superintendent on or before January 25th, 1938.

HULL ROYAL INFIRMARY. (365 Beds.)

Applications are invited from registered Medical Practitioners for the post of **HOUSE SURGEON (male)** to the Ophthalmic and Ear, Nose and Throat Departments, vacant February 12th.

Salary at the rate of £150 per annum, plus board, board and laundry. The post is recognized for the clinical work required in the regulations for the D.O.M.S. and D.L.O. The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of recent testimonials, should be addressed to the undersigned.

January 17th, 1938. R. J. CARLESS,
House Governor.

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, GLOUCESTER. (225 Beds—Five Residents.)

Applications are invited for the post of **RESIDENT SURGICAL OFFICER (male)**, salary at the rate of £150 per annum, with board, residence and laundry. Candidates must be fully qualified and unmarried and have held previous house appointments. The appointment is for twelve months, which may be extended.

Applications, stating age, qualifications and nationality, together with not less than three recent testimonials, should be received by the undersigned not later than Wednesday, January 26th.

The elected candidate will be required to enter upon his duties on Thursday, February 3rd next.

January 6th, 1938. F. J. SIMONS,
Secretary.

KNOWLE MENTAL HOSPITAL, FAREHAM, HANTS.

Applications are invited for the post of **JUNIOR ASSISTANT MEDICAL OFFICER.**

Applicants should be male and single and under 35. The salary is £350, rising by yearly increments of £25 to £450, with board, lodging, washing and attendance, valued at £150.

The possession of a Diploma in Psychological Medicine entitles the holder to an extra £50 p.a.

The salary is subject to deduction under the Asylum Officers' Superannuation Act, 1907.

Applications, stating age and all particulars, accompanied by copies of three recent testimonials, should be sent to the Medical Superintendent not later than February 5th, 1938.

January 18th, 1938.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL (25 Beds.)

Applications are invited from registered Medical Practitioners for the following appointment:

SENIOR HOUSE SURGEON (male and unmarried). Salary £150 per annum, with board, apartments, and laundry. Appointment to commence immediately for a term of six months, renewable. Previous experience is essential, and applicants must have had practical experience in the administration of anaesthetics.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, to be sent to me.

9, Leicester Road,
Loughborough.

BIRMINGHAM AND MIDLAND SKIN HOSPITAL.

APPOINTMENT OF HONORARY ASSISTANT PHYSICIAN.

Applications for this appointment, under the terms and conditions previously announced, should be in the hands of the undersigned not later than Saturday, February 27th, 1938.

F. MURTAGH,
House Governor and Secretary.
John Bright Street, Birmingham, 1.

LEICESTER ROYAL INFIRMARY, PART-TIME VENEREAL DISEASES OFFICER (Female).

Applications are invited for the position of **Part-time Venerereal Diseases Officer (female)** in charge of Women's V.D. Clinics under general administrative control of the Director of Venereal Diseases Service. Salary £250 per annum.

The appointment is for a Part-time Medical Officer, who will be allowed to engage in private, but not panel, practice. It is understood that an additional part-time appointment valued at £150 per annum will be offered to the successful candidate.

Applicants must be qualified in accordance with the new regulations of the Ministry of Health. Full details on application to the Secretary January 17th, 1938.

MANCHESTER NORTHERN HOSPITAL. (General, 113 Beds.)

HONORARY ASSISTANT PHYSICIAN FOR CHILDREN.

The Committee of Management invite applications for the above appointment. Candidates must be Members of the Royal College of Physicians of England, and are required to forward diplomas, original testimonials, and a certificate of age with their applications on or before January 31st.

Candidates are required to send three copies of their application and testimonials to Mr. JAMES C. DANIELS, Secretary, 38, Barton Arcade, Manchester.

MANSFIELD AND DISTRICT GENERAL HOSPITAL (157 Beds.)

Applications are invited for the post of **HOUSE SURGEON (male)** for the six months commencing February 1st. Salary £150 per annum, with board, residence and laundry. Two other Resident House Surgeons.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be sent to the undersigned as early as possible.

A. ASHWORTH,
Secretary.

NORTH ORMESBY HOSPITAL, MIDDLESBROUGH. (192 Beds.)

RESIDENT SURGICAL OFFICER (male, and unmarried) required. Salary £175 per annum, with board, residence and laundry. Applications, stating age, qualifications, experience (if any), with copies of three recent testimonials, should be sent to the undersigned.

GEORGE WATTS,
Secretary-Superintendent.

PRINCESS ALICE HOSPITAL, EASTBOURNE.

(Voluntary General Hospital, 120 Beds.
Two House Surgeons.)

RESIDENT HOUSE SURGEON (male) required on February 1st, 1938. Salary at the rate of £150 per annum, with board and laundry.

Applications from registered practitioners, accompanied by copies of three recent testimonials, should be delivered to the undersigned by the first post on Thursday, January 27th, 1938.

January 10th, 1938. W. RUSSELL RUDALL,
Secretary.

EAST SUFFOLK AND IPSWICH HOSPITAL. (350 Beds. 7 Residents.)

Wanted, February 1st, **CASUALTY OFFICER (male, British).** Salary rate of £144 per annum, with board, apartments and laundry.

Applications, stating age, qualifications and experience, to be sent to the undersigned, together with copies of three recent testimonials.

The Hospital, ARTHUR GRIFFITHS,
Ipswich.
January 15th, 1938. Secretary.

NEWCASTLE THROAT, NOSE AND EAR HOSPITAL.

HOUSE SURGEON required to commence duties early February. Salary £150 p.a. with board, residence and laundry. Applicants with three recent testimonials, to be sent to the undersigned not later than January 31st.—S. CROOK, F.C.S., Secretary, Rye Hill, Newcastle-on-Tyne, 4.

RESIDENT MEDICAL OFFICER REQUIRED FOR WORKING AND DISTRICT VICTIMARIAN HOSPITAL (50 Beds) on March 1st, 1938.

Male or female, British born. Unmarried. Minimum period six months. Salary £130 per annum, with residence, board and laundry. Applications, with testimonials, to Hon. Secretary by January 28th, 1938.

SURREY COUNTY COUNCIL.**ASSISTANT MEDICAL OFFICER.**

Applications are invited for the appointment of an Assistant Medical Officer (female). Applicants must possess a qualification in Public Health, and have had experience in the Medical Inspection of School Children, in Maternity and Child Welfare, and in the examination and certification of mentally defective children. The officer appointed will be required to undertake such other Public Health duties as may be allocated to her. She will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote her whole time to the work. Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Staffing Regulations of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for receipt of applications, Wednesday, January 26th, 1938.

Canvassing, directly or indirectly, will disqualify.

DUDLEY AUKLAND,

County Hall, Clerk of the County Council.

Kingston-upon-Thames.

January 12th, 1938.

SURREY COUNTY COUNCIL, PUBLIC HEALTH DEPARTMENT.**JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER.**

Junior Assistant Medical Officer (either sex) required at the County Sanatorium (300 Beds), Milford, near-Godalming. Resident experience in general hospital essential. Appointment is for six months, renewable for further six months. Cash salary £250 per annum together with full residential emoluments valued at £100 per annum, making an aggregate of £350 per annum. Appointment is subject to the Staffing Regulations of the County Council.

Forms of application from County Medical Officer, County Hall, Kingston-upon-Thames, to whom forms should be returned, with copies of three recent testimonials, by first post on Friday, January 28th, 1938.

DUDLEY AUKLAND,

Clerk of the Council.

County Hall, Kingston-upon-Thames.

January 17th, 1938.

LANCASHIRE MENTAL HOSPITALS BOARD.**BROCKHALL CERTIFIED INSTITUTION FOR MENTAL DEFECTIVES, Langho, Nr. Blackburn.****APPOINTMENT OF DEPUTY MEDICAL SUPERINTENDENT.**

Applications are invited for the whole-time appointment of Deputy Medical Superintendent at the above Certified Institution.

The salary is £750 per annum, rising by annual increments of £25 to a maximum of £850 per annum. An additional £50 per annum will be paid for the possession of a Diploma in Psychological Medicine.

The appointment will be subject to the provisions of the Asylums and Certified Institutions (Officers' Pensions) Act, 1918.

Applicants are required to submit their applications on a form to be obtained from the undersigned, and applications endorsed "Deputy Medical Superintendent" should be sent to or delivered at my office not later than 12 noon on Monday, February 7th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.

County Offices, **GEORGE ETHERTON,**

Preston, Clerk of the Board

January, 1938

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE,

Withington, Manchester 20.

Applications are invited for the post of RESIDENT SURGICAL OFFICER at the above hospital, to commence duties immediately. The appointment is for a period of six months, but will be renewable. Previous resident appointments essential.

Salary at the rate of £150 per annum, plus residence, board and laundry.

Applications, with full details of previous experience, together with copies of testimonials, should be sent to the Superintendent immediately.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade I).—Salary £350-£25-£425, with board, lodging and washing.

(a) **LAMBETH HOSPITAL**, Brook Drive, Kennington Road, S.E.11.—Obstetrical experience essential; general medical duties.

(b) **ST. GEORGE-IN-THE-EAST HOSPITAL**, Raine Street, Wapping, E.1.—Surgical duties, orthopaedic and gynaecological experience essential.

(c) **ST. MARY ABBOTS HOSPITAL**, Marlborough Road, Kensington, W.8.—Surgical duties, fracture experience desirable.

(d) **ST. MARY, ISLINGTON HOSPITAL**, Highgate Hill, N.19.—General medical duties and anaesthetics.

(e) **ST. PETER'S HOSPITAL**, Fulbourne Street, Whitechapel, E.1.—Surgical and part medical duties.

* No accommodation for a woman.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 2A), County Hall, S.E.1, returnable by January 31st.

Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

ASSISTANT MEDICAL OFFICER (Grade I).—Salary £350-£25-£425, with board, lodging and washing.

(a) **GROVE PARK HOSPITAL**, Lee, S.E.12.

ASSISTANT MEDICAL OFFICER (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(b) **KING GEORGE V SANATORIUM**, Godalming, Surrey.

Experience in the treatment of pulmonary tuberculosis essential for (a) and desirable for (b).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2A, County Hall, S.E.1, returnable by February 7th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICERS (men or women) required for mental services. Candidates (under 35 years of age) must (i) be registered to practise both in medicine and surgery in England, (ii) be of at least one year's professional standing, and (iii) have held residential position in general hospital for six months or comparable general experience. Salary £470 a year, rising by £25 to £570 (additional allowance of £50 to holders of D.P.M.). No emoluments. Charges for board, lodging, etc. (at present £2 9s. a week), if required to be resident. Pensionable. In the case of women, marriage terminates contract of service. Application form returned by January 28th, obtainable from Chief Officer (B), Mental Hospitals Department, Shell-Mex House, Strand, W.C.2. Canvassing disqualifies.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL,

Woodchurch Road, Birkenhead.

RESIDENT MEDICAL OFFICER (Senior). The Board invite applications for the post of Senior Resident Medical Officer (male or female) for a period of six months from April 1st, 1938. Honorarium at the rate of £175 p.a., with board, residence and laundry. Previous experience essential.

RESIDENT MEDICAL OFFICER (Junior). The Board invite applications for the post of Junior Resident Medical Officer (male or female) for a period of six months from April 1st, 1938. Honorarium at the rate of £90 p.a., with board, residence and laundry.

The Hospital is a recognized Training School for Sick Children's Nurses.

Applications, together with copies of testimonials, to be addressed to the Hon. Secretary, at the Hospital, not later than January 31st, 1938.

BEXHILL HOSPITAL,

Bexhill-on-Sea.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male or female). The appointment is for a period of six months. Salary £150 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience and qualifications, accompanied by three recent testimonials, should be received by the undersigned not later than January 31st, 1938.

P. E. WINDO, Secretary.

COUNTY BOROUGH OF ROTHERHAM.

Obstetric Medical Officer and Deputy Medical Superintendent, Alma Road Hospital.

Applications are invited from fully qualified medical practitioners for the post of Obstetric Medical Officer and Deputy Medical Superintendent at the Alma Road Hospital, Rotherham, at a salary of £750 per annum, less emoluments to the value of £85.

Candidates must be qualified registered medical practitioners and must have held previous resident appointments in maternity hospitals; and have had experience in ante-natal work.

The officer appointed will be responsible for the obstetric work at the Alma Road Hospital and at Ferham House Municipal Maternity Home, and in addition will be required to undertake duties in the ante-natal, post-natal and gynaecological services; organise the maternity emergency service and assist in the supervision of the district midwives service and other duties assignable to midwifery.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination as to physical fitness.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, experience and qualifications, accompanied by copies of not more than three recent testimonials and endorsed "Obstetric Medical Officer and Deputy Superintendent," should be sent to the undersigned, not later than Tuesday, February 1st.

Forms of application can be obtained from the Medical Officer of Health, Public Health Department, Town Hall, Rotherham.

Municipal Offices, **CHAS. L. des FORGES,**
Rotherham, Town Clerk.

January 11th, 1938.

COUNTY BOROUGH OF BLACKBURN.**LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.**

Applications are invited from duly registered women practitioners for the appointment of Assistant Medical Officer of Health and Assistant School Medical Officer, to act under the direction and supervision of the Medical Officer of Health who is also School Medical Officer. The salary is at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The person appointed must, prior to April 1st, 1938, have held the appointment of Medical Officer of an Ante-Natal Clinic with the approval of the Minister, or have had at least three years' post-graduate experience in the practice of her profession and special experience of practical midwifery and ante-natal work.

Preference will be given to candidates who have enjoyed special postgraduate experience in the treatment of venereal diseases, and of diseases of children, and who hold a registrable degree or diploma in Public Health.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than January 29th, 1938, endorsed "Assistant Medical Officer of Health."

CHAS. S. ROBINSON,

Town Hall, Blackburn, Town Clerk.

December 17th, 1937.

COUNTY BOROUGH OF ROCHDALE**PUBLIC HEALTH DEPARTMENT.**

The Health Committee invite applications from fully qualified registered Medical Practitioners (unmarried) for the appointment of JUNIOR RESIDENT MEDICAL OFFICER (male) at the BIRCH HILL HOSPITAL, (475 Beds, Medical, Surgical, Children and Maternity.)

The appointment includes certain services at the adjoining Public Assistance Institution, and will be for a period of six months in the first instance, and for a further period of six months at the option of the Town Council, but will not be renewable thereafter.

Salary at the rate of £225 per annum, together with board, residence and laundry.

Applications must be made on the prescribed form, which may be obtained on application to the Medical Officer of Health, and returned addressed to him at the Public Health Offices, Bailie Street, Rochdale not later than Monday, February 7th, 1938.

HARRY BANN,

Town Hall, Rochdale, Town Clerk.

January 15th, 1938.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART,

Oxford Street.

HOUSE PHYSICIAN required April 1st for six months. Salary at rate of £100 per annum, with board, residence, laundry. Applications to Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.)	MID RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.)	NEATH AND DISTRICT. (Medical Aid Association.)	PUBLIC HEALTH
LLWYNFYIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wyndham Colliery Medical Aid Society.) (Workmen's Medical Scheme.)	FIFE AND KINROSS JOINT SANATORIUM BOARD. (Resident Medical Officer.)
		SALOP MENTAL HOSPITAL, SHREWSBURY. (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practices.)	The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

January 19, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

BERKSHIRE MENTAL HOSPITAL, Wallingford.

MEDICAL SUPERINTENDENT.
The Committee of Visitors of the above Hospital are prepared to consider applications from duly registered medical men for the post of Medical Superintendent. Candidates, who should not be more than forty years of age, must have had previous experience in the administration of a Mental Hospital and the treatment of nervous and mental disorders. Preference will be given to those holding a degree or diploma in psychological medicine.
Salary £950, rising by annual increments of £50 to a maximum of £1,200, together with unfurnished house, fuel, light, laundry, milk and garden produce valued at £200 per annum. The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909.
Applications, giving full details as to qualifications and experience, together with copies of three recent testimonials, should reach the undersigned not later than February 1st, 1938.
Canvassing in any form will disqualify.
Berk Mental Hospital, W. T. MORLAND, Wallingford. Clerk to the Visiting Committee.

ANCOATS HOSPITAL, MANCHESTER.

CASUALTY OFFICER (lady or gentleman). Twelve months' appointment. Salary £250 per annum, with luncheon and tea provided. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. The successful applicant will do duty for the Resident Surgical Officer at alternate week-ends and other scheduled times.
Applications, stating age, experience and qualifications, to be forwarded to the undersigned on or before January 26th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
General Superintendent and Secretary.

BEDFORD COUNTY HOSPITAL.

Wanted, an HONORARY PATHOLOGIST for Bedford County Hospital. Facilities given for private work. Applications to be sent to the Secretary.

GLOUCESTERSHIRE JOINT BOARD FOR TUBERCULOSIS.

Standish House Sanatorium, Stonehouse, Glos.

Applications are invited from registered medical men for the post of JUNIOR ASSISTANT MEDICAL OFFICER at the above Institution. No previous professional experience is necessary. There are at present 250 beds, including men, women and children. There is an orthopaedic block. The salary is £250 per annum, with board, furnished apartments and laundry in addition.
The appointment is for six months (with the possibility of extension for a further period of six months), and may be terminable within that period by one month's notice on either side.
Applications, stating qualifications and age, and accompanied by copies of three recent testimonials, should be received not later than January 26th.
Shire Hall, RICHARD L. MOON, Gloucester. Clerk of the Joint Board.
January 10th, 1938.

THE BUCHANAN HOSPITAL, ST. LEONARDS-ON-SEA. (193 Beds.)

HON. SURGEON.

Applications are invited for the post of Hon. Surgeon to the above Hospital.
The appointment will be made subject to the statutes and rules of the Hospital, copies of which may be obtained from the undersigned.
Any candidate canvassing any member of the Executive Committee shall be disqualified.
Applications, together with twelve copies of three recent testimonials, must be sent to the undersigned on or before Friday, February 4th, 1938.
FRANK HART, Secretary.

CAMERON HOSPITAL, WEST HARTLEPOOL. (76 Beds.)

HOUSE SURGEON (male or female) required to commence duties on February 14th, 1938. Salary £150 per annum, with board, residence and laundry.
Applications, stating age, nationality and experience, together with copies of testimonials, should be sent to the Secretary as soon as possible.

KEIGHLEY AND DISTRICT VICTORIA HOSPITAL.

Yorkshire (West Riding). (124 Beds.—Two Residents.)

Appointment of SECOND RESIDENT MEDICAL OFFICER. Duties to commence if possible February 14th, 1938.
Applications are invited from registered Medical Practitioners (female) for the above appointment. Proof of registration to be furnished before appointment. Salary £120 per annum, together with full residential emoluments. Term, six months, renewable.
Applications, with particulars of age, experience, nationality, together with copies of two recent testimonials, to be sent to the undersigned not later than Wednesday, January 26th, 1938.
J. YOUNG,
Secretary-Superintendent.

THE JESSOP HOSPITAL FOR WOMEN, SHEFFIELD. (151 Beds.)

The Board of Management invite applications for the post of RESIDENT ANAESTHETIST (female), for a period of six months, commencing immediately.
Salary, £100 per annum, together with board, residence and laundry.
The candidate appointed will be expected to carry out other House Surgeon duties.
Applications, stating age, together with copies of testimonials, should be addressed to the undersigned immediately.
DAVID OSWALD,
Superintendent and Secretary.

EAST SURREY HOSPITAL, Redhill, Surrey.

JUNIOR HOUSE SURGEON (Male or Female) required on February 15th next. Salary at the rate of £100 per annum, with board, residence and laundry. Candidates must be fully qualified and registered. Appointment for six months and further six months at salary £150 per annum. Applications stating full particulars, and copies of recent testimonials, to be sent to the Secretary.

(Advertisements continued on p. 53)

THE PRINCE OF WALES'S HOSPITAL,
Greenbank Road, Plymouth.
(Formerly South Devon and East Cornwall
Hospital.) (264 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £120 per annum, with board, residence and laundry. Appointment is tenable for seven months, and is subject to renewal. Duties to commence February 19th.

The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by February 4th.

ARTHUR R. CASH,

Gen Supt and Secretary

THE PRINCE OF WALES'S HOSPITAL,
Lockyer Street, Plymouth.
(Formerly Central Hospital, Lockyer Street
Plymouth.) (50 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, residence and laundry. Duties to commence February 19th. Appointment is tenable for seven months, and is subject to renewal.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by February 4th.

ARTHUR R. CASH,

Gen. Supt and Secretary

Prince of Wales's Hospital,
Greenbank Road, Plymouth

**ROYAL NATIONAL HOSPITAL FOR
CONSUMPTION AND DISEASES OF
THE CHEST.** Ventnor, Isle of Wight

SECOND ASSISTANT RESIDENT MEDICAL OFFICER (male), unmarried, required for six months commencing February 15th, 1938. Salary at the rate of £200 per annum with board, residence and laundry allowance. The successful candidate will be eligible for promotion to First Assistant Resident Medical Officer for a further six months at a salary at the rate of £300 per annum with similar emoluments. Candidates must be fully qualified in Medicine and Surgery and previous experience in Tuberculosis and Bacteriological work will be an advantage.

Applications, in candidates' own handwriting, stating age, qualifications and experience (with one copy of three recent testimonials), to be sent to the Medical Superintendent, Royal National Hospital for Consumption, Ventnor, Isle of Wight, not later than Friday, January 28th, 1938.

ROYAL SURREY COUNTY HOSPITAL,
Guildford (216 Beds)

Applications are invited for the posts of
(a) ONE HONORARY SURGEON AND
GYNAECOLOGIST

(b) ONE HONORARY SURGEON.
Applicants must hold the degree of Master of Surgery or the Fellowship of one of the Royal Colleges of Surgeons, and they should state whether they are in consultant or general practice.

Duties to commence on April 1st, if possible. Applications, with copies of not more than three recent testimonials, should reach the Secretary-Superintendent not later than February 28th, 1938.

**ROYAL VICTORIA AND WEST HANTS
HOSPITAL, Bournemouth**
(Boscombe Branch, 215 Beds and Private Wards.)

RESIDENT MEDICAL OFFICER (male, British nationality) required to commence duty middle of February. Salary £250 per annum, with board, lodging and washing. The appointment is tenable for twelve months, and candidates must be registered according to the provisions of the Medical Act.

Application, stating experience, place of birth, nationality and age, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL,

January 17th 1938

Secretary

ST ALBANS AND MID HERTS HOSPITAL

Applications are invited for the posts of CONSULTING PHYSICIAN and CONSULTING SURGEON at the above hospital. Those appointed would be expected to attend at regular intervals and on special request.

Applications are also invited for the posts of NEPHROLOGIST and ORTHOPAEDIC SURGEON to the hospital. Those appointed would be expected to attend on special request only.

Applications should be received by January 31st. For further details, apply to the Secretary of the Hospital.

WEST KENT GENERAL HOSPITAL
(Incorporated),
Maidstone. (136 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN, who must be a male of British nationality and unmarried. He will have charge of 30 Medical beds and 16 Maternity beds. Experience in midwifery is essential.

Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess registered qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before February 3rd, 1938. The successful candidate will be required to take up residence on February 15th, 1938.

EDWARD J. GREGG,

House Governor and Secretary

THE ROYAL PORTSMOUTH HOSPITAL,
PORTSMOUTH.
(Six Resident Medical Officers.)

Applications are invited for the posts of:

(1) HOUSE PHYSICIAN (Male).
(2) HOUSE SURGEON (Male) to the Orthopaedic and Fracture Department.

(3) CASUALTY OFFICER (Male).
Salaries £130 per annum each with Board, etc. All to commence on March 1st.

Six months' appointments and eligible on completion of term for extension or other resident posts.

Applications, stating age, nationality, and full details, with copies of three testimonials, to be sent to the undersigned on or before February 14th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,

Secretary.

THE ROYAL HOSPITAL, WOLVERHAMPTON.
(Incorporated under Charter.)

HOUSE SURGEON required (General Surgery). Duties to commence forthwith. The Hospital contains 300 beds, includes the usual special departments, and is recognized by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice. Candidates must be registered under the Medical Acts, and unmarried.

The appointment is for six months. Salary at the rate of £100 per annum. Board, furnished rooms and laundry provided.

Applications, with copies of testimonials, to be forwarded to the undersigned, Wolverhampton, W. H. HARPER, January 10th, 1938. House Governor.

THE RADIIUM INSTITUTE,
Riding House Street, London, W.1.

Applications are invited for the post of RESIDENT MEDICAL OFFICER. Candidates must be unmarried. The salary will be at the rate of £250 per annum, board, residence and laundry being provided, and the appointment is for six months, commencing immediately.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, must be received at the Institute as soon as possible.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER,

Secretary.

TILBURY HOSPITAL, ESSEX
(Seamen's Hospital Society.)

HOUSE SURGEON (male) required immediately for six months. Salary £140 per annum with board, residence and laundry. Good opportunity for minor surgery.

Applications, with copies of three testimonials, to be sent to the undersigned.

F. A. LYON,

Secretary, Seamen's Hospital,
Greenwich, S.E.10.

WESTMORLAND SANATORIUM.
(160 Beds.)
Grange-over-Sands.

Locum required for post of JUNIOR MEDICAL ASSISTANT, with possible later confirmation of appointment for six months.

Salary £250 per annum, with board, lodging and laundry.

Candidates who have had Sanatorium experience preferred.

Send applications, with full particulars and copies of testimonials, to the Medical Superintendent as soon as possible.

**WATERLOO AND DISTRICT GENERAL
HOSPITAL, NEAR LIVERPOOL**

HOUSE SURGEON required as from March 1st. The candidate must be fully qualified and registered. Remuneration at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to reach the Hon. Secretary before February 14th, envelopes to be marked "Appointments".

THE HOSPITAL FOR SICK CHILDREN,
Newcastle-upon-Tyne.

Applications are invited for the posts of: HOUSE PHYSICIAN and HOUSE SURGEONS (male or female) for six months as from February 1st, 1938. Salary at the rate of £100 per annum, together with board, residence and laundry. Applications, stating age and qualifications, together with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City Road, Newcastle-upon-Tyne. 1

**NATIONAL HOSPITAL, QUEEN SQUARE,
W.C.1.**

HOUSE SURGEON

Applications are invited for the post of House Surgeon. The work is concerned almost entirely with the surgery of the central nervous system, and it is desirable that candidates should have had previous experience of general surgery. Applications, accompanied by three recent testimonials, should be sent to the undersigned not later than Monday, January 24th. The salary is £100 per annum with board and lodging.

GODFREY H. HAMILTON,

Secretary

ROYAL MASONIC HOSPITAL,
Ravenscourt Park, W.6.

A post of RESIDENT SURGICAL OFFICER (male), one of three Residents, will be vacant on March 1st, 1938. Salary at the rate of £250 per annum, with board, residence and laundry. The appointment is for six months. Candidates must be registered, and must have held resident appointments at a general hospital. The Institution (145 beds at present, but to be increased) is primarily for paying patients of both sexes of moderate means usually unable to afford ordinary Nursing Home treatment, etc.

Applications, stating full particulars, to be sent on or before 24th inst., to the Honorary Secretaries, from whom further information may be obtained.

**ROYAL WESTMINSTER OPHTHALMIC
HOSPITAL.**
(Incorporated by Royal Charter.)
High Holborn, W.C.1.

Owing to the present holder having been appointed Surgical Registrar, there will be a vacancy for a REFRACTION OFFICER (male) for attendance on Wednesdays and Saturdays, for six months as from February 1st, 1938.

Candidates must be duly qualified Medical Practitioners and have had experience in Refraction work.

Applications, with copies of testimonials, are to be sent to the Secretary (from whom further particulars can be obtained) on or before January 31st, 1938.

**THE SOUTH LONDON HOSPITAL FOR
WOMEN,**
Clapham Common, S.W.4. (140 Beds.)

A General Hospital for women and children.

Applications are invited from medical women for the undermentioned appointment:

HOUSE SURGEON for a period of six months from March 1st, 1938. Salary at the rate of £100 per annum, with board, residence and laundry.

Candidates are requested to call on members of the Hon. Medical Staff before Saturday, February 12th, by which date applications and copies of testimonials must reach the Secretary at the Hospital.

**SOUTH EASTERN HOSPITAL FOR
CHILDREN,**
Sydenham, S.E.26. (100 Beds.)

Recognized by the Examining Board for Post-graduate Study for the Diploma of Child Health.

Applications are invited for the post of HONORARY PATHOLOGIST to the above hospital. (Ordinary attendance two half-days a week.) An Honorarium of £50 per annum will be paid.

Immediate application to be made, stating age and experience, with copies of three testimonials, and sent to the Honorary Secretary of the Medical Committee at the Hospital.

**LORD MAYOR TRELOAR CRIPPLES'
HOSPITAL,**
Alton, Hants (410 Beds.)

A THIRD RESIDENT MEDICAL OFFICER is required on February 1st. Male, unmarried. Previous resident appointment an advantage. Salary at the rate of £150 for the first six months, £200 if reappointed after the first six months, with board, lodging and laundry.

Apply, with copies of three testimonials, to the Medical Superintendent, Lord Mayor Treloar Cripples' Hospital, Alton, Hants.

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WANTED IMMEDIATELY, INDOOR AND OUTDOOR ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, MALE ASSISTANT, graduate, Scottish, for industrial Practice in Midlands. Three partners. Salary £300, plus rooms and car allowance, if used.—Address, No. 3124, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR ASSISTANT in pleasant practice in London suburb. State salary and experience.—Address, No. 3159, B.M.A. House, Tavistock Square, W.C.1.

WANTED, END OF MARCH, ASSISTANT for Practice in attractive town and country, in Yorkshire. Must be experienced in midwifery and anaesthetics, and have held house appointments. Married or about to be; Commencing salary £500 with free house and car allowance.—Address, No. 3152, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, OUTDOOR, British, own car, for Practice near Cardiff. Salary £350 per annum and £50 car allowance, with good, partly-furnished house. Send testimonials and photograph.—Address, No. 3035, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG MALE ASSISTANT (outdoor), with view to partnership in mixed practice in pleasant Midland City. Good prospects. Abstinence preferred. Salary £400, with £50 car allowance.—Address, No. 3154, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR MALE ASSISTANT in North London. English or Scotch. Unmarried, under 30. Salary £300. Time for reading. Full particulars to—Address, No. 3018, B.M.A. House, Tavistock Square, W.C.1.

WANTED, EXPERIENCED WOMAN AS OUTDOOR ASSISTANT to start branch surgery in Essex by woman doctor. View to partnership later.—Address, No. 3125, B.M.A. House, Tavistock Square, W.C.1.

WANTED, CENTRAL LONDON, INDOOR male ASSISTANT, single, British graduate, view partnership. Ample time for reading post-graduate work or specialty.—Address, No. 3153, B.M.A. House, Tavistock Square, W.C.1.

WANTED—INDOOR ASSISTANT FOR Practice in Essex. Good middle-class, and Panel, with view to Partnership later. English protestant preferred.—Address, No. 3158, B.M.A. House, Tavistock Square, W.C.1.

WANTED, KEEN, YOUNG, SINGLE MALE ASSISTANT (Outdoor), Protestant. Private and Panel Practice. Midland town. Able drive car—provided. State age and experience. Salary £400 p.a., progressive.—Address, No. 3111, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT in a mining practice in South Wales. A Dispenser kept. Salary £350 per annum. Apply, giving age, references, etc., to—Address, No. 3121, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG SINGLE ASSISTANT, outdoor, British general Practice. Seaside and Rural, West Wales. £400 and £50 car allowance.—Address, No. 2609, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, MALE, OUTDOOR, REQUIRED early February. Large increasing Practice Channel Islands. Public School and Oxford or Cambridge Graduate preferred. Experienced Anaesthetist essential. Car provided. Salary £400 per annum. Enclose photo and recent testimonials.—Address, No. 3101, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, MALE, PROTESTANT, WANTED for Practice near Glasgow. Able to drive car.—Apply CRAWFORD, HERRON AND CAMERON, Solicitors, 257, West George Street, Glasgow.

MARRIED ASSISTANT WANTED FOR BUSY industrial Practice, Birmingham district, Feb. 12th. Furnished accommodation. Must have own car. Salary £370 to commence. Englishman or Christian Indian-Singhalese preferred.—Address, No. 3107, B.M.A. House, Tavistock Square, W.C.1.

LADY ASSISTANT WANTED IMMEDIATELY. Pleasant country district South Yorkshire. Work light. Must drive motor-car—provided. Salary £250 per annum, all found.—Address, No. 3113, B.M.A. House, Tavistock Square, W.C.1.

PERMANENT ASSISTANT WANTED. NO immediate prospect of share in large Partnership in North London. Good house available rent free for married man. Salary £400 if married; £300 all found if single. £50 car allowance. Dispenser kept. English, Scotch or Irish Protestant.—Address, No. 3155, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED IMMEDIATELY, FULL-TIME ASSISTANT or second Dispenser-bookkeeper for large town.—Apply with full particulars to—Address, No. 3160, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

THE HOSPITAL FOR SICK CHILDREN.
Great Ormond Street, London, W.C.1.

Applications are invited for the post of ASSISTANT PATHOLOGIST (male).

Candidates, who must possess a legal qualification to practice, are required to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials, given specially for the purpose, before 12 o'clock on Monday, January 31st, 1938.

The appointment is made for one year, and is non-resident.

Salary £400 per annum, with facilities for Private Pathological Practice.

The selected Candidate will be required to take up his duties not later than February 16th, 1938, preferably earlier.

All Candidates must be in attendance to appear before the Joint Committee on Wednesday, February 2nd, 1938, at 4.45 p.m.

Forms of application, copy of the rules, and details of the appointment will be supplied on application to the undersigned.

HERBERT F. RUTHERFORD,
Secretary.

THE HOSPITAL FOR SICK CHILDREN.
Great Ormond Street, London, W.C.1.

There are vacancies for two ANAESTHETISTS. Candidates must be registered medical practitioners and be prepared to take up their duties at an early date.

The appointment is for one year, but is renewable and carries with it an honorarium of £15 15s. per annum, and an allowance of £6 6s. to provide a substitute during annual leave.

Candidates are invited to send in their applications, addressed to the Secretary, with copies of not more than three testimonials written specially for the purpose, before 12 o'clock on Monday, January 31st, 1938, and must appear personally before the Joint Committee at their Meeting on Wednesday, February 2nd, 1938, at 4.45 p.m.

Forms of application and copies of the rules are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
Secretary.

THE HOSPITAL FOR SICK CHILDREN.
Great Ormond Street, London, W.C.1.

Applications are invited from registered medical practitioners for the post of CASUALTY MEDICAL OFFICER. Salary £175 per annum. Duties to commence on February 7th, 1938.

The appointment is a half-time one and non-resident, tenable in the first instance for six months. Applications must be received by noon on Monday, January 31st, 1938, and candidates must be prepared to attend for interview at the Hospital on Wednesday, February 2nd, 1938, at 4.45 p.m.

Full details of the appointment and forms of application are obtainable from the undersigned.

HERBERT F. RUTHERFORD,
Secretary.

EASTERN DISPENSARY.
Lennox Street, E.1.

Applications are invited for the post of PHYSICIAN at this institution, to attend on Wednesday afternoons at 2.30. Candidates must be members of a Royal College of Physicians in the United Kingdom or Graduates in Medicine of a recognized British University. There is an honorarium attached to the post.

GEORGE W. JISLEY,
Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN.
Hacking Road, London, E.2.

HOUSE SURGEON required March 1st, 1938.
CASUALTY OFFICER required March 1st, 1938.
Some Orthodontic work additional.

Six months' appointments. Salary at the rate of £100 per year, with board, lodging and laundry. Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before February 4th, 1938.

CHARLES H. BESSELL,
January 1st, 1938. Secretary

THE LONDON CHEST HOSPITAL.
Victoria Park, E.2.
(Bus, Tram and Rail, Cambridge Heath L. and N.E. Railway)

A vacancy for a HOUSE PHYSICIAN (male) will occur on March 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence and laundry provided.

Applications, with copies of testimonials (three), should be sent to the Secretary on or before Monday, January 31st, 1938.

THE WEIR HOSPITAL.
Grave Road, Balham, S.W.12.
(50 Beds.)

SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS (male, unmarried) required at once. Candidates must be fully qualified and fully registered. Salary £250 and £150 respectively, with board and residence and laundry.

Applications, with copies of testimonials, to be sent to the Secretary, from whom further information may be obtained.

KING'S COLLEGE HOSPITAL.

The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Applications, with copies of three testimonials, should be sent before February 8th, 1938, to the House Governor, King's College Hospital, Denmark Hill, S.E.5, from whom particulars of the duties may be obtained. Candidates must be Members or Fellows of the Royal College of Physicians of London.

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36 S. COAST, popular seaside resort.—Small good middle-class non-dispensing PRACTICE, £350 £400 p.a. No panel. One appointment worth £50 p.a. Maisonette (3 bedrooms, etc.), to rent at £160 p.a. Premium £500.

37 MIDLANDS.—Easily worked PRACTICE in very attractive village about 70 miles from London. Cash receipts, 1937 (to November 25th), £696. Panel 500. Detached modern house (4 bed and dressing-rooms), gas, electricity and main drainage, garden over an acre. Price freehold, £1,500. Premium one and a-half years' purchase, to include stock of drugs.

38 AUSTRALIA.—PRACTICE in small township in Victoria. Receipts last year, £890. Specially built house to rent at £80 p.a. Good climate. All kinds of sport. Premium £500 English currency, including drugs and dispensary fittings.

39 SURREY.—PARTNERSHIP in sound old-established, and steadily increasing Practice averaging £4,445 p.a. in outlying residential suburban district. Panel 2,000. Visits 3/6 to 2/1-. Suitable house obtainable. Premium for share of 11/39ths £2,500.

40 LONDON, E.—Middle-class PRACTICE over £2,400 p.a., in outlying district. Panel 2,876. House (4 bedrooms), in excellent repair, with garage and garden, for sale. Premium two and a-quarter years' purchase.

41 S. COAST.—PARTNERSHIP in Ophthalmic Practice, about £1,700 p.a. One-half share would be sold to suitable man (who must possess the D.O.M.S.) at two years' purchase. Good scope.

42 N.E. COAST.—Old-established and easily worked middle-class PRACTICE, over £1,150 p.a., in seaport town. No panel. Residence facing sea, for sale. Premium (to include furnishings and fittings of consulting rooms, small X-ray plant, etc.), £1,030.

43 ITALIAN RIVIERA.—Small good-class non-dispensing season PRACTICE. Further details on application.

44 BRISTOL.—PARTNERSHIP in increasing Practice in growing suburb. Cash receipts past 12 months, £2,125. Panel 2,200. House, with 4 bedrooms and surgery accommodation, to rent at £60 p.a., also branch surgery. Scope. Premium one-half share £2,000, to include share of drugs, etc.

45 S. WALES.—Steadily growing middle-class PRACTICE doing about £500 a year in residential village, easy distance of large town. Modern semi-detached house (5 bedrooms), garage and garden. Price £1,350 leasehold. Scope. Premium one year's purchase.

46 SEASIDE TOWN, under an hour from London.—PARTNERSHIP (one-half share) in chiefly middle-class Practice, over £4,000 p.a., Panel 650. Corner house (5 bed and dressing-rooms), on main road, for sale. Scope for increase. Premium two years' purchase.

47 E. MIDLANDS.—Country PRACTICE, averaging nearly £650 p.a., in pleasant village. Panel 500. Charming stone-built house (6 bedrooms), central heating, electric light, power and main water, garage, and garden, about one and a-half acres, for sale. Scope. Premium two years' purchase.

48 LONDON, S.W.—Well-established Medical Woman's PRACTICE in outlying suburban district. Receipts average £960 p.a. No panel. Purchaser could have use of surgery premises, living accommodation and services by arrangement. Premium one and three-quarter years' purchase.

Purchasers can raise additional capital for the purchase of approved practices or shares.
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W. M. SCOBIE

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A. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,500.

B. NORTHUMBERLAND—County Town.—

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For further details apply The Manager, 21, Alva Street, Edinburgh.

Terms on which the business of the Branch is transacted will be submitted on application to the Branch Manager, to whom all communications should be addressed.

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1 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third or possibly larger share at two years' purchase.

2 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

3 DEATH VACANCY.—CUMBERLAND.—Old-established good-class non-dispensing PRACTICE, over £700 p.a., in rapidly growing town. No panel. Large house for sale or rent. Good scope.

4 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30/35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,000 p.a. at first at two years' purchase.

5 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,900. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

6 LANCASHIRE COAST.—NUCLEUS OF PRACTICE, averaging £245 p.a., offering excellent scope for increase. Not much panel. Good house (5 bedrooms), for sale. Suit either medical man or woman. Premium £500, to include drugs, instruments, etc., etc.

7 EALING.—PRACTICE in rapidly developing district. Cash receipts, 1937, £510. Panel 710, increasing. Small corner house (3 bedrooms), with garage and garden. Rent £78 p.a. Premium £750.

8 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

9 MIDLANDS.—Old-established middle and upper-class non-dispensing PRACTICE, about £1,200 p.a., in prosperous town. No panel. Visits 7/-. House with 3 bedrooms, etc., for sale or rent. Scope. Premium one and a-half years' purchase.

10 N. WALES.—Sound old-established PRACTICE, about £1,500 p.a., in industrial village with beautiful surrounding country. (Appointments and panel return about £1,000 p.a.) Detached house (4 bedrooms), garage and garden. Price freehold, £2,000. Premium two years' purchase.

11 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 300. House (5 bedrooms), with large garden and garage. Price freehold, £3,250, or rent £150 p.a. Scope. Premium two years' purchase.

12 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year, £2,277. Expenses light. Premium £2,460

cash or £2,600 terms (English currency). Purchaser should be at least 30 years of age with experience.

13 SEASIDE TOWN, within an hour of London.—Very old-established PRACTICE about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), with large garage and garden, for sale or rent. Good scope. Premium £1,000.

14 DEATH VACANCY.—SOMERSET.—Old-established PRACTICE in village situate at foot of the Mendips. Cash receipts, 1937, £345, including £30 from clubs, etc., and panel of 318. Newly built detached house in acre of ground, with 4 bedrooms, etc. Large garage. Central heating. Electricity. Rent £75 p.a.

15 S. MIDLANDS.—Country town PRACTICE of over £1,100 p.a. Small club and panel, 775. Visits 4/- to 10/6, medicine extra. House with main water, gas and electricity, 4 bedrooms, garage and garden. £40 p.a. on lease. Premium one and three-quarter years' purchase.

16 EASTERN COUNTIES.—Very old-established PRACTICE, averaging £2,600/£2,700 p.a., in market town in agricultural district. Panel over 2,350. Large well-built modern residence with garage and good garden, to let. Premium two and a-quarter years' purchase.

17 DEATH VACANCY.—LEYTONSTONE.—Old-established mostly working-class PRACTICE, doing about £600, in populous district. No panel, but ample scope in this direction. Nine-roomed house for sale.

18 BRITISH WEST INDIES.—Increasing PRACTICE in first-rate town. Receipts last year, £1,750. Good house with ample accommodation, garage and good garden, for sale or rent. Ideal climate. Good society and sport. Scope for surgery or V.D. Premium £1,500, to include drugs, etc.

19 LONDON, S.W.—Medical Woman's PRACTICE in outlying suburban district. Receipts past year, £200. Capable of increase by one residing on premises. Panel 110. Rent of consulting and waiting rooms, £30 p.a.

20 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

21 S. WALES.—Old-established PRACTICE, £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Prem. one and a-half years' purchase.

22 INDUSTRIAL TOWN in the WEST OF ENGLAND.—Old-established and steadily increasing PRACTICE, averaging over £1,800 p.a. Panel about 560. House to rent. Premium £1,600.

23 LONDON, S.E.—Medical Woman's PRACTICE doing about £300 p.a., in suburban district. No panel. Plenty of scope. Semi-detached corner house. Price £750 or might be let. Could be increased by one giving more time to practice. Premium one and a-half years' purchase.

24 S.W. OF ENGLAND.—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.) Large house (3 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting golf, etc. Premium one and three-quarter years' purchase.

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The maximum commission payable on the sale of any Practice or Partnership in Great Britain placed exclusively in the hands of this Agency is £50 (fifty pounds), which sum covers goodwill, drugs, surgery fittings, fixtures and furniture, instruments and book debts, but not house property. Schedule of Terms will be forwarded on application.

Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

- 1. PARTNERSHIP.—A TWO-FIFTHS SHARE.** with increase to one-half later, is offered in old-established good country Practice within about 70 miles of London. Gross cash receipts for past 12 months approximately £5,500 p.a., including large panel. Moderate expenses. Very nice house with ample accommodation and all modern conveniences. Freehold for sale or might be rented. Sport of all kinds and good educational facilities. Premium 2 years' purchase.
- 2. NORTH WALES.—(Welsh not essential).—**Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £285 from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price for freehold, £11,500. Premium £3,600. Partnership introduction will be given.
- 3. LIVERPOOL.—**Old-established PRACTICE producing about £1,500 p.a., including panel of 1,300 and appointments worth about £170 p.a. Good house in excellent position. Premium for Practice and house £3,500 (for house might be rented).
- 4. SURREY.—DEVELOPING TOWN.—**Increasing PRACTICE producing for last year £655 and believed to offer considerable scope. Panel of about 450. Well-built semi-detached freehold house with 6 bedrooms, etc., or smaller house available if wished. Premium 11 years' purchase.
- 5. SOUTH-WEST OF ENGLAND.—COUNTRY TOWN.—**A ONE-HALF SHARE in a well-established PRACTICE producing about £2,000 p.a. Ingoing partner must be experienced and not over 35. Suitable house can be obtained. Premium 2 years' purchase.
- 6. NORTHERN OUTSKIRTS OF LONDON.—PARTNERSHIP.—**A NINE-TWENTIETHS' share (after preliminary assistantship) is offered in well-established Practice. Receipts for last year stated to be £2,162 p.a. Panel of 1,900 patients, and appointments worth about £500 p.a. Suitable house with 2 reception, 3 bedrooms, etc. Premium £1,500.
- 8. NORTH LONDON.—**Old-established mixed-class PRACTICE, averaging for past two years about £2,800 p.a. Panel of over 2,600. Suitable house with 2 reception, 4 bedrooms, small garden. Rent on lease £104 p.a. Premium 2 years' purchase.
- 9. CARLISLE.—DEATH VACANCY.—**Better-class non-panel PRACTICE, producing about £700 p.a. House can be rented. Offers invited.
- 10. SCOTLAND.—**University City.—Old-established non-dispensing PRACTICE producing about £520 p.a., of which about £540 is from panel and £70 from appointments. Suitable house with 2 reception, 6 bedrooms, etc. Price freehold £900, part on mortgage. Premium 11 years' purchase or near offer.
- 11. LONDON.—Residential district.—**Long-established good general class PRACTICE producing over £3,000 p.a., with a full panel. Good house with ample accommodation, garden and garage. Freehold for sale or might be suited. A good introduction will be given.
- 12. BRITISH WEST INDIES.—**Better-class PRACTICE producing about £1,750 p.a. Fees 5/- to 2 guineas. Modern house with all conveniences can be purchased or rented.
- 13. ESSEX COAST.—**Middle-class PRACTICE producing about £600 p.a., but stated to offer considerable scope for increase. Receipts have declined owing to Vendor's ill-health. Panel of 300 approximately. Suitable house with 5 bedrooms, etc., available. Small garden and garage. Premium £1,000.
- 14. WITHIN 12 MILES OF CHARING CROSS.—**Steadily increasing PRACTICE yielding last year over £1,650, with a panel of over 1,000 patients. Easily worked and low expenses. Compact house with 2 reception, 3 bedrooms, etc., garden and garage. Premium 2 years' purchase.
- 15. SOUTH COAST SEAPORT.—**Old-established mixed-class PRACTICE producing for past 12 months over £3,000. Panel of about 1,600. Various appointments. Well-situated good modern house with 3 reception and 5 bedrooms. Central surgery rented at £60 p.a., part sub-let. Premium 2 years' purchase.—Up-to-date hospital and Vendor on staff.
- 16. DORSET COAST.—PARTNERSHIP.—**A ONE-THIRD SHARE with increase later in a well-established Practice averaging about £3,000 p.a. Panel of over 2,000 and over 1,000. Various appointments producing £250-300 p.a. Low expenses. Suitable house with 3 bedrooms, etc., can be purchased or rented. Premium 2 years' purchase.
- 17. RIVERSIDE TOWN.—**PRACTICE has been established about 60 years. Receipts approximately £1,500 including 450 panel patients. House contains 2 reception and 5 bedrooms, etc. Leasehold for sale or might be rented. Premium 2 years' purchase or near offer.
- 18. SOUTH COAST.—Favourite Town.—**Old-established PRACTICE producing over £1,000 p.a. including a Panel of about 1,500 and appointments worth approximately £300 p.a. Scope for surgery and prospect of hospital appointment. Low expenses. House containing 2 reception, 6 bedrooms, 2 bathrooms, consulting room, separate surgery, with garden and garage, obtainable on lease. Premium 2 years' purchase, to include book debts and drugs.
- 19. NORTH LONDON.—**Well-established middle and working-class PRACTICE at present producing about £600 p.a., with prospects of increase, particularly for Panel work. The Panel has only been recently started. Suitable accommodation available on rental. Any responsible offer accepted for a quick sale, as Vendor wishes to take up an appointment.
- 20. NORTH LONDON SUBURB.—**Recently established PRACTICE in fast developing area. Receipts last year about £720, including Panel of about 200 patients. Architect-built modern house with ample accommodation. Freehold for sale. Premium £850 or near offer.
- 21. GLOS.—**Sound old-established PRACTICE in beautiful country district, averaging for the past four years about £1,300 p.a. Panel of over 1,100 and appointments worth about £50. Very nice house, in its own grounds, containing 2 reception, 5 bedrooms, etc. Freehold for sale. Premium 2 years' purchase.
- 22. LONDON, EAST.—**Exceptionally sound old-established PRACTICE in populous area averaging for past 3 years over £2,250 p.a. Panel of approximately 3,500. Suitable house with excellent professional accommodation can be rented at £75 p.a.
- 23. OUTLYING NORTHERN SUBURB.—**Well-established PRACTICE producing about £1,000 p.a., including panel of £25 and P.M.S. £115 p.a. Suitable house available on rental.
- 24. LANCS.—SEASIDE RESIDENTIAL TOWN.—**Easily worked, mostly non-dispensing PRACTICE producing about £1,000 p.a., including panel of about 325. Low expenses. Suitable house available with consulting and waiting rooms, 2 reception, 3 bedrooms, maid's room, etc. Large garden. Garage. For sale or can be rented. Premium 11 years' purchase. Good scope.
- 25. LEEDS.—PARTNERSHIP** with succession in 6 or 12 months. A 2/3rds share is offered in an old-established Practice which has been held by the vendor, who is now specialising, for the past 2 years. Receipts for last year amounted to £1,176, including £492 from a Panel of about 1,150 patients. Suitable house available, freehold £2,700. Premium 11 years' purchase.
- 26. LANCS.—**Old-established PRACTICE available owing to ill-health of vendor. Receipts for last year £662, including Panel of about £200 p.a. Freehold house with 2 reception, 3 bedrooms and 2 aunts. There is stated to be good scope for increase as the receipts were formerly £1,200 p.a. Price for Practice and house £2,100.
- 27. WEST OF ENGLAND.—**Good-class residential town.—A ONE-THIRD SHARE in a well-established Practice which is offered in a house and as PRACTICE at present averaging £1,500 p.a. Appointments worth about £350. Panel of 300 patients. Fees 5/- to 2/-, full available in vendor's house for single man. Rent £40 p.a., inclusive of rates.
- 28. NORTH WALES.—**Old-established PRACTICE in very good house with 2 reception, 3 bedrooms, etc. Cash receipts for last 16 years over house with 2 reception, 3 bedrooms, etc. Premium £1,500. Vendor going abroad.
- 29. HERTS.—**Country town on outskirts of London.—Very old-established PRACTICE held by vendor for 30 years. Gross cash receipts about £1,000 p.a., including Panel of 600 patients. Nice house with 2 reception 4 bedrooms, good garden on rental. Premium 2 years' purchase.
- 30. EAST ANGLIA.—**Within reach of two good towns.—Old-established unopposed Country PRACTICE averaging over £1,000 p.a., including Panel producing over £450 p.a. Low expenses. Detached house with 2 sitting and 4 bedrooms, etc. Rent £70 p.a. Premium £1,750.
- 31. NORTH CORNWALL.—**Country PRACTICE in picturesque district near coast, and east of a good town. Stated to produce nearly £1,000 p.a., including Panel of £320.
- 32. WITHIN 25 MILES OF LONDON.—PARTNERSHIP** with surgical scope. A one-fourth share, with increase later, is for disposal in an old-established Practice, producing about £4,500 p.a. Fees 3/6 to 2/-, A suitable house can be secured. Ingoing partner must have a Fellowship, be 35 or under and have 35 years of age. A capable assistant is offered.
- 33. LONDON, SOUTH-EAST.—**STEADILY INCREASING OUTLYING DISTRICT.—Recently established PRACTICE rapidly growing and producing for last 12 months £1,337. Selected Panel of 350. Suitable house with 2 reception, 3 bedrooms, etc., garden, garage. Can be rented on lease. Premium £2,000.
- 34. COAST TOWN.—**Old-established PRACTICE held by vendor for 31 years. Vendor now wishes to specialise. Gross receipts for last year approximately £2,183, including Panel of 770 and appointments producing about £100 p.a. Visits from 5/-, Good house available, containing 2 reception, 3 bedrooms, Professional accommodation, etc. Freehold £1,100. Premium 2 years' purchase or near offer.
- 35. DEVON HISHING.—**Middle-class PRACTICE, established over 20 years, producing for last twelve months £1,433, including Panel of 300. Fees 3/6 to 2/-. Good house with 2 reception, 6 bedrooms, etc. Separate Professional rooms, garden and garage. Rent £125 p.a. Premium 11 years' purchase.
- 36. WEST COAST.—**Well-established PRACTICE, producing about £1,900 p.a., including Panel of 1,450. Suitable house on rental at £50 p.a. Premium 11 years' purchase.
- 37. A ONE-THIRD SHARE in a well-established PRACTICE** in pleasant agricultural district, averaging for the past 3 years about £1,500 p.a. Panel of about 1,200 and appointments worth about £200 p.a. Fees 5/- to 2/-. A suitable house can be secured. Ingoing partner must have a Fellowship, be 35 or under and have 35 years of age. A capable assistant is offered.
- 38. EASTERN COUNTY MARKET TOWN.—HALF-SHARE PARTNERSHIP** in Practice established some 100 years, owing to retirement of junior partner. Gross cash receipts average over £2,400 p.a., including over £700 p.a. from Gross cash receipts average over £2,400 p.a., including over £700 p.a. from Panel and P.A.C. Suitable house available on rental. Ingoing partner should be young, energetic, have had hospital experience. Premium 2 years' purchase.
- 39. SURGICAL PARTNERSHIP** in delightful district within easy reach of London. A fifth partner is required in an old-established Practice. There is little visiting done under 10/6, although the patients come from all districts. Ingoing partner, who must hold the English Fellowship, must be a specialist in surgery for the firm, but must be prepared to do general practice as well. Choice of hospital work.
- 40. SUSSEX COUNTRY.—**Good NUCLEUS with scope for further increase. Receipts: 1935, £467; 1936, £423; 1937 for 7 months, £452. Panel produces about £267 included in above. Good house on rental at £50 p.a. ASSISTANTSHIP WITH VIEW TO PARTNERSHIP.—PROSPEROUS TOWN NEAR BIRMINGHAM.—Salary £200 p.a., indoor. One-third share will be offered later. Income approximately £3,500.

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NEAR MANCHESTER.—PARTNERSHIP in very old-established middle-class (non-panel and non-dispensing) PRACTICE in pleasant residential district. Cash receipts about £6,000 p.a. Fees 5/- upwards. Unlimited scope. Expenses low. Suitable house available for incoming partner. Premium—1 share—2 years' purchase.—No. 1062.

DERBYSHIRE.—Increasing mixed Panel and Private PRACTICE in well-known Spa. Cash receipts last year £700. Panel 200. Much scope. Good ground floor flat. Rent £50 p.a. Premium, best offer.—No. 1057.

SOUTH COAST.—Old-established middle-class PRACTICE in first-rate seaside resort. Average cash receipts £1,200 p.a. Panel 640. Good house, 2 reception, 4 bedrooms, maid's room, 3 Professional rooms, garage and garden. To rent. Premium—£2,500.—No. 1058.

YORKSHIRE (W.R.).—Very old-established Mixed Panel and Private PRACTICE. Cash receipts £1,200 p.a. Panel 900. Scope. Good house, 2 reception, 4 bedrooms, Professional rooms, garage and garden. Price £1,000. Premium—1½ years' purchase.—No. 1060.

MANCHESTER.—Sound old-established mixed-class PRACTICE. Cash receipts last year £1,145, plus £350 from appointments, probably transferable. Panel 1,550. Scope. Good house to rent at £39 p.a. Premium—£2,000 (exclusive of appointments, but inclusive of goodwill, drugs, fittings, and book debts).—No. 1061.

LANCS TOWN.—PARTNERSHIP in increasing Panel and Private Practice. Cash receipts last year £2,034. Panel 1,885. Scope for increase. Suitable acc. Premium—£1,600.—No. 1059.

NORTH - EAST COAST.—Well-established mixed Panel and Private PRACTICE in Seaside town. Cash receipts last year £884. Panel 755. Scope, as distinct developing. Excellent house, with modern conveniences, 2 reception, 4 bedrooms, 2 Professional rooms, garage and small garden. Rent on lease. Premium—1½ years' purchase.—No. 1054.

LANCS TOWN.—Old-established mixed-class PRACTICE in large town. Cash receipts approximately £1,200 p.a. Panel 745. Scope. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and garden. Premium—£1,350.—No. 1010.

LIVERPOOL.—Very old-established middle-class PRACTICE in residential district. Cash receipts £1,100 p.a. Panel 599. Good scope for energetic man. Excellent house, 3 reception, 5 bedrooms, etc. Price £700. Premium—£1,600. Vendor retiring.—No. 1046.

SCOTTISH BORDER.—Well-established PRACTICE in pleasant country and seaside town. Cash receipts £700 p.a. Panel 640. Good house, nine rooms, nice garden, etc. Premium—1½ years' purchase.—No. 1041.

MANCHESTER.—PARTNERSHIP in mixed Panel and Private Practice. Average cash receipts £2,875 p.a. Panel over 2,500. Scope. Excellent house, 3 reception, 4 bedrooms, small garden. Rent £52 p.a. Premium—one-half share—2 years' purchase.—No. 1038.

LEIDS.—Well-established mixed Panel and Private PRACTICE. Cash receipts £900 p.a. Panel 1,000. Good house, with ample accommodation, and garage, for sale, or rent on lease. Premium—1½ years' purchase.—No. 1039.

NEAR BUNTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £740 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 989.

LANCS TOWN.—Very old-established mixed Panel and Private PRACTICE : in present hands 35 years. Cash receipts last year £916. Panel 1,223. Scope. Excellent detached house, 2 reception, 5 bedrooms, garage and small garden. For sale, or would rent on lease. Premium—1½ years' purchase. Vendor retiring.—No. 1004.

MANCHESTER.—Well-established mixed Panel and Private PRACTICE, offering scope for increase. Cash receipts last year £1,222. Panel 800. Good house, 2 reception, 5 bedrooms, 2 Professional rooms. Premium—1½ years' purchase.—No. 1009.

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SATURDAY JANUARY 29 1938

PRINCIPAL CONTENTS

Adolescent Scoliosis p. 215	Leading Articles p. 235
Paratyphoid and Dysentery in a Training Ship 217	Annotations 237
Recurrent Haematemesis in Banti's Disease 222	Correspondence 252
Trauma with Progressive Muscular Atrophy 225	Surgery in General Practice: Blood Transfusions 247
Aetiology of Appendicitis 227	Reviews 232
Massive Spontaneous Intraperi- toneal Haemorrhage 230	Reports of Societies 248
	Weekly Table of Infectious Diseases 262

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

- The Pathology of Adolescent Scoliosis. R. G. ABERCROMBIE, M.D.215
- An Outbreak of Paratyphoid and Dysentery in a Training-ship. EDWARD R. PEIRCE, M.R.C.S.217
- Recurrent Haematemesis in Banti's Disease. ROBERT KEMP, M.D.222
- The Association of Trauma with Progressive Muscular Atrophy. G. E. FREDERICK SUTTON, M.D.225
- Aetiology of Acute Appendicitis. A. M. SPENCER, M.B., B.Sc.227
- Massive Spontaneous Intraperitoneal Haemorrhage. MAURICE SILVERSTONE, CH.M., F.R.C.S.230

SURGICAL SERIES

- Methods of Giving Blood Transfusions. H. F. BREWER, M.D. (Illustrated)241

CLINICAL MEMORANDA

- Pseudo-hypoglycaemic Attacks. LEONARD FINDLAY, M.D., F.R.C.P. 231

REVIEWS

- Congenital Eye Deformities.232
- Ear, Throat, and Nose Diseases.232
- Common Neuroses.232
- The Urology of Childhood.233
- Local Immunity.233
- A Guide to Gynaecological and Obstetric Nursing.233
- Notes on Books.234

GENERAL ARTICLES AND NEWS

- London School of Hygiene and Tropical Medicine: Speech by the Prime Minister.248
- The Slough Social Centre.246
- Nova et Vetera:
The College of Physicians of Philadelphia, 1787-1937.247
- Annals of Medical History.247
- A Florence Nightingale Collection.247
- INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, OXFORD, 1938.259
- PREPARATIONS AND APPLIANCES.234
- UNIVERSITIES AND COLLEGES.261
- MEDICAL NEWS.263

LEADING ARTICLES

- Oxygen Want and Oxygen Therapy 235
- Lateral Curvature236

ANNOTATIONS

- Anti-scarlatinal Serum in Acute Rheumatism.237
- Culture, Cosmetics, and Medicine.238
- The Hedjaz Pilgrimage.238
- Emanuel Swedenborg.239
- Tuberculous Tracheobronchitis.239
- Elephantiasis Chirurgica.240
- The Half-yearly Indexes.240

SUPPLEMENT

Proceedings of Council

- INSURANCE MEDICAL SERVICE WEEK BY WEEK
- CORRESPONDENCE
- NAVAL, MILITARY, AND AIR FORCE APPOINTMENTS
- POSTGRADUATE NEWS
- DIARY OF SOCIETIES AND LECTURES
- MEETINGS OF BRANCHES AND DIVISIONS
- Association Notices; Vacancies; Diary

REPORTS OF SOCIETIES

- ROYAL SOCIETY OF MEDICINE:
Radiotherapy of Non-malignant Gynaecological Disorders.248
- INSTITUTIONS OF CIVIL AND CHEMICAL ENGINEERS:
Water Pollution and Trade Effluents.249

OBITUARY

- W. G. Sym, M.D., F.R.C.S.Ed.260
- Otto Leyton, M.D., F.R.C.P.261
- Major E. E. Austen, D.S.O.261
- R. E. Lauder, M.D., F.R.C.S.Ed.261

EPIDEMIOLOGY SECTION

- TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS.262
- EPIDEMIOLOGICAL NOTES.263

CORRESPONDENCE

- Radio-active Pads. Sir LEONARD HILL, M.B., F.R.S.252
- Treatment of Anterior Poliomyelitis. M. FORRESTER-BROWN, M.S.252
- Throat Carriers in Midwifery Practice. DORA C. COLEBROOK, M.D.253
- A Spurious Record of Trichiniasis in Britain. R. T. LEIPER, M.D., F.R.S.; G. F. ROWCROFT, M.R.C.S.255
- Shortage of Calcium in the Diet. KATHARINE H. COWARD, D.Sc.255
- Lower Abdominal Pains of Cervical Origin. JAMES YOUNG, M.D.255
- Rehabilitation Centres. W. S. DIGGLE, F.R.C.S.256
- Acriflavine Emulsion. J. WALKER TOMB, M.D.256
- Treatment of Psychoneuroses. E. FRETTON SKINNER, M.D.257
- Medical Hydrology. GEORGE D. KERSLEY, M.D.257
- The Problem of the Final M.B. Lond. STANLEY COLYER, M.D.; A. M. H. GRAY, M.D.; J. H. LLOYD, M.D.257
- Correct Footwear. W. SIMPSON, M.B.259
- Pasteurization of Milk. NORMAN MACFADYEN, M.B.259

LOCAL NEWS

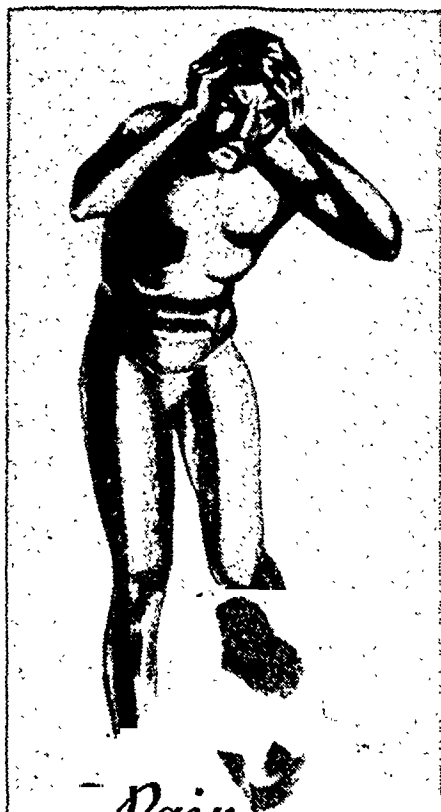
- ENGLAND AND WALES—
Hospital Accommodation in the West Riding.250
- London Manchester Medical Society.250
- Medical Society of Individual Psychology.251
- Health Campaign at Oxford.251
- INDIA—
Child Welfare in Bombay.251
- The Pasteur Institute, Coonoor.252
- Typhoid Fever in Calcutta.252

MEDICO-LEGAL

- A Gap in the Poisons Act.260
- Proration at Mental Hospital.260

LETTERS AND ANSWERS

- "Cracking Skin".264
- After-treatment of Circumcision.264
- A Case for Diagnosis.264
- The Squatting Position in Dislocation.264
- Hair Dye.264
- Rehabilitation Centres for Injured Workmen.264
- Conservative Treatment in Oral Infection.264
- The Medical Directory—A Warning.264
- Disclaimer.264



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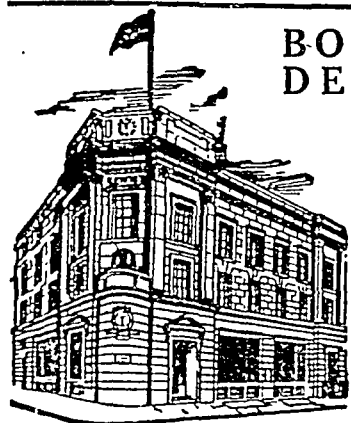
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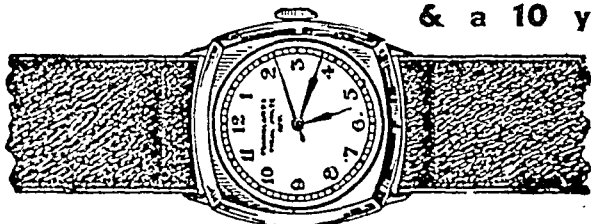
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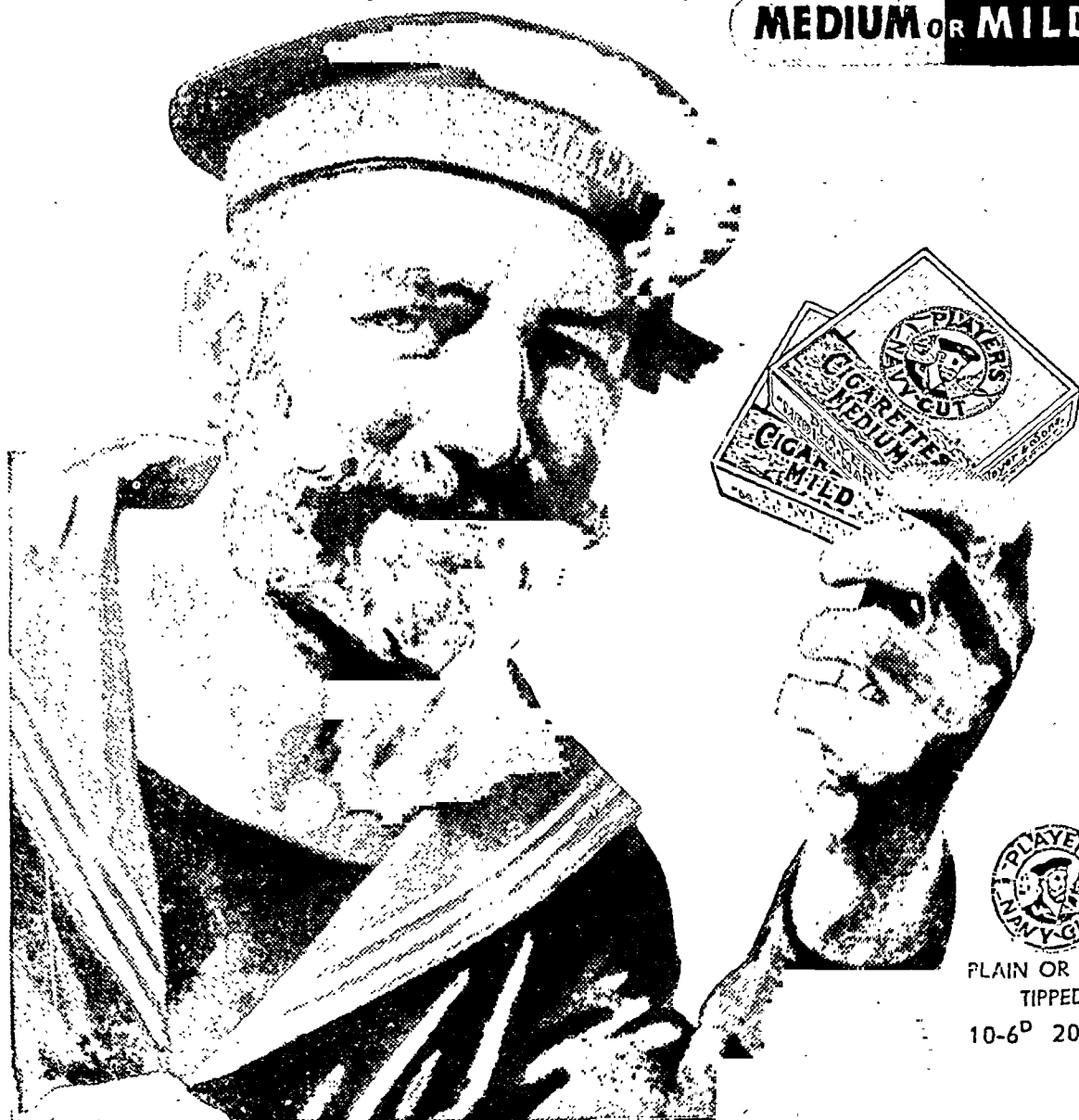
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They're the Players to have on your side whether for winning matches or for pleasure but champions don't grow overnight, so when it's a matter of a good Cigarette—"Medium" or "Mild"—have the benefit of the long experience and fine material which goes to the making of the champion say Player's Please.

IF YOU SMOKE CORK TIPPED CIGARETTES, THE MILD CORK TIPPED WILL PLEASE YOU

Player's Please

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LACTAGOL (Edestine, Calcium, Phosphorus)

helps to compensate for the constant drain by the foetus upon the reserves of the expectant mother.

It is a valuable roborant during convalescence following parturition and exerts a definite galactagogue action on the mammary glands of the nursing mother. Specimens for clinical trial free on application. Lactagol Ltd., Mitcham, Surrey.

**Expectant and
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THE FOOD FOR THE SICK.

The entire nutritive constituents of beef and wheat in a soluble and freely absorbable form. A nourishing, restorative, stimulant liquid food of incomparable value for the nutrition of the sick.

A food which is compatible with every form of medical treatment.

Supplied in 12-oz. bottles.

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Fairchild Bros. & Foster (Inc. N.Y.)
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Common Colds and Influenza

When a patient with a Cold or Influenza consults you—start him at once on a teaspoonful of Salvitae every four hours in a glassful of water. The results are surprisingly prompt and decisive

SALVITAE

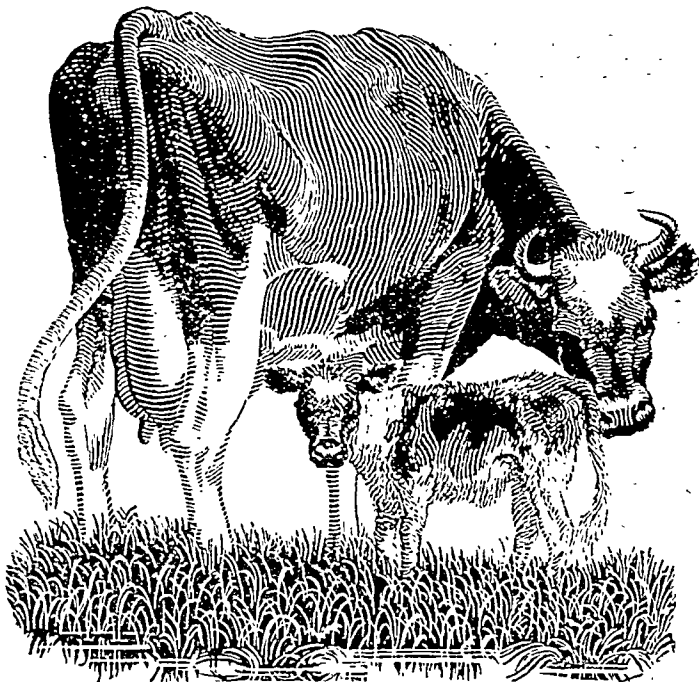
SALVITAE enables the conscientious practitioner to meet what is perhaps the greatest problem of modern Medicine—the prevention and successful treatment of Colds and Influenza scientifically, intelligently and successfully.

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- 1 An audiometer test to determine the amount of hearing loss.
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Members of the Medical Profession are invited to make full use of the service offered, with every confidence that genuine assistance will be rendered in the selection of a suitable hearing aid.

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STREPTOCIDE

(p-aminobenzenesulphonamide Evans)

For oral administration

The value of Streptocide in Puerperal Fever
is fully described in a report to the

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Tonsillitis. Streptococcal Sore Throat
Gonorrhoeal and B.coli infections of the Genito-urinary Tract

Streptocide is issued in tablets as follows:

		0.5 gram. (7½ grains)		0.25 gram. (3½ grains)	
In bottles of 25 Tablets	2/-	...	1/9	} Reduced Prices.
" 100 "	6/6	...	5/3	
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Please indicate the strength desired when prescribing

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Complete endocrine therapy in obstetrics and gynæcology
is possible with B.D.H. Sex Hormone Preparations.

For Ovarian Stimulation Therapy

SEROGAN

Serogan is obtained from the serum of pregnant mares; its action upon the ovary is mainly that of follicle stimulation.

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Gonan is the gonadotropic hormone from the urine of pregnancy; its effect upon the ovary is primarily luteinising.

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The oestrogenic hormone in an accurately standardised form.

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The standardised corpus luteum hormone.

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Ovoferriin Brand Colloidal Iron Tonic, the palatable blood builder, is stainless, odourless, non-astringent. It is iron in its most minute, most useful colloidal subdivision. Ovoferriin does not constipate; it does not affect the teeth or stomach; rather, it stimulates the jaded appetite and often aids in intestinal peristalsis. Many physicians have found it to be the only preparation simple, agreeable and effective enough for long term iron feeding. Ovoferriin contains no flavouring or sugar; it is economical to use and an excellent vehicle. - Write for free professional sample.

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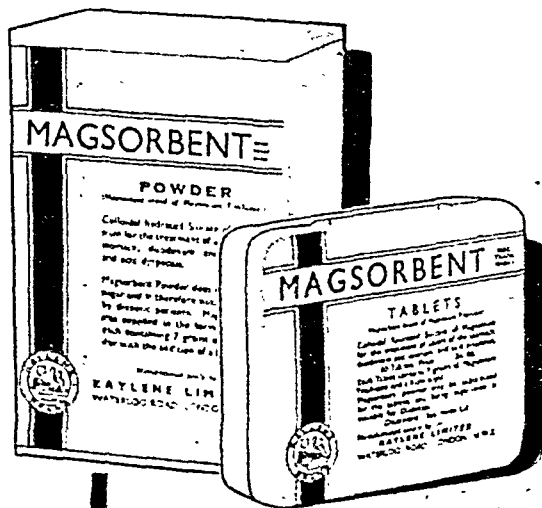
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THE ORIGINAL AND STANDARD BRAND OF SYNTHETIC HYDRATED
MAGNESIUM TRISILICATE

The safe and effective **ANTACID** for the treatment of **CHRONIC PEPTIC ULCER, HYPERCHLORHYDRIC DYSPEPSIA** and **ACID FERMENTATION.**



- ACIDITY—COMPLETE CONTROL
- NEUTRALISATION—SUSTAINED
- NO TOXIC ALKALOSIS
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The REDUCED PRICES of MAGSORBENT POWDER are as follows: 2oz. 1/6; 5oz. 3/-; 16oz. 8/9; 3lbs. 23/-.

TABLETS: 65-2/4, 250-7/9; 600-15/-.

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GASTREXO

A tested stomach substance for the treatment of Primary Anaemias and, as an adjunct, in other Anaemias when hypochlorhydria is present.

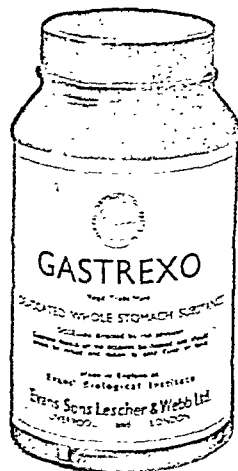
Prepared from selected hog stomachs by a process which conserves the maximum potency of the specific haemopoietic principles.

Gastrexo is free from pathogenic organisms.

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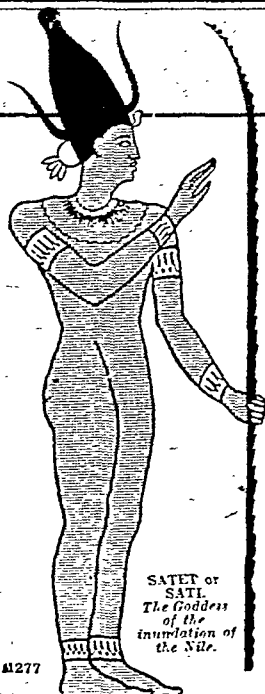
4-oz. - 3/9 8-oz. - 6/6 16-oz. - 12/-

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SATEF or SATET
The Goddess
of the
inundation of
the Nile.

M277

OVALTINE

AN AID TO HEALTHY DEVELOPMENT

MODERN medical research makes it increasingly clear that abnormalities of form, mental defects and even permanent constitutional weakness, are often a direct result of failure to obtain in infancy a diet adequate to the physiological needs of the organism. The basic necessity, therefore, in constructing the dietary of the infant and growing child, is to ensure one that is complete in all the essential food elements.

"Ovaltine" finds one of its most valuable applications in this direction. Composed of the nutritive constituents of fresh, full-cream milk, eggs and malt, in well-balanced proportions, it supplies calcium, phosphorus, vitamins and other accessory food factors, and its regular addition to the ordinary diet of the child renders this safe and adequate.

"Ovaltine" is so delicious and easily digested that it can be prescribed with complete confidence for children of all ages. "Ovaltine" is easily prepared and is most economical.

A liberal supply for clinical trial sent free on request.

A. WANDER, Ltd., 184, Queen's Gate. S.W.7.
Laboratories and Works: KING'S LANGLEY. HERTS.

the scientific contraceptive

MIL-SAN is a bland, non-injurious, spermicidal jelly independent of variable physiological conditions of moisture or temperature. Since there is nothing to melt, dissolve or foam, MIL-SAN is immediately effective.

The formula of MIL-SAN is based on biological principles in harmony with the natural chemical and bactericidal balance of the vagina. Its spermicidal efficiency is due to: (a) A low pH secured by the reinforcing action of several acids which ensures the immediate immobilization and death of spermatozoa, despite the buffering action of the seminal fluid; (b) A low surface tension which causes the jelly to spread rapidly and to penetrate the rugae of the vaginal and cervical mucous membrane; (c) A degree of viscosity which ensures that it shall adhere to the cervix and upper vaginal tract and fornices, forming a chemical barrier preventing the penetration of spermatozoa into the os uteri.

The method of applying the jelly is simple, hygienic, and proof against carelessness. Each application of 7 c.c. is contained in a specially

made strong glass tube sealed at one end with a cork, at the other by a hard wax plug. In use the cork is removed, a bulb fitted behind the wax plug, and the tube inserted. Compression of the bulb forces the wax plug down the tube and ejects the contents. The empty tube, which is thrown away, proves the application and ensures the quantity. There is nothing to fill, nothing to clean. Each application is hygienic and complete.

MIL-SAN does not deteriorate and is not affected by climatic conditions.

There are no contra-indications to the use of MIL-SAN with a dependable condom or a properly fitted occlusive pessary. It is only by such combined use that the consequences of misuse of one or other of the methods can be minimized and the maximum practicable security obtained. MIL-SAN is on the N.B.C.A. Approved List for use with a cap or condom.

Literature setting out the ingredients and full particulars, together with a box of specimen tubes for examination, are sent on request to members of the medical profession.



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INDICATED IN

**ECZEMAS, PRURITUS,
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PRESCRIBE AS

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Issued in 2, 4 and 8-oz. pots

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The Oral Treatment of Gonococcal Infections

Sulphonamide-P B.D.H. (sulpi.anilamide), introduced originally for the treatment of hæmolytic streptococcal infections, has been found to be effective also in many other infections including gonococcal infections.

Somewhat larger doses are required in gonorrhœa (up to 4 or 5 grammes daily) than in less refractory conditions.

Complete remission of clinical symptoms of infection has been reported 5 or 6

days after the beginning of the treatment, but the treatment must be continued for some time after this remission and cure should not be pronounced complete until stringent tests have proved negative over a considerable period.

Care must be exercised in administration, and the drug must be discontinued if cyanosis is produced. Cytological and spectroscopic examinations of the blood two or three times weekly are desirable.

SULPHONAMIDE-P B.D.H.

(*p*-aminobenzenesulphonamide)

Sample of tablets on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1

Sul-P 6/5

For the convenience of your patients
DINNEFORD'S MAGNESIA
is now available in
tablet as well as the
original pure fluid.



DINNEFORD'S TABLETS

1/- PER TIN OF 30 TABLETS

May we send you a sample tin for your own trial?

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C.F.H.



For threatened and
habitual abortion

TRADE MARK

LUTEOSTAB

BRAND

Corpus Luteum Hormone

"The use of corpus luteum hormone (progesterone) in habitual and threatened spontaneous abortion is logical and valuable. 34 out of 41 cases were successfully treated with corpus luteum hormone." (J. Amer. Med. Assoc., 1936, 106, 271.)

Supplied in 1.1 c.c. ampoules containing
2 rabbit units per c.c.

Single ampoules and boxes of six ampoules.

BOOTS PURE DRUG CO. LTD. NOTTINGHAM - - - - ENGLAND

Large Bowel Infections



THE use of ordinary purgative agents in chronic colitis and other inflammatory conditions of the large bowel is to be avoided on account of their tendency to increase existing spasm of the musculature and to aggravate inflammation of the mucosa.

"Cristolax" is the ideal agent with which to "clear" the bowel in such conditions. Its routine use diminishes mechanical friction while exerting a beneficial soothing effect. The formation of local areas of stasis behind bands and constrictions is successfully avoided.

"Cristolax" combines 50 per cent. of the purest medicinal paraffin of correct viscosity with "Wander" Dry Malt Extract. This palatable, effective, yet harmless intestinal lubricant is free from oily or disagreeable taste, and its crystalline form ensures easy administration.

'CRISTOLAX'
BRAND
MALT EXTRACT WITH PARAFFIN
Lubricant-Laxative-Nutrient-Digestive

Design from
Greek Vase
Warrior with
bow, looking along
an arrow

A supply for Clinical trial sent free on request.
Of all Pharmacists, in bottles at 3/6 and 2/- each.
A. WANDER, LTD., 184 QUEEN'S GATE, LONDON, S.W.7.

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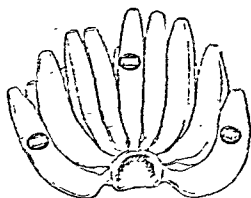
THE PHYSIOLOGICAL VALUE OF THE BANANA

III. Ash or mineral matter: The amount of ash (0.8 per cent average) is high for a fruit. It is alkaline, a point to be remembered in connection with intestinal weakness.

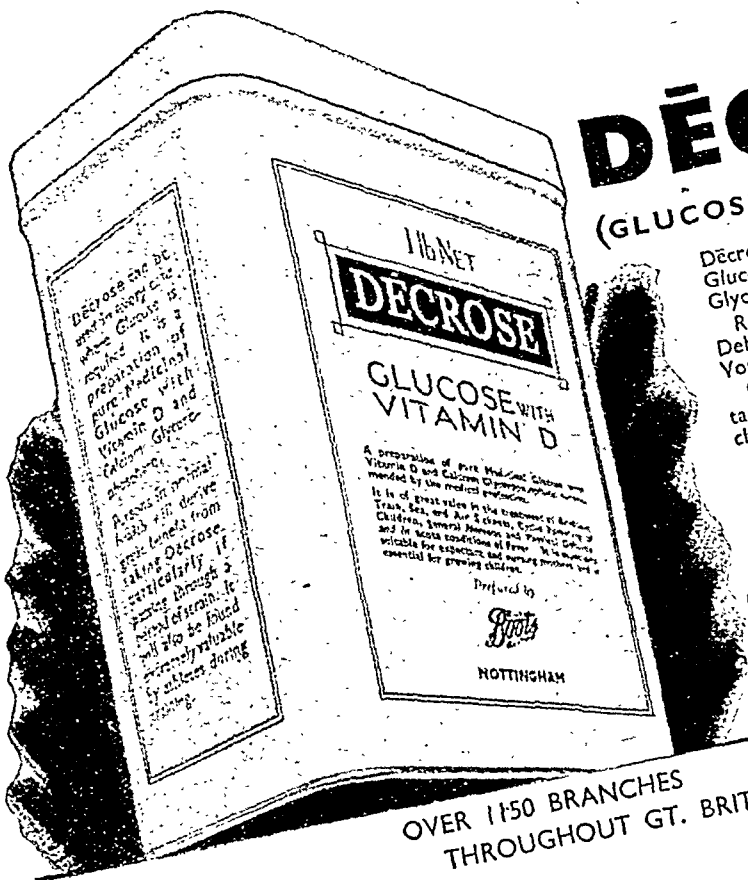
Small quantities of iron, copper and iodine are also present.

The iron content averages 6.4 parts per million, a satisfactory amount for a fruit. The presence of a minute amount of copper assists the due assimilation of the iron into the blood.

The trace of iodine, being more readily assimilable when normally present in a food than when added in the form of a salt, has its full beneficial action upon the thyroid gland.



N.B. Therapeutically, the banana is most valuable when fully ripe. In the fully ripe banana the soluble sugars evolved are approximately 9 per cent. cane-sugar and 4 to 5 per cent. each of glucose and fructose. A banana is ripe when all green has disappeared from the skin and brown spots have formed on the yellow surface.



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(GLUCOSE WITH VITAMIN D)

Dēcrose is a preparation of pure Medicinal Glucose with Vitamin D and Calcium Glycerophosphate.

Recommended in the treatment of: Debility, Malnutrition, Anorexia, Cyclical Vomiting in children, and in Convalescence.

Dēcrose is especially suitable for expectant and nursing mothers and growing children.

1-lb. TIN — 1/6

7-lb. TIN — 10/-

Discount to the Medical Profession

OBTAINABLE FROM ALL BRANCHES OF

Boots
Chemists

OVER 1150 BRANCHES
THROUGHOUT GT. BRITAIN

ANAHÆMIN B.D.H.

'... easily the best liver preparation for the treatment of pernicious anæmia' — M.D.



Sample on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1



'PROMINAL'

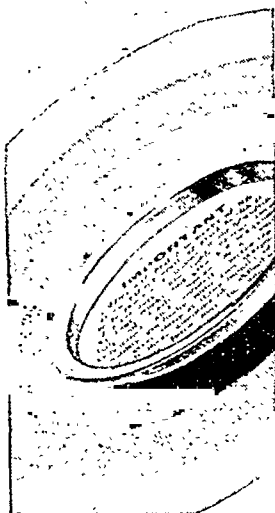
TRADE MARK METHALOHYL BRAND

Clinical trials of this drug in thousands of cases of epilepsy have shown that its fit reducing effect is even better than that of 'Luminal': its toxicity is 30% lower

The hypnotic effect of 'Prominal' is minimal, and secondary reactions are seldom met with.

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Northern Office (Information only): BLACKFRIARS HOUSE, PARSONAGE, MANCHESTER

When Breast Feeding Fails—



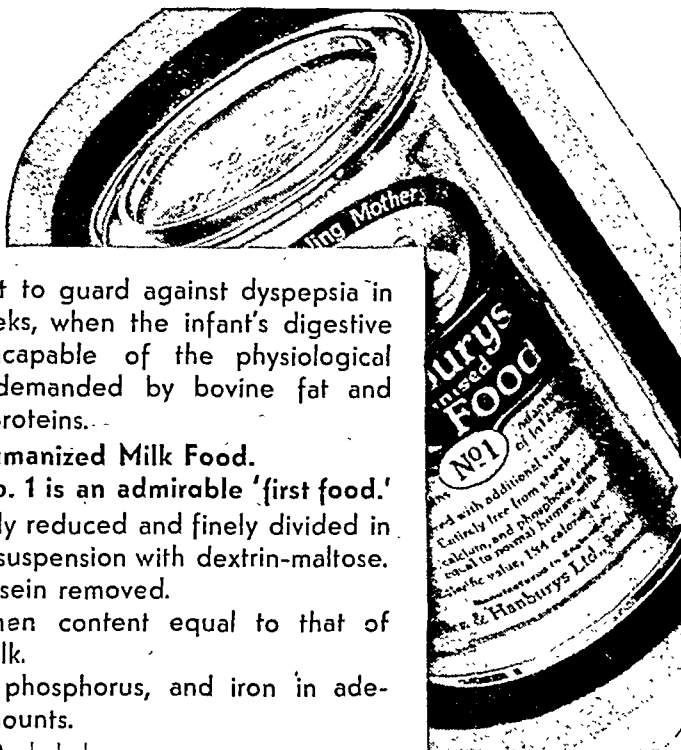
It is important to guard against dyspepsia in the early weeks, when the infant's digestive system is incapable of the physiological adjustments demanded by bovine fat and unmodified proteins.

Humanized Milk Food.

Allenburys No. 1 is an admirable 'first food.'

- (1) Fat slightly reduced and finely divided in colloidal suspension with dextrin-maltose.
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- (3) Lactalbumen content equal to that of breast milk.
- (4) Calcium, phosphorus, and iron in adequate amounts.
- (5) Vitamin D +++

Descriptive literature and clinical sample will be sent on application.



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FEROSAN

BRAND

Ferrous Chloride Capsules

IN THE TREATMENT OF HYPOCHROMIC ANÆMIA

PER BOX OF 50 CAPSULES - - - 2/-
Each capsule contains 3 grains of stabilized
Ferrous Chloride.

(Discount to the Medical Profession)

Sample and Literature sent on request

OBTAINABLE THROUGH ANY BRANCH OF

Boots
The Boots
Chemists

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WHOLESALE AND
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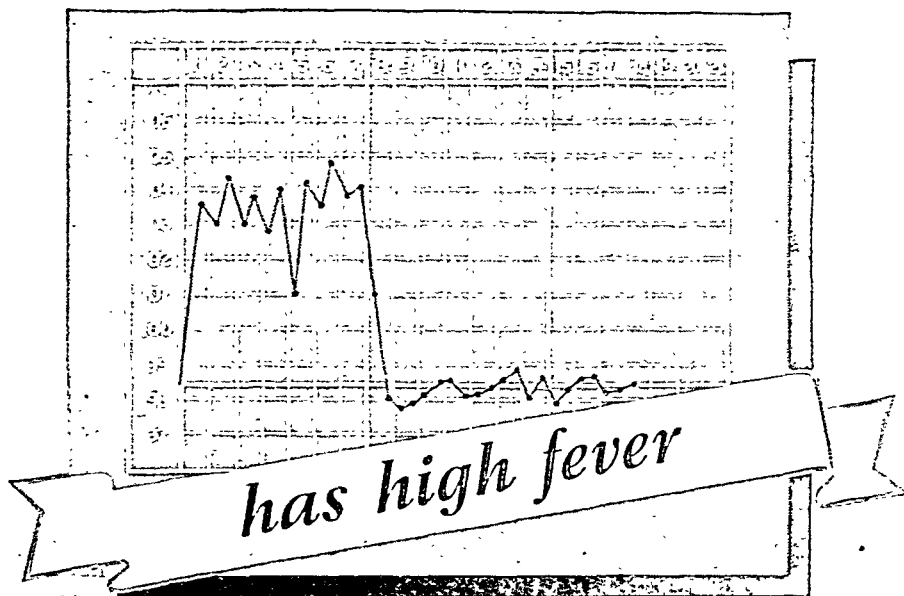
*Extract from the British
Medical Journal, 1936, i, 954*

**Idiopathic and Secondary
Hypochromic Anæmia.**

"Ferrous chloride is the most efficient, probably because it is the form into which most of the available iron is converted in the stomach before absorption. A total daily dose of 9 to 18 grains of stabilized ferrous chloride (Boots), made up into capsules of 3 grains each (that is, one to two capsules thrice daily after meals), is sufficient for the most severe degrees of hypochromic anæmia. In this form it maintains its ferrous condition very well."

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Your patient . . .



Food must obviously be restricted; yet some stimulating effect on digestion is desirable to maintain strength. Thirst is a problem. . . .

Brand's Essence does not cause thirst. And you will appreciate other reasons why this unique stimulant is of value to your patient. Brand's will not strain the most enfeebled system because it precipitates no solids and contains no irritants. A lively flow of the gastric ferments is aroused, but excess acid is effectively dealt with through protein-adsorption. Easy assimilation gives quick effect to Brand's potent protein-sparing properties.

BRAND'S CHICKEN OR BEEF ESSENCE

is never contra-indicated

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An Almost Exact Reproduction of Mothers' Milk

REMARKABLE CLINICAL RESULTS

INTERESTING CASE-HISTORIES FROM OVER TWO HUNDRED PHYSICIANS

KARO, a natural blend of soluble carbohydrates, has for many years been widely used abroad for children, pregnant mothers and invalids, and especially as a means of modifying cow's milk and milk powders for artificially-fed infants.

An eminent doctor writes: "We have found it (Karo) the most satisfactory form of carbohydrate in the feeding of normal and most sick infants."

A few months ago a number of physicians in this country were sent samples of Karo, and asked to report on it.

Over two hundred reports were received, giving case-histories of successful results obtained with Karo in the treatment of premature infants and of infants and children suffering from marasmus, biliousness, indigestion and nutritional disorders.

Costs about 1½d. a day

A 1 lb. tin of Karo, costing 1/3, provides a ten days' supply for a three-months-old baby—a cost of about 1½d. a day. The price of the 2 lb. tin has recently been reduced to 2/6.

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	per cent.
Dextrine and Malto-Dextrine	35.41
Maltose	10.10
Dextrose	23.31
Other Carbohydrates	0.50
Sucrose	2.50
Invert	3.50
Ash	1.51
Water	23.17
	100.0

Samples and literature from the manufacturers:

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Indicated in

CORYZA, CATARRH, PHARYNGITIS,
SINUSITIS, HAY FEVER, RHINITIS,
LARYNGITIS, ASTHMA, BRONCHITIS

Mistol

MISTOL DROPS act as a local anæsthetic to the inflamed mucous membrane, thereby affording relief in all the distressing symptoms of common cold. The volatile substances contained in Mistol free the congested mucus, relieving the characteristic stuffiness and difficulty of correct breathing. **MISTOL** is extensively prescribed in most acute conditions affecting the mucous membranes of the nose and throat.

½ oz. bottles
1/3

2 oz. bottles
2/6



Mistol

with EPHEDRINE...

While exercising the soothing action of Mistol Drops will, at the same time, exert a vaso-constrictor action for chronic congestions. It is important to note that the Ephedrine content has been limited to 0.57%

½ oz. bottles 1/3
2 oz. bottles 2/6



*Products of Nujol Laboratories: NUJOL, CREAM OF NUJOL,
STEMCOL, MISTOL and MISTOL with EPHEDRINE.*

*Samples for clinical test sent on request to Practitioners
in Great Britain and Northern Ireland.*

STEMCO LTD., Nujol Laboratories, 128 Albert Street,
Camden Town, London, N.W.1

Successful Treatment

**is the only recommendation of value
to the medical profession**

PROSEPTASINE

TRADE

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Benzyl-sulphanilamide

the 'safer' sulphonamide, is fully as active and much less toxic than sulphanilamide. For oral administration in the treatment and prophylaxis of streptococcal infections.

Bottles of 25 tablets each 0.5 gm.

SOLUSEPTASINE

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D sodium - p (4-phenyl - propyl - amino) - benzene - sulphonamide-sulphadiazine.

the colourless sulphonamide for intravenous and subcutaneous injection. For use in urgent cases and where oral medication is impossible.

Boxes of 6 ampoules,
each 5 c.c. or 10 c.c.

In anti-streptococcal therapy PROSEPTASINE and SOLUSEPTASINE show the maximum potency, the greatest margin of safety and the highest therapeutic ratio of any anti-streptococcal agent yet produced.

There is evidence that these drugs are effective in *B. Coli* infections.

Samples and literature will be sent on request



PHARMACEUTICAL SPECIALITIES (MAY & BAKER) LTD
Dagenham

In Convalescence after Influenza, Pleurisy, Pneumonia, Bronchitis

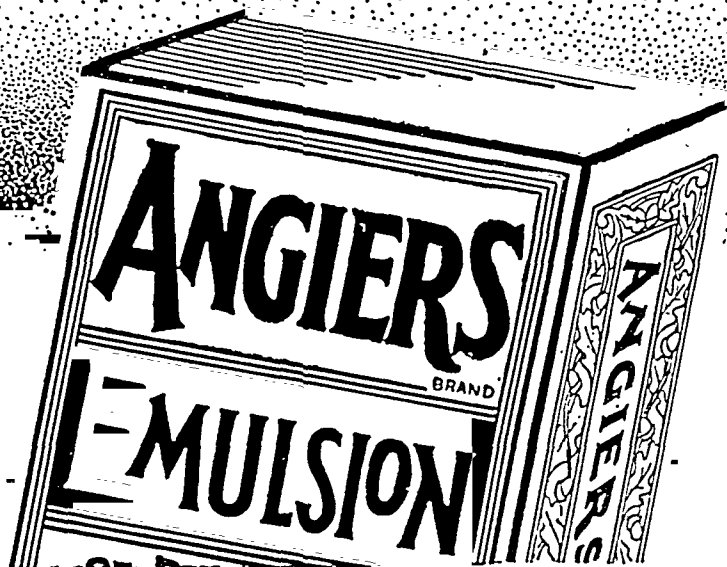
The soothing, inflammation-allaying properties of Angiers Brand Emulsion and its general tonic effects especially commend its use in convalescence from acute respiratory affections. It will clear up any remaining catarrh, whether of the respiratory or digestive organs. It will restore tone to the digestive functions, and greatly improve assimilation and nutrition.

An absolutely perfect emulsion, it is presented in a form pleasing to the taste, and acceptable to the most fastidious. Moreover, it can be administered to advantage in conjunction with other remedies, such as salol, aspirin, bismuth, etc.

'Angiers' is made with petroleum specially purified for internal use. It is the original petroleum emulsion, the result of many years of careful research and experiment.

Free Samples to the Medical Profession

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(Dept. B.5), 86, CLERKENWELL ROAD, LONDON, E.C.1.



Haematopoiesis

NEO-HEPATEX

(Parenteral)

Prolonged and world-wide experience of Neo-Hepatex has proved that no other liver product surpasses it in potency.

The combined advantages of high hæmopoietic power and low price render treatment with Neo-Hepatex remarkably economical in cost.

Physicians everywhere are now agreed :—

- (a) That in Liver therapy the variation of requirement in different cases of primary anæmia is so pronounced as to render it impossible to foretell the dosage required with any degree of certainty.
- (b) That whilst a system of dosage based upon minimal quantities may be harmful, there is no danger in over-dosage.

Adequate dosage of Neo-Hepatex, though small in volume, ensures rapid progress with eventually the longest possible intervals between the injections necessary for maintenance.

Neo-Hepatex is issued in ampoules :

Boxes of 6 x 1 cc. 5/-; 6 x 2 cc. 7/ 6; 3 x 4 cc. 6/6

Made in England at Evans Biological Institute by

Evans Sons Lescher & Webb Ltd.

LIVERPOOL and LONDON

Cystopurin

The ideal urinary antiseptic for oral administration!

- | | | | |
|---|---|---|--|
| 1 | Produces no gastric irritation or toxic symptoms. | 5 | Acts from the renal pelvis downwards. |
| 2 | Is readily absorbed from the gut and excreted in the urine. | 6 | Is active in either acid or alkaline urine. |
| 3 | Causes no renal irritation. | 7 | Perfectly safe for use in febrile conditions. |
| 4 | Renders the urine bactericidal in low concentrations. | 8 | Acts on all causative organisms of urinary infections. |

PYELITIS

From information received:—

"I am glad to inform you that I obtained very encouraging results from Cystopurin in a case of pyelitis of five years' duration. The discharge has greatly decreased and the mild pain of which the patient was complaining entirely subsided after five days' course of treatment."

"I have used Cystopurin in a case of acute pyelitis in a child of 3 with good results. The child could not take Mist. Pot. Cit., but we managed to get crushed tablets down in glucose solution."

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"At first on a dose of one tablet three times a day there was no change. After 3—4 days I increased to 2 tablets 3 times a day. Fever disappeared and the enuresis improved at once but pus continued. Yesterday no pus seen on sedimentation (i.e. standing over night) for the first time, and is scarcely incontinent now."

"This case (pyelitis) operated in hospital and one kidney removed. When she was able to come back to the surgery the urine was found to be loaded with albumen and pus. After 10 days' treatment (Cystopurin) t.i.d. no pus present, only slight trace albumen. This cleared up after another week's treatment."

Supplied in bulk and in tubes of 20 tablets for dispensing purposes.

Samples and literature available on request to

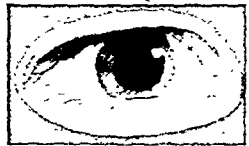
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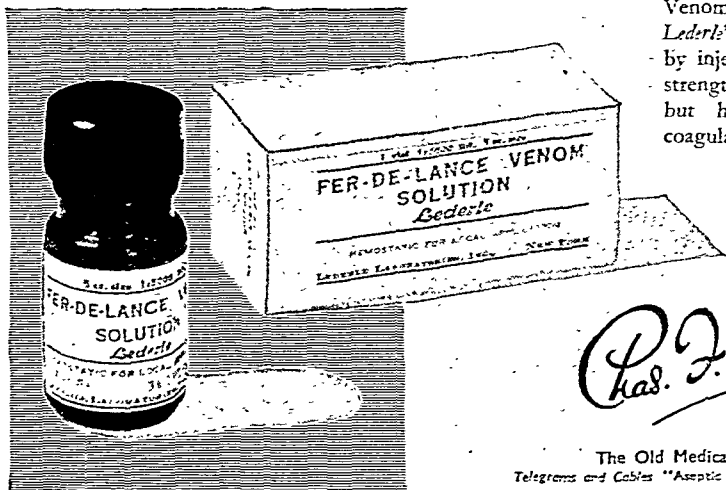
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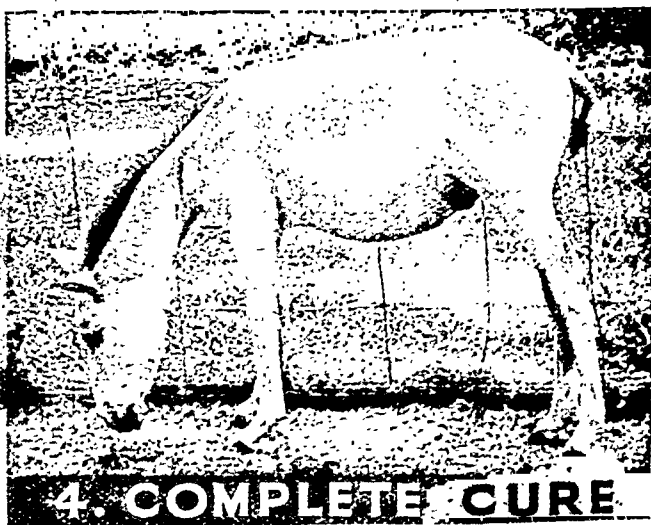
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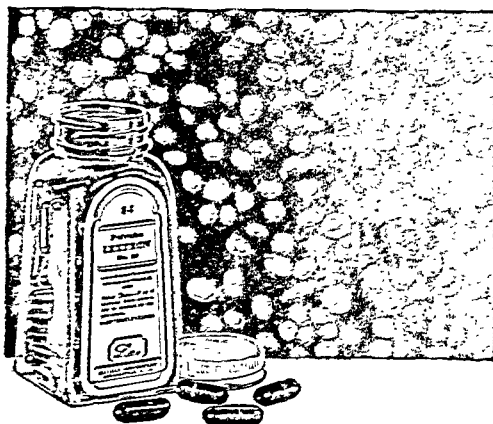


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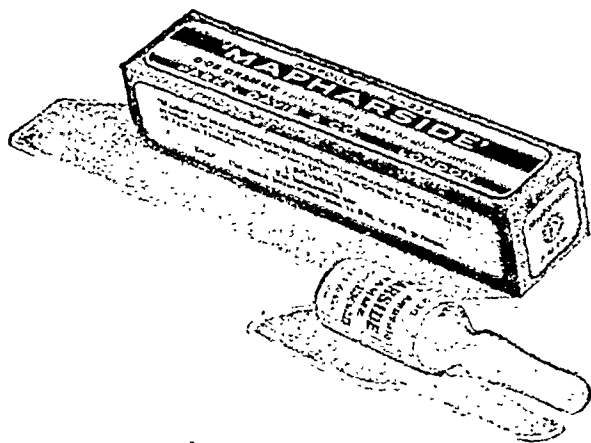
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY, JANUARY 29 1938

THE PATHOLOGY OF ADOLESCENT SCOLIOSIS

BY

R. G. ABERCROMBIE, M.D.

Physician for Orthopaedic Diseases, Royal Hospital, Sheffield; Medical Director, Edgar Allen Institute, Sheffield

Adolescent scoliosis is distinguished from other forms of scoliotic curvature by its incidence among young girls, by the special tendency to rotation of vertebrae which accompanies the lateral curves, and by the obscurity which surrounds its causation and pathology. This last feature has given rise to the synonym of "idiopathic scoliosis," in contrast to curvatures associated with recognized pathological conditions, such as congenital malformation of vertebrae, paralysis of spinal muscle-groups, or contractures following intrathoracic disease. Adolescent kyphosis is also of obscure origin; it differs from adolescent scoliosis in that it shows itself at a somewhat later age, it is far more frequent in boys than in girls, and it gives rise to little or no lateral curvature or rotation. Further, in adolescent kyphosis the x-ray examination shows early and striking changes in the vertebrae, fully described by Calvé and Galland (1930); whereas in adolescent scoliosis the x-ray appearances during the early stages are quite normal, the wedging of vertebrae being a late manifestation. Ambiguity has sometimes arisen in the literature owing to the fact that in true adolescent scoliosis there may be a backward or kyphotic element in the dorsal lateral curve; and also that in true adolescent kyphosis there may be a slight and unimportant lateral deviation. There is, however, no clinical difficulty in distinguishing between the two conditions, and there is little doubt that they are pathologically quite distinct. In this paper I confine myself entirely to the question of the causation and pathology of adolescent scoliosis.

Many theories have been put forward to account for a malady so enigmatic in origin and so severe in its results. Perhaps that most widely held is to the effect that the curvatures are a consequence of some form of weakness of the muscles or other structures of the spine. This view has recently been restated by Hauser (1937), who suggests the term "decompensation" for the hypothetical muscular insufficiency. It is difficult to accept weakness as the sole or principal cause, since the condition may show itself in girls who are muscularly vigorous and strong, leading apparently normal and healthy lives, and may advance to severe and permanent deformity without sign of any malady other than that of the curvatures themselves. It is true that the condition is sometimes seen in girls of the "slender maiden" type, who have "shot up" beyond their strength. Such cases are usually mild and postural in type, since the majority of severe cases show themselves prior to the period of rapid growth. In the "slender maiden" type it seems probable that the bodily weakness may be a subsidiary though not the sole

cause of the abnormal posture. Inequality in the length of the legs, unilateral occupations, and defective respiratory movements of one side of the chest have been put forward as causes. Such factors may give rise to an adaptive curvature, but I have not been able to find clinical evidence of their capacity to cause the characteristic symptoms of true adolescent scoliosis, with its secondary curvatures and rotation and its occasional progressive tendency. Analysis of the aetiological factors and of the symptoms has led me to the belief that the posture and deformities are not due to any form of weakness, but, on the contrary, are the result of long-continued abnormal muscular contraction.

Aetiology

Adolescent scoliosis affects girls far more frequently than boys. It shows itself in late childhood and early youth, and is thus associated with the approach or establishment of puberty.

Social Incidence.—Taking my personal experience over a number of years, I believe that adolescent scoliosis is relatively more frequent among the children of the comfortably-off than it is among the hospital class. I have been impressed by its incidence in the sedulously reared only daughters of well-to-do parents. In the hospital class it is the more carefully tended children that are usually affected; among the neglected children of the very poor it is rare. It is thus certainly not a deprivation disease; on the contrary, it appears to be associated with too anxious and solicitous an upbringing.

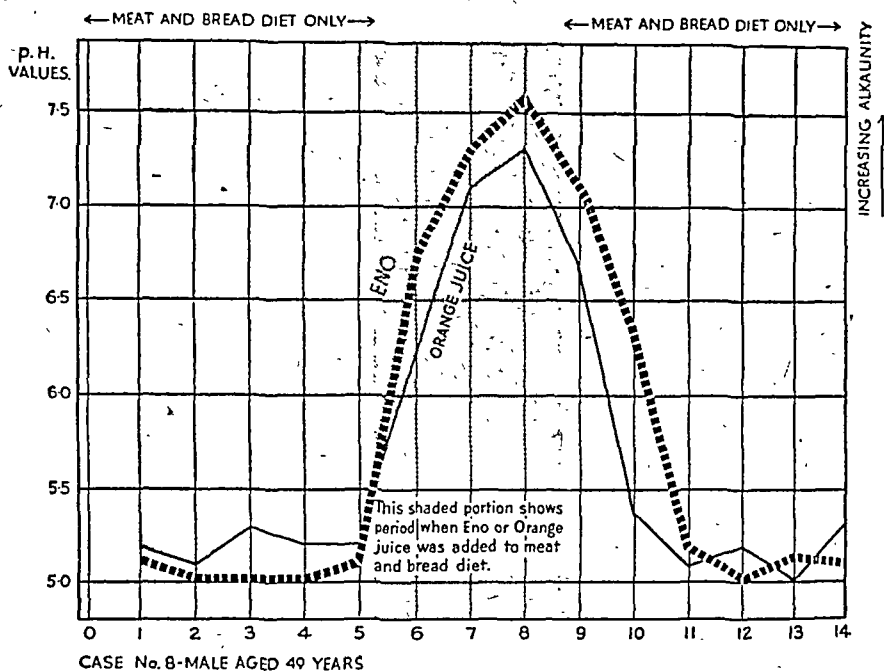
Recent Incidence.—There has been a massive reduction in the number of cases during recent years. This applies to all social classes and to all institutions in Sheffield and, so far as my inquiries go, to the country generally.

Characters of Curvatures

So gradual is the development of the faulty posture that it is usually impossible to fix the time of its origin; indeed, it is often discovered by chance. At this stage the girl does not complain of pain, fatigue, or any other symptom, and seems unaware of the defect in her attitude. The curvature is known as "postural" or "functional" if the form of the vertebrae is unaffected, so that it is possible to redress the attitude; when deformation of the vertebrae has occurred the attitude cannot be fully redressed, and the curvature is known as "structural" or "organic." In structural curvatures the attitude is often accentuated by a superadded functional element. indi-

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In winter time we eat less fruit and green vegetables, and more meat and bread and other heat-yielding but acid-forming foods. What is known as our alkali reserve is thus materially reduced with the result that many of us oscillate between a state of health and half-health.

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ident bearing should be encouraged by games and sports, and there should be friendly comradeship with the opposite sex.

Summary

The posture and deformity of adolescent scoliosis have an affinity with the attitude of bashfulness. This attitude is the expression of the modesty of puberty; it is defensive in origin, and is dependent on an ancestral postural reflex. In certain cases the modesty of puberty deepens into a morbid self-consciousness associated with an exaggeration of the postural reflex of bashfulness; and the consequent long-continued muscular contraction induces the scoliotic posture and deformity. Recognition of the psychological element increases the scope and effect of treatment.

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AN OUTBREAK OF PARATYPHOID AND DYSENTERY IN A TRAINING-SHIP

BY

EDWARD R. PEIRCE, M.R.C.S., L.R.C.P.,
D.P.H., D.T.M.

Senior Assistant Medical Officer of Health, Port of
Liverpool

An outbreak of paratyphoid fever occurred in a Mersey training-ship during September, October, and November, 1937; this was of particular interest in that it happened in a closed community and ran concurrently with a smaller outbreak of Sonne dysentery. The vessel is a third-class cruiser, about fifty years old, used in training boys for the lower deck of the Royal Navy or Merchant Service. The ship's complement consisted of the commander, thirteen officers, and 112 boys; in addition the commander's wife and a maid live in the vessel. A local practitioner is responsible for the medical care of the boys.

On October 5, 1937, the following facts were ascertained by the senior assistant port medical officer:

1. That on September 18 two boys, suffering from pyrexia and malaise, were sent to Birkenhead General Hospital for observation, and were subsequently diagnosed as cases of Sonne dysentery; one of them returned to the vessel on September 29, but was again taken ill, and was readmitted to hospital on October 3 with paratyphoid fever.
2. That on September 19 twelve boys complained of diarrhoea. All recovered in twenty-four hours.
3. That on October 1 one boy, and on October 3 two boys, were removed to Birkenhead General Hospital for observation.
4. That on October 4 the visiting medical practitioner was informed by the bacteriological department of the Birkenhead General Hospital that the patients admitted on October 1 and October 3 were suffering from paratyphoid fever.

On October 5 the medical officer of health for the City and Port of Liverpool received notification of a case of ? paratyphoid fever in the training-ship; the boy was examined by the senior assistant port medical officer and removed to Fazakerley Hospital. Bedding and effects of the patient were collected for disinfection and the ship's hospital washed down and sprayed by an inspector of the Port Health Authority.

General Investigations

The boys returned from summer leave on August 26, 1937, and a number of new boys joined between that date and September 30. The latter group included one (G. R. N.) who will be referred to again later in the report; he joined on September 9, reported sick on September 17 with indefinite symptoms, and remained in the ship's hospital until September 24. The following day he went home on week-end leave and did not return to the vessel, his parents withdrawing him for health reasons. (This boy was subsequently visited at home, and his parents persuaded to allow him to enter hospital.) Except for the aforementioned cases no other sickness was reported.

Water and Food Supplies

Drinking-water is obtained from a hydrant on Rock Ferry Pier four times daily, conveyed to the vessel by water-boat, and pumped into storage tanks on the upper deck. The tanks are used exclusively for drinking-water. River water is utilized for flushing latrines, urinals, and lavatories; there is no possible contamination of the drinking-water from this source. Food supplies are kept in store-rooms used especially for that purpose, and are the direct responsibility of the cook, who has the assistance of four boys in the galley. Milk in bulk is used only for cooking; for drinking purposes each boy receives a pint of pasteurized milk daily in a sealed bottle.

Lavatories, etc.

The lavatory accommodation was inspected; it is situated forward, and consists of trough-closets without partitions. The contents of one large tank flushes the system four times a day; a trough-type urinal is similarly flushed. A separate pedestal water-closet and urinal are available for use at night, but are locked during the day. The hospital has a separate water-closet. As the night urinal opened on the sleeping quarters representation was made that it be completely boarded up, and a new scuttle cut into the ship's side for ventilation; this was carried out at once.

Personal Hygiene

The commander undertook that the crew would adhere strictly to the following instructions:

1. That the boys wash and scrub their hands with hot water and soap immediately after micturition or defaecation.
2. That latrines and urinals be flushed every hour, and seats thoroughly scrubbed each day with disinfectant.
3. That handling of food be restricted to the cook and galley staff (four boys); that no other boys be allowed in the galley.
4. That uncooked vegetables, lettuces, etc., shall not be used.
5. That no new boys shall join the vessel during the present term.
6. That no boys be drafted to sea during the present term.
7. All home week-end leave to be stopped.
8. Football fixtures with other teams to be cancelled, but games ashore permitted among the boys themselves.

Sequence of Cases, and Measures taken after October 5, 1937

October 7.—One of the galley boys reported sick, with pain in the left upper abdomen; temperature 100° F.; he was removed to Fazakerley Hospital for observation. Blood was

cating an influence at work which tends to increase the deformity. Functional cases usually recover with treatment, but occasionally they pass into the structural phase while under observation. If the case is structural when first observed, evidence is lacking as to whether an earlier functional phase has been present. The disputed question as to whether certain cases are structural from the beginning is therefore at present undecided. The various anatomical types of curvature need not here be described.

Explanation of Symptoms

The posture and deformity of adolescent scoliosis are an exaggeration of a physiological attitude, that of bashfulness. On more than one occasion I have known an access of bashfulness during medical examination to be mistaken for a postural scoliosis. At the approach of puberty the girl loses the care-free movements of childhood and becomes modest, self-conscious, and sometimes bashful. Modesty is an instinctive safeguard for immaturity. The bashful attitude is also a defensive one; it depends upon the activity of an ancestral postural reflex, and has the effect of a modest self-effacement which conceals the lineaments of the figure by the sidelong posture and the torsion of the trunk. It is thus in complete contrast to the erect attractive poise of fully developed womanhood.

Natural modesty is physiological, but it may deepen into a morbid self-consciousness, and the associated attitude of bashfulness may then become habitual. In such instances the ancestral postural reflex may assume control, the attitude passing by insensible gradations into the pathological posture of adolescent scoliosis. In unfavourable cases the long-continued muscular contraction may induce structural changes in the young and plastic tissues, and the spinal deformity becomes organic.

In the form of curvature most usually seen the predominant curve and rotation are to the right in the dorsal region, with a subsidiary curve to the left in the lumbar region. The abnormal posture is thus most noticeable in the neighbourhood of the right shoulder. The explanation of the frequency of this particular curve may be that the posture is essentially expressive, and that in expressive gestures it is the right upper limb that is usually called into play. It is the right hand that is waved, the right fist that is clenched, and the instinctive posture of adolescent scoliosis is also to the right. In a left-handed girl suffering from scoliosis the curve was to the left in the dorsal and to the right in the lumbar region.

Rotation is thus to be regarded as part of the attitude brought about by muscular contraction, and not as a mere concomitant of the lateral curves, to which it is often quite disproportionate in grade. Rotation is a far more noticeable feature in adolescent scoliosis than in other types of lateral curvature, in which it is a concomitant. A very different pathological condition serves to illustrate the origin of spinal curvatures in long-continued postural muscular contractions. The morbid changes of encephalitis lethargica sometimes lead to the release of ancestral postural reflexes in a perverted form. The bizarre attitudes which result may give rise in young subjects to structural spinal deformities (Abercrombie, 1928).

Significance of the Aetiological Factors

The import of the incidence among young girls has been discussed. Typical adolescent scoliosis is also occasionally seen in boys. At a stage in their development boys sometimes show well-marked feminine characteristics and become as modest and as bashful as a girl, and are thus

also open to the train of pathological events which have been described. The disproportionate incidence among more carefully nurtured children suggests that too anxious a solicitude in upbringing may impair self-reliance and induce a morbid self-consciousness. Several writers have noticed an abnormal psychological state associated with scoliosis. It is not easy to define. The girls are not hysterics; the disturbance is at the level of instinctive behaviour, and the defect is not so much in the personality as in its environment.

The diminished incidence in recent years corresponds to a more rational system of education, with its games and open-air sports. The results are to be seen in an upright carriage and a demeanour at once modest and self-reliant. In former days false modesty seems sometimes to have been taught as part of the curriculum. A manual of conduct published in 1871 recommends "a pleasing modest reserve and retiring delicacy that blushing withdraws from the gaze of admiration." It is interesting to recall that this was the period of the routine use of the back-board.

Instances occur, although they are rare, in which the symptoms of adolescent scoliosis show themselves after an acute infection. The interpretation appears to be that during a critical stage of a girl's development the debility of convalescence may affect her mentality, rendering her timid and self-conscious. This mental change in association with the bodily weakness may induce scoliosis. In one case severe adolescent scoliosis followed directly upon an attack of acute chorea.

Treatment

Although it is difficult to estimate the results I believe that the recognition of the psychological element in adolescent scoliosis increases the efficiency of treatment, and it certainly adds greatly to its interest. The relatives should be instructed that the anxiety which they so often show is unwholesome for the patient, and they should be forbidden to worry her about her attitude. Treatment should be directed to both mind and body. Psychological treatment should be indirect. The girl should be placed in a healthy and cheerful moral atmosphere. The less said about the curvature the better. In the treatment of postural curvatures in my judgment it is best to disregard the individual curves altogether and to rely on free-standing exercises under a judicious and trained instructress. The object of the exercises is to give confidence and to improve the bodily poise, and it is essential that they should be enjoyable.

Structural curvatures are a more difficult problem. Much ingenuity has been employed in the design of exercises to correct special curves and to strengthen special muscle-groups. However skilfully carried out, the results are disappointing. I incline to the view that in place of this highly specialized treatment equally good results are obtained by general exercises of an invigorating and enjoyable character designed to improve the bodily poise. With some diffidence I record the impression that the condition may be sometimes actually aggravated by too intense an attention directed to particular curves. In overgrown girls it is reasonable to order a daily period of dorsal recumbency. It is outside the scope of this paper to discuss the treatment of severe structural curvatures by means of forcible reduction, fixed apparatus, or surgical operation.

A few words may be added with regard to prevention. Parental solicitude should not be allowed to interfere with the development of self-reliance. A free and con-

TABLE I

Case	Hospital		Faeces		Urine		Blood/Widal		Remarks	
	Admitted	Discharged	Date	Result	Date	Result	Date	Result		
G. R. N. ..	Fazakerley 13/10/37	15/11/37	14/10/37 17/10/37 17/10/37 20/10/37 21/10/37 22/10/37	Negative " " " " "	14/10/37 17/10/37 17/10/37 20/10/37 21/10/37 22/10/37 25/10/37 1/11/37 4/11/37	B. para. B - Negative Negative B. para. B + Negative B. para. B + Negative "	13/10/37 15/11/37	Negative "	Lined training ship as a new boat. 9.7.37. 17.9.37 14.9.37. 14.9.37. 14.9.37. Returned to the ship on 27.9 and 28.9.37. back to ship. Admitted to Fazake- rley H. on 13.10. Diagnosis: Paratyphoid B; Unusual carrier	
R. W. ..	Birkenhead General 18/9/37	29/9/37	20/9/37 24/9/37	Occult blood Sonne dys. +				11/10/37	"	Diagnosis: Sonne dysentery
J. V. ..	"	"	20/9/37	Occult blood Sonne dys. -				19/9/37 4/10/37 8/10/37	B. para. B + 25 " 1,500	Weakness, diarrhoea, cough Diarrhoea and headache Diagnosis: (a) Sonne dysentery (b) Paratyphoid B
	Readmitted 3/10/37		Several examinations done. All negative (No dates given)							
A. T. ..	Birkenhead General 1/10/37	23/11/37	6/10/37 11/10/37 18/10/37	B. para. B - Negative Examinations since—Negative (No dates given)		Negative " "	4/10/37	" 1,200	Pain in left loin, and rigors Pyrexia—no diarrhoea Diagnosis: Paratyphoid B	
W. W. ..	Birkenhead General 3/10/37	"	6/10/37 11/10/37 19/10/37	Negative B. para. B - Negative Examinations since—Negative (No dates given)	6/10/37 11/10/37 19/10/37	Negative " "	4/10/37	" 1,100	Pyrexia and similar symp- toms Diagnosis: Paratyphoid B	
A. L. ..	Fazakerley 5/10/37	4/12/37	6/10/37 8/10/37 20/10/37 23/10/37 30/10/37 31/11/37 6/11/37 10/11/37 13/11/37 17/11/37	B. para. B - B. para. B + B. para. B + " " Negative "	6/10/37 8/10/37 20/10/37 23/10/37 25/10/37 30/10/37 3/11/37 6/11/37 12/11/37 13/11/37 17/11/37	Negative " " " " " B. para. B - Negative "	14/10/37	" 1,20,450 B. typhosus (H) 1,640 B. typhosus (O) 1,20 B. para. B (O) 1,40 Salmonella 1,320	Sickness, headache, spleen palpable, 2-3 rose spots; general exanthema Diagnosis: Paratyphoid B	
J. L. ..	Fazakerley 7/10/37	"	9/10/37 20/10/37 20/10/37 23/10/37 27/10/37 29/10/37 3/11/37 6/11/37 12/11/37 13/11/37	B. para. B + " " " " Negative " "	9/10/37 20/10/37 20/10/37 23/10/37 27/10/37 29/10/37 3/11/37 6/11/37 12/11/37 13/11/37 17/11/37	" B. para. B - " " Negative B. para. B - Negative "	9/10/37	B. para. B (H) 1,000 Salmonella 1,000	Pyrexia Pain in left abdomen Diagnosis: Paratyphoid B	
N. E. B. ..	Fazakerley 11/10/37	13/11/37	14/10/37 20/10/37 23/10/37	" " "	14/10/37 20/10/37 23/10/37 27/10/37 29/10/37	" B. para. B - Negative "	13/10/37	Negative	Pyrexia Diagnosis: Paratyphoid (doubtful)	
W. G. ..	"	"	12/10/37 18/10/37 21/10/37 25/10/37	Sonne dys. + Negative "	12/10/37 18/10/37 21/10/37	" " "	12/10/37	"	Pyrexia Diagnosis: Sonne dysentery	
K. C. ..	Fazakerley 12/10/37	20/11/37	13/10/37 14/10/37 28/10/37 1/11/37 4/11/37	Sonne dys. + Negative "	13/10/37 28/10/37 1/11/37 4/11/37	" " "	13/10/37	"	Pyrexia Diagnosis: Sonne dysentery	
G. H. C. ..	"	28/10/37	13/10/37 18/10/37 22/10/37	" " "	13/10/37 18/10/37 22/10/37	" " "	"	"	Pyrexia Diagnosis: —	
G. B. ..	"	"	13/10/37 18/10/37 22/10/37	" " "	13/10/37 18/10/37 22/10/37	" " "	"	"	Pyrexia Diagnosis: —	
G. H. W. ..	"	"	13/10/37 18/10/37 22/10/37	" " "	13/10/37 18/10/37 22/10/37	" " "	"	"	Pyrexia Diagnosis: —	
A. G. ..	"	"	13/10/37 18/10/37 22/10/37	" " "	13/10/37 18/10/37 22/10/37	" " "	"	"	Pyrexia Diagnosis: —	
D. E. D. ..	"	"	13/10/37 18/10/37 22/10/37 9/11/37 16/11/37 18/11/37 25/11/37 26/11/37 9/12/37 10/12/37	" " " B. para. B + Negative B. para. B + Negative "	13/10/37 18/10/37 22/10/37 9/11/37 16/11/37 18/11/37 26/11/37	" " " " " "	7/10/37 13/10/37 24/11/37	" "	Diarrhoea started 7/11 and continued to 8/11 Diagnosis: Paratyphoid B	
	Readmitted 8/11/37									
		Later Report								

taken for Widal test from twenty boys who gave a history of pyrexia and/or diarrhoea since August 26. Specimens of faeces and urine from the cook and four galley boys were forwarded to the City bacteriologist.

October 11.—Two boys with pyrexia removed to Fazakerley Hospital for observation. Blood for Widal test taken from the cook and galley staff.

October 12.—Eight boys with pyrexia and/or diarrhoea removed to Fazakerley Hospital for observation. Arrangements made for a daily "temperature parade" of all boys in the ship, and the results reported to the senior assistant port medical officer. All febrile cases, irrespective of symptoms, were drafted to hospital for observation.

October 13 to October 20.—Nineteen boys were segregated during this period.

October 18.—Blood was taken from the six remaining new boys who joined the vessel on or after August 26. Arrangements were completed for the routine examination of faeces from all aboard, and six specimens were submitted daily to the City bacteriologist.

October 31 and November 6.—Three boys on the former and one boy on the latter date were removed to Fazakerley Hospital.

November 8.—Two boys were readmitted to Fazakerley Hospital suffering from severe diarrhoea.

November 12.—A dysentery carrier was isolated from the routine examination of stools and removed to Fazakerley Hospital.

The question of preventive inoculation with T.A.B. was considered, but was rejected on account of the danger of masking future cases and the absence of evidence as to the advantage of such inoculation during the course of an epidemic. It was, however, deemed expedient to obtain permission of parents and guardians for the inoculation of boys should the contingency arise. This was obtained in all cases except those under the care of one voluntary society, which refused.

The total number of admissions to hospital for observation was forty-four (including three readmissions), and the following results were obtained:

Dysentery group	5
Widal +: <i>B. paratyphosus</i> B in faeces and/or urine ..	7
Widal -: <i>B. paratyphosus</i> B in faeces and/or urine ..	4
Widal +: faeces and urine -	4
Widal -: faeces and urine -	24
	44

Investigation and Progress of the Epidemic

The investigation of this epidemic was complicated by the presence of both paratyphoid B and Sonne dysentery; the fact that it was confined to a closed community where strict discipline could be maintained was of material assistance.

Dysentery Cases

A scrutiny of the bacteriological reports (Table I) reveals the isolation of *B. dysenteriae* Sonne from one patient (S. C.) who had no previous symptoms. This boy joined the vessel on July 14, 1937, and the dysentery epidemic began on September 18, when two boys (J. V. and R. W.) were sent to Birkenhead General Hospital. Next day twelve boys complained of diarrhoea, which cleared up in twenty-four hours. These facts were first reported to the Port Health Authority on October 5, following which a routine examination of faeces was instituted. From these examinations a positive return (S. C.) was made on November 9; the boy was removed to hospital, and since his segregation no further cases have occurred. In attacks of mild diarrhoea in two other cases the organism was isolated from the faeces; these patients were admitted to

Fazakerley Hospital, one (W. G.) on September 11 and the other (K. C.) on September 12.

One case (J. V.) was of particular interest. This patient was discharged from Birkenhead General Hospital on September 28 and readmitted on October 3 with paratyphoid fever; he would therefore seem to have incubated paratyphoid during the course of his dysentery.

Paratyphoid Cases

The Liverpool Port Medical Officer was first notified of paratyphoid fever in the training-ship on October 5, and investigations were proceeded with to find the source of infection. Attention was directed to the water supply, food supply, galley staff, and the possibility of a carrier or missed case.

Water Supply

The storage tanks on the forecastle head and main deck were examined and samples taken by an assistant to the City bacteriologists, with the following results:

	Bacteria per c.cm. at 37° C.	Bacteria per c.cm. at 22° C.	<i>B. coli</i> absent in
Tank, main deck .. 3	114	100 c.cm.	
Tank, forecastle .. 5	143	100 c.cm.	

No organisms of the typhoid group were found in either specimen. After due investigation it was considered improbable that the water supply was the origin of the infection.

Food Supply and Galley Staff

Particular attention was directed to milk and uncooked vegetables, but it was considered unlikely that food was the origin of the outbreak. Samples of blood, urine, and faeces from the cook and four galley boys were submitted to the City bacteriologist. One of these boys (J. L.) was removed to Fazakerley Hospital on October 9 with paratyphoid fever. The blood Widal reaction was positive, and *B. paratyphosus* B was isolated from the faeces and urine. The results from the others were negative.

Carrier or Missed Case

It has already been noted that the boys returned from leave on August 26, and it was ascertained that none of them gave a history of any illness during the vacation. As a number of new boys had joined the vessel between August 26 and September 30 particular attention was directed to this group, and their individual medical histories were investigated. Among them was a boy (G. R. N.) who joined the vessel on September 9; eight days later (September 17) he was sent to the ship's hospital with indefinite symptoms, remaining there until September 24. The following day he returned home on weekend leave, but did not return to the vessel, his parents withdrawing him for health reasons. He was visited at home, and ultimately his parents consented to his removal to hospital. He was admitted to Fazakerley Hospital on October 13, and the next day *B. paratyphosus* B was isolated from the urine; the blood and faeces were negative. On two later dates (see Table I, G. R. N.) *B. paratyphosus* B was again isolated from the urine; both the blood and faeces still remained negative. He was discharged from hospital on November 15; but although at all times the blood Widal was negative and *B. paratyphosus* B was not isolated from the faeces, the fact that the urine was positive on three separate occasions and also that he was a new boy in the vessel seems to indicate that he was the origin of the outbreak.

A urinary carrier with a consistently negative Widal reaction is very rare, but a similar case has been reported by V. Glass and H. D. Wright (*J. Path. Bact.*, 45, 438);

TABLE I (continued)

Case	Hospital		Faeces		Urine		Blood Widal		Remarks
	Admitted	Discharged	Date	Result	Date	Result	Date	Result	
C. E. W. ..	Fazakerley 31.10.37		1/11/37	Negative	1/11/37	Negative	18.10.37 1/11/37	Negative B para B (H) 1/16/1	Pyrexia. For observation
			15/11/37	"	15/11/37	"	15/11/37	B para B (O) 1/20 B para B (H) 1/80 B para B (O) 1/20 Salmorella 1/20	Diagnosis— Doubtful Paratyphoid
E. W. B. ..	"	27/11/37	21.10/37	"	1/11/37	"	1/11/37	Negative	Pyrexia. For observation
			1/11/37	"	4/11/37	"			
			4/11/37	"	4/11/37	"			
			16/11/37	"	16/11/37	"			
			23/11/37	"					Diagnosis—nil
C. J. S. ..	Fazakerley 5.11.37	"	22.10/37	"	8/11/37	"	8.11.37	"	Pyrexia. For observation
			15/11/37	"	15/11/37	"			
			17/11/37	"	17/11/37	"			Diagnosis—nil
J. A. V. ..	Fazakerley 6/11/37		29.10/37	"	8/11/37	"	8.11.37	"	Pyrexia. For observation
			6/11/37	"	15/11/37	"			
			8/11/37	"	15/11/37	"			
			15/11/37	"	17/11/37	"			
			17/11/37	"					Diagnosis—nil
S. C. ..	Fazakerley 12/11/37		9/11/37	B. dys. Sonne +	15/11/37	"	15.11.37	"	Dysentery carrier. Joined vessel 14.7.; leave, 1.8. to 20.8. No history of any illness.
			15/11/37	Negative	29/11/37	"			Diagnosis: Sonne dysentery carrier
			29/11/37	"					
			3/12/37	"					
			6/12/37	"					

TABLE II.—Paratyphoid Cases, including Doubtful Cases

Sept. 17 (G. R. N.)							
Oct. 1 (A. T.)	Oct. 3 (J. V.)	Oct. 3 (W. W.)	Oct. 5 (A. L.)	Oct. 7 (J. L.)			
Oct. 11 (N. E. B.)	Oct. 12 (L. B.)	Oct. 12 (A. C.)	Oct. 13 (S. R. S.)	Oct. 13 (J. S.)	Oct. 13 (J. G. L.)	Oct. 13 (R. M. H.)	
(C)			(C)			(C)	
Oct. 31 (C. E. W.)							
(C)							
Nov. 8 (D. E. D.)							

had the organism been isolated on one occasion only, suspicion would naturally have fallen on the technique employed in collecting the specimen, but it would appear more than unlikely that the specimens of urine from this particular patient could be contaminated accidentally on three different dates. On October 1—that is, fourteen days after this boy first entered the ship's hospital—a case of paratyphoid was removed to Birkenhead General Hospital.

Table II shows the incidence of the paratyphoid cases, including doubtful ones, and it will be observed that, assuming G. R. N. to be the origin of the epidemic, a group of five cases occurred between October 1 and October 7; another group of seven cases between October 11 and October 13; one doubtful case on October 31; and the last one on November 8. This seems to indicate that the removal of the original source of infection, plus the rigid carrying out of the personal hygiene instructions, was successful in cutting short the outbreak. In addition twenty-four boys who at the daily "temperature parade" had shown a rise were sent to hospital for observation; repeated examinations of blood, faeces, and urine of this last group were negative. The type of infection was not severe; there were no deaths; one patient was seriously ill but subsequently recovered; the remainder had an uneventful convalescence.

Summary

1. This is the record of an outbreak of intestinal infection in a training-ship, due to *B. paratyphosus* B and *B. dysenteriae* Sonne.

2. The first case of illness was that of a new boy, shown to be a urinary carrier of *B. paratyphosus* B; although blood and faeces were negative the organism was isolated from the urine on three separate occasions. A similar case is reported by V. Glass and H. D. Wright.

3. Of a total complement of 128, eleven boys were definitely paratyphoid and four doubtful; two of the latter had positive Widal reactions, but *B. paratyphosus* B was not found; the blood Widal in the others were negative, and *B. paratyphosus* B was isolated from only one specimen in each case.

4. Mass inoculation with T.A.B. vaccine was considered but decided against. Preventive inoculation of new boys has been advised.

5. Routine examination of faeces revealed a Sonne dysentery carrier as a possible cause of the dysentery outbreak. The organism was isolated in four other cases which showed dysenteric symptoms.

6. Instructions in personal hygiene were issued and stressed early in the epidemic.

7. It was decided to reconstruct the entire lavatory accommodation on modern lines before the end of Christmas leave.

8. Bacteriological investigation of faeces from the personnel has been completed and the epidemic is presumed to be over.

I wish to express my thanks to Dr. W. M. Frazer, medical officer of health to the City and Port of Liverpool, for permission to publish this report.

TABLE 1 (continued)

Case	Hospital		Faeces		Urine		Blood Widal		Remarks
	Admitted	Discharged	Date	Result	Date	Result	Date	Result	
L. B.	Fazakerley 12/10/37		13/10/37 28/10/37 8/11/37 18/11/37 25/11/37	B. para. B + " Negative "	13/10/37 28/10/37 8/11/37 18/11/37	Negative " " "	13/10/37	B. para. B (H) 1/2,560 B. para. B (O) 1/40 Salmonella 1/320	Pyrexia Diagnosis: Paratyphoid B
A. C.	"	27/11/37	13/10/37 28/10/37 8/11/37 12/11/37 17/11/37	B. para. B + " Negative "	13/10/37 28/10/37 8/11/37 12/11/37 17/11/37	" " " "	11/10/37	B. para. B 1/320 Salmonella 1/2,500	Pyrexia Diagnosis: Paratyphoid B
W. A. C.	Fazakerley 13/10/37	28/10/37	14/10/37 19/10/37 21/10/37	" " "	14/10/37 19/10/37 21/10/37	" " "	7/10/37 14/10/37	Negative "	Pyrexia Diagnosis—nil
G. H. G.	"	"	14/10/37 19/10/37	" "	14/10/37 19/10/37 21/10/37	" " "	"	"	Pyrexia Diagnosis—nil
S. R. S.	Fazakerley 13/10/37 Readmitted 8/11/37	2/11/37 9/12/37	14/10/37 19/10/37 9/11/37 16/11/37 18/11/37	" " " " "	14/10/37 19/10/37 21/10/37 25/10/37 26/10/37 9/11/37 16/11/37 18/11/37	B. para. B + Negative " " " " "	14/10/37	"	Pyrexia Diarrhoea 6/11 to 8/11; sent back to hospital Diagnosis: Paratyphoid— doubtful
J. S.	Fazakerley 13/10/37	27/11/37	12/10/37 14/10/37 8/11/37 12/11/37	" " " "	12/10/37 14/10/37 8/11/37 12/11/37	" " " "	7/10/37 27/10/37	B. para. B (O) 1/80 + Salmonella 1/160 + B. para. B (H) 1/160 B. para. B (O) 1/160 Salmonella 1/40	Pyrexia Diagnosis: Paratyphoid B
J. G. L.	"		14/10/37 28/10/37 8/11/37 12/11/37 17/11/37	B. para. B + " Negative "	14/10/37 28/10/37 8/11/37 12/11/37 17/11/37	" " " " "	7/10/37 11/10/37	Doubtful report Salmonella + 1/160	Pyrexia Diagnosis: Paratyphoid B
R. M. H.	"	27/11/37	12/10/37 14/10/37 8/11/37 15/11/37 17/11/37	" " " " "	12/10/37 14/10/37 8/11/37 15/11/37 17/11/37	" " " " "	7/10/37 27/10/37	B. para. B Type 1/80 B. para. B (H) 1/80	Pyrexia Diagnosis: Paratyphoid— doubtful
B. D.	Fazakerley 14/10/37	28/10/37	15/10/37 26/10/37	" "	15/10/37 26/10/37	" "	7/10/37	Negative	Pyrexia. For observation Diagnosis—nil
W. L. J.	Fazakerley 15/10/37	"	16/10/37 26/10/37	" "	16/10/37 26/10/37	" "	18/10/37	"	Pyrexia Diagnosis—nil
A. E. H. C.	"	"	16/10/37 26/10/37	" "	16/10/37 26/10/37	" "	"	"	Pyrexia Diagnosis—nil
C. S. L.	Fazakerley 16/10/37	"	18/10/37 25/10/37	" "	18/10/37 25/10/37	" "	"	"	Pyrexia Diagnosis—nil
D. W. E.	"	2/11/37	18/10/37 25/10/37	" "	18/10/37 25/10/37	" "	7/10/37	"	Pyrexia Diagnosis—nil
J. B.	Fazakerley 18/10/37	"	19/10/37 25/10/37	" "	19/10/37 25/10/37	" "	"	"	Pyrexia Diagnosis—nil
J. T.	"	28/10/37	19/10/37 25/10/37	" "	19/10/37 25/10/37	" "	"	"	Pyrexia Diagnosis—nil
I. J. S.	Fazakerley 19/10/37	2/11/37	20/10/37 25/10/37	" "	20/10/37 25/10/37	" "	20/10/37	"	Pyrexia. For observation Diagnosis—nil
R. I. G.	"	"	20/10/37 25/10/37	" "	20/10/37 25/10/37	" "	"	"	Pyrexia. For observation Diagnosis—nil
A. F. S.	"	"	20/10/37 27/10/37	" "	20/10/37 27/10/37	" "	"	"	Pyrexia. For observation Diagnosis—nil
B. J. N.	"	"	20/10/37 27/10/37	" "	20/10/37 27/10/37	" "	"	"	Pyrexia. For observation Diagnosis—nil
C. S. S.	Fazakerley 20/10/37	5/11/37	21/10/37 25/10/37	" "	25/10/37	"	22/10/37	"	Pyrexia. For observation Diagnosis—nil
O. B. C.	Fazakerley 31/10/37	9/12/37	22/10/37 1/11/37 4/11/37 16/11/37	" " " "	1/11/37 4/11/37 16/11/37	" " "	7/10/37 1/11/37 24/11/37	" "	Pyrexia. For observation Diagnosis—nil

cannot yet be stated (Walters, personal communication) whether the size of the coronary vein can determine the site of venous obstruction, though it is likely that the size of this vein at operation will be a guide as to whether there is enough venous block in the liver to produce oesophageal piles. There is no need to discuss here the possibility of superior vena cava block causing varices; but it must be clear that once the veins in the lower end of the oesophagus become distended they are columns of blood in direct connexion with the superior vena cava and unprotected by valves.

Operation for Relief of "Splenic Anaemia"

With these details of the vascular mechanisms in mind it is possible to examine the various operative methods of relieving "splenic anaemia." An example of the effect of splenectomy on a patient who had shown previous haematemesis is seen in Case 1. The effect of ligation of the coronary vein has already been dealt with. Warner (1929-30) has reported the result of tying the splenic veins in a boy with "Banti's disease" showing a large liver and ascites. The rationale was to lessen the blood flow through the spleen, and there was a marked immediate improvement. Splenectomy was subsequently necessary, and the patient has been well for the last five years (Warner, personal communication). Ligation of the splenic pedicle has been suggested by McNee (1931), by Graham Bryce (1932), and by Howel Evans (1936). Watson (1935) has reported a successful instance of this operation very similar to Case 2. The patient was a woman, the usual criteria of "splenic anaemia" were present, and she had reached the stage of ascites. Because of adhesions splenectomy was not feasible and the whole pedicle was tied. The spleen became very tender and there was a post-operative thrombosis, but ultimately recovery was complete. Three years later there were no symptoms. The blood picture being slightly subnormal in all respects—as in Case 2—Case 3 is presented as another example of the results of pedicle ligation.

Case 1

A furnace-man, aged 32, was admitted under the care of Dr. A. Douglas Bigland in October, 1935. There was no familial splenomegaly and no residence abroad, and the only previous illness was typhoid fever at the age of 15. There had been a haematemesis six years before, another three years before, and one just before admission. A sallow pallor had slowly appeared, and there had been some symptoms of anaemia. The spleen was found to be one fingerbreadth below the costal margin with no hepatomegaly or ascites. No free hydrochloric acid was produced by a gruel test meal. The barium meal showed no gastro-intestinal abnormality. Dr. Howel Evans reported the blood picture to be: red cells, 3,400,000 per c.mm.; haemoglobin, 35 per cent.; leucocytes, 1,125 per c.mm.; platelets, 122,000; and halometer reading, 7.17 microns. The bleeding and clotting times were unchanged, the fragility normal, and the serum Wassermann negative. By means of large doses of iron for two months the haemoglobin was raised to 80 per cent. and the red cells to 5,000,000. Since several platelet counts showed a consistent reading in the neighbourhood of 100,000 splenectomy was decided on and was carried out by Mr. Hugh Reid. Section of the spleen showed the "diffuse fibrosis usually associated with Banti's disease." In the post-operative period the platelet count did not rise above 700,000 per c.mm. and no thromboses occurred. The patient returned to work soon afterwards and remained well even without iron.

For follow-up purposes he was seen ten months later; he felt very well, was working, and there had been no recurrence of bleeding. The haemoglobin was 100 per cent., the red cells 5,600,000 per c.mm., the leucocytes 12,800 per c.mm., with slight lymphocytosis, reticulocytes 1.5 per cent., and halometer

reading again 7.17 microns. The platelet counts were 165,000 and 186,000 per c.mm. on successive days. On giving a gruel test meal there was again no free acid secreted, but a moderate amount appeared after histamine. Search for oesophageal varices, which was not specially made prior to the operation, showed these to be present and distended sufficiently to be easily recognized by a barium swallow.

Case 2

This patient, a boy of 14 who has for many years been under the care of Mr. J. T. Morrison, to whom I am indebted for permission to publish the case, is an only son and first cousin to Case 3. There was no other instance of splenomegaly or anaemia in the family, and those of his relatives I was able to examine were all normal. From 1929 to 1931 he was in hospital most of the time with the sequelae of an appendix abscess and empyema. There was then no splenomegaly, and two blood counts showed a secondary anaemia and leucocytosis. From 1932 to 1935 there were four haematemeses, and he was in hospital several times. Clinically there was anaemia, some stunting of growth, and a spleen enlarged to an inch below the costal margin. A typical blood count was: red cells, 3,300,000 per c.mm.; haemoglobin, 45 per cent.; leucocytes, 2,500 per c.mm.; and platelets, 137,500 per c.mm. The serum Wassermann was negative, as were those of his parents; the bleeding and clotting times and the blood fragility were within the normal ranges. Operation was refused until 1935, by which time ascites had appeared. When the abdomen was opened the spleen was found to be so adherent that removal would have been impossible. Mr. Morrison therefore tied the splenic pedicle vessels. Recovery from operation was rapid, and the boy gained his proper weight and height. Within a few months he was able to play games for the first time for several years.

I examined him two years later. He was then a well-grown boy, but the olive tint of the face persisted. The rounded splenic edge could be felt on inspiration. The gruel test meal revealed small amounts of free acid. The blood picture (no iron had been given since the operation) showed: red cells, 4,624,000 per c.mm.; haemoglobin, 95 per cent.; leucocytes, 5,680 per c.mm.; reticulocytes, 1.5 per cent.; and platelets, 190,000 per c.mm. The fragility was unaltered. The radiologist was able to show well-filled oesophageal varices.

Recently, after four days of sore throat and pain on swallowing, another large haematemesis occurred, following which the spleen shrank so as to be almost impalpable. The liver was not enlarged, and there was no ascites or other evidence of portal cirrhosis. The oesophageal veins were again seen radiographically. Here once more the dangers to which the varices are exposed—perhaps this time there was an oesophagitis—were emphasized.

Case 3

A married woman, aged 24, was admitted to the Liverpool Royal Infirmary in September, 1936, under the care of Dr. Bigland. She had never been abroad and had had no previous illness of note. Despite this she had always been pale and tired. During the last five years there had been frequent dyspepsia, and food seemed to stick at the level of the lower end of the sternum, and for the last year she had suffered from dyspnoea and substernal effort distress, possibly due to the anaemia. Just before admission she had vomited about two pints of blood. The facies was olive-tinted, the heart showed a basal haemic bruit, and a firm-notched spleen reached to the umbilicus. Dr. Howel Evans reported the blood picture as: red cells, 4,260,000 per c.mm.; haemoglobin, 50 per cent.; leucocytes, 2,250 per c.mm.; platelets, 136,000 per c.mm.; with pallor but no microcytosis of the red cells. The serum Wassermann was negative, and the clotting time, bleeding time, and fragility were within the usual limits. The stomach tube could not be swallowed, but the barium meal showed no gastric abnormality. Extensive oesophageal varices were present. For the next three months the patient was

RECURRENT HAEMATEMESIS IN "BANTI'S DISEASE"

BY

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The physician who discusses the splenic anaemia syndrome finds himself in an uneasy and apologetic position. This is of course because the pathologist is able to make the statement that primary Banti's disease does not exist. But at the bedside the use of the term must be conceded to cover those instances of splenomegalic anaemia for which none of the many known causes can be found. This position is supported by Whipple's (1937) record of a group of thirty-one patients with "Banti's disease." In no fewer than fifteen of these it was not possible to find the causal factor. So that, as Castle and Minot (1936) put it, the problem posed by Banti still remains unanswered. There are three usual explanations employed "to empty the Banti pigeon-hole"—cirrhosis of the liver, obstruction of the splenic vein, and hepato-splenic fibrosis. It is generally held that sections of these spleens reveal changes resulting from long-standing congestion. Whipple uses the term "portal hypertension," and notes that work in his clinic shows that a very high pressure occurs in the splenic vein; and the recollection of the tense bulging splenic veins seen at operation supports this. So that the present attack on Banti's disease is on the vascular and mechanical fronts. But before opening the question of haematemesis I would like to make a few more general points.

In the Liverpool Royal Infirmary records over the last ten years it has only been possible to find twenty cases where there was enough positive and negative evidence to fill the classical criteria. The main facts are embodied in Table I.

TABLE I.—*Twenty Cases of "Splenic Anaemia" at the Liverpool Royal Infirmary (12 men, 8 women; average age, 32.7 years)*

Average Blood Picture:

Haemoglobin, 48 per cent.; red cells, 3,500,000 per c.mm.; white cells, 4,200 per c.mm.; lymphocytic trend.

Platelet Counts:

Thrombocythaemic, 2 cases; normal limits, 2 cases; thrombopenic, 15 cases; no counts, 1 case. Average count in thrombopenic cases, 100,000 per c.mm.

Fractional Test Meals (12 Cases):

Low normal, 4; almost achlorhydria, 1 case; achlorhydria, 7 cases.

Haematemesis occurred in 9 and splenectomy was performed in 7 cases.

It would probably be agreed that the blood picture shown there is the one commonly found. Yet it must be emphasized that such haematological evidence is a shaky diagnostic basis. The red cells and the haemoglobin can be restored to normal by administering massive doses of iron (Davidson, 1934). This must be related to the frequent achlorhydria seen in these cases and those in the literature; though it is not known whether the achlorhydria is histamine-fast. The link between the splenomegaly and the absence of acid is still missing, as is the reason why both the giving of iron and the removal of the spleen correct the anaemia. The leucopenia almost always present in "splenic anaemia" occurs in other splenomegalies and is not diagnostically specific. The platelet count is seen to be low in most cases, but it must be remembered that recent haematemesis will cause an increase to normal

figures: the existence of occasional normal and high counts is again an unreliable diagnostic criterion. The dangers of splenectomy in other than thrombopenic cases have been conclusively shown by Rosenthal (1925) and confirmed by Howel Evans (1928). But with these views Whipple (1937) has expressed disagreement. Because of the relationship of two of the patients cited in this paper an attempt was made to find recorded instances of "familial splenic anaemia," but without success. It was possible to examine six members of this family, but there was no other splenomegaly or anaemia. The only abnormality in the examination and investigation of these people was a persistent thrombopenia in the father of Case 3. Negative though this evidence is, the occurrence in first cousins is probably more than a coincidence.

Splenectomy and Haematemesis

Single or repeated haematemesis is of course a well-known feature of the splenic anaemia syndrome, but it is not so well known that splenectomy does not always remove the liability to this type of bleeding. It had been thought that once the patient had survived the immediate post-operative dangers, the later risk of thrombosis, and the possibility of hepatic cirrhosis he was out of the wood. But most clinicians have had an experience similar to that which aroused my own interest—the rapid and fatal exsanguination of a man apparently doing very well two years after splenectomy. Pemberton (1931) puts this into figures when he records that this symptom recurred post-operatively in 50 per cent. of a group of ninety-eight patients with "splenic anaemia" who bled before the operation. Death was a result of this haemorrhage in twenty-nine patients, against nine from thrombosis and four from hepatic cirrhosis in the larger group of 182 cases of "splenic anaemia." Similarly Dr. Howel Evans, who has followed a smaller series, has seen recurrence after operation in about half the patients and death in several. But it is important to note that only those who bled before removal of the spleen bled afterwards. That these further bleedings are due to growth of the hepatic obstruction is an obvious solution. If we study the figures supplied by Whipple (1937) we will see that much of the recurrent haematemesis is found in the group with hepatic cirrhosis. But I would suggest that though this explanation is obvious it is not the only factor at work. If it were we should have to issue automatically a bad prognosis in these recurrences, and so overlook the patients in whom, as I hope to show, the problem is a simple mechanical one.

If a mouthful of rather stiff barium paste is allowed to slip down the oesophagus of patients who have vomited blood either because of cirrhosis of the liver or "splenic anaemia," the distended oesophageal varices can be outlined radiographically. Kirklin and Moersch (1931) in reporting this confirmed the varices by oesophagoscopy. These veins may extend throughout the lower two-thirds of the gullet; they are large, tense, and immediately submucous. A liability to bleed is obvious, though there may occasionally be another danger spot in distended gastric veins. Kegaries (1934) has shown that the venous bed at the lower end of the oesophagus has three connexions: directly from the portal system via the coronary vein along the lesser curvature of the stomach; indirectly from the splenic pedicle by the vasa brevia; and to the superior vena cava via the azygos veins. In hepatic cirrhosis, then, there will be dilatation of all the veins in the portal system. And the liver will be "by-passed" by a distended coronary vein to oesophageal varices. In "splenic anaemia" without cirrhosis of the liver the venous congestion in the splenic bed will cause the vasa brevia to open up and varices will be formed by the second mechanism. The coronary vein has been tied with good results—as regards haematemesis—when dilated and without result when of normal size (Rowntree, Walter, and McIndoe, 1929). But it

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THE ASSOCIATION OF TRAUMA WITH PROGRESSIVE MUSCULAR ATROPHY

BY

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We know little indeed about the aetiology of progressive muscular atrophy, but its association with trauma in a small percentage of cases has been described by eminent Continental neurologists during the past decade. Thus Alajouanine, Gopcevitch, and Meillaud (1930) gave an account of an interesting case of post-traumatic muscular atrophy, with an illuminating discussion, on the subject. These authors divide such atrophies into different groups.

The Muscular Atrophy Groups

In the first group the muscular atrophy is localized to the region of the muscles in the neighbourhood of the injured joint. They state that to this group belong some of the amyotrophies of the periscapular region which may follow injuries to the shoulder-joint, and suggest that such amyotrophy is of reflex origin, as is indicated by the electrical changes and by the fact that after progressing for several months cases remain stationary or even regress. They define this type as "localized post-traumatic reflex amyotrophy."

In the second group the amyotrophy ensues rapidly upon the injury, and it develops on a paralytic background. Its distribution is generally radicular, and it is accompanied by sensory changes of a dissociated character which suggest that this type may follow minor traumatic fissures of the spinal cord, with resulting frustrated haematomyelia. In such cases the wasting, at first progressive, becomes stationary after a time. They describe it as spinal amyotrophy secondary to frustrated haematomyelia.

In a third group of cases the wasting develops more slowly. It has not been preceded by any notable paralytic phenomena and is not associated with sensory troubles or reflex abnormalities. The atrophy in such cases may be localized or diffuse and non-systematized. The electrical reactions are not myopathic in type, but conform closely to the changes found in the myopathies. This group progresses for a time, but may later display a tendency to regression.

Descriptive Cases

Alajouanine and his colleagues describe the case of a man, aged 34, who was seen at the Salpêtrière for a diffuse muscular atrophy which had slowly progressed over a period of twelve years. The condition had begun two months after an aeroplane accident which had rendered him unconscious, and in addition to contusions had resulted in a split fracture of the head of the radius.

Another case of post-traumatic muscular atrophy is described by Horst Geyer (1934). This patient sustained a fractured tibia and fibula of the right leg in 1905. Four years later wasting was observed in the right thigh. Clubbing of the right foot was also present as a result of acute anterior poliomyelitis which had occurred in infancy. When examined by Horst Geyer in 1932, in addition to the typical claw hands, wasting and fibrillary tremors were widespread. The ankle and knee reflexes were practically absent, and there was no evidence of any pyramidal tract lesion. The small muscles of the hands and feet showed no response to galvanism or faradism.

The next case described by Horst Geyer is that of a male, aged 52, who in 1921 was struck in the small of the back by a branch of a tree. As a result of this he was unable to work for several weeks, but subsequently recovered. Eight years later he fractured his left leg in a motor-cycle accident. When examined at the clinic on May 9, 1930, the left leg showed marked generalized wasting. No abnormalities were observed in the rest of the body. When seen again three years later there were definite signs of progressive muscular atrophy, wasting and fibrillary tremors being present in all the limbs, though they were more marked on the left side than on the right.

Predisposing Factors

Geyer remarks that these two cases of his have in common the onset of progressive muscular atrophy some years after the original injury. In discussing the frequency and pathogenesis of the condition, he says that of the twenty-one cases which appeared at the clinic between the years 1919 and 1933 only one could be shown clearly to be due to trauma. He quotes Kure, who stated in 1931 that the innervation of muscles is fourfold—cerebral, spinal, sympathetic, and parasympathetic—and disturbance of any of these can lead to muscular atrophy. He points out, further, that many eminent neurologists are of the opinion that the main feature is a congenital predisposition, and that trauma has merely "pulled the trigger" in such cases. This theory, he says, is held by Strümpell, Probst, Oppenheim, and others. Marburg asserts that this is merely a possible theory, and that there is no anatomical evidence in support of it. Other authors maintain that one has to consider the question of an acquired disposition. Rose divides the predisposing factors into five groups: one is the simple type previously mentioned; the other four are acquired—namely, toxic; infective; those occurring after cerebrospinal diseases, such as anterior poliomyelitis; and, finally, the traumatic group, such as those associated with fractures. Other authors also stress the association with anterior poliomyelitis in some cases. Thiern considers that there occurs in the traumatic cases a traumatic neuritis which spreads up towards the spinal cord, and eventually by association with the anterior horn cells produces progressive muscular atrophy. Another theory propounded is that, acting on the congenital or acquired predisposition, there occurs in the traumatic cases a shaking or

treated with large doses of iron and weekly injections of liver extract. The details of the various blood counts are shown in Table II (personal observations). It was clear that the case was thrombopenic in type and suitable for splenectomy. The patient, however, preferred the simpler operation of ligation of the splenic pedicle, such as had been so successful with her cousin. Since it seemed to us that this procedure could do no harm ligation was deliberately undertaken. Mr. Hugh Reid opened the abdomen and found the liver macroscopically

TABLE II.—Serial Blood Counts in Case 3

Date	Red Cells (millions)	Leucocytes (per c.mm.)	Platelets (per c.mm.)
9/9/36	Haematemesis—two pints		
10/9/36	4.24	3,200	170,000
11/9/36	4.00	5,900	222,000
14/9/36	4.16	3,200	91,000
16/9/36	3.68	4,000	81,000
18/9/36	4.08	2,800	53,000
21/9/36	4.16	4,000	65,000
23/9/36	4.00	3,200	63,000
25/9/36	4.26	2,250	136,000
28/9/36	4.32	2,800	96,000
1/10/36	3.20	5,600	106,000
	Out-patient—liver and iron		
6/12/36	5.40	5,660	168,000
8/12/36	5.20	—	161,000
9/12/36	5.20	4,750	98,000
16/12/36	5.12	6,520	94,000
17/12/36	Operation		
18/12/36	5.30	16,000	200,000
19/12/36	5.36	16,000	200,000
20/12/36	5.44	14,600	367,000
21/12/36	5.60	9,600	523,000
22/12/36	5.40	—	745,000
23/12/36	4.80	11,500	300,000
24/12/36	5.04	—	504,000
25/12/36	5.20	6,200	196,000
29/12/36	4.80	—	216,000
30/12/36	5.20	—	400,000
31/12/36	4.64	—	—
1/1/37	4.16	12,800	249,000
2/1/37	4.20	11,200	550,000
3/1/37	4.24	—	424,000
5/1/37	4.96	—	291,000
7/1/37	4.70	—	450,000
9/1/37	Discharge. Convalescence with iron		
19/4/37	5.16 (Hb, 85%)	4,800	129,000
1/5/37	5.90 (Hb, 95%)	8,000	147,000

normal, the coronary vein not dilated, but the vasa brevia larger than usual. The splenic artery was tied in two places and the three splenic veins, each as large as one's thumb, were occluded. The post-operative period was stormy, and a good deal of pain arose from the tender spleen. Convalescence was slow, but four months after the operation the patient was able to get about, though pale and suffering from lassitude. The spleen, while considerably shrunken, was still two inches below the costal margin. Though the red cells were over 5,000,000 per c.mm. the haemoglobin was only 85 per cent., and leucopenia and thrombocytopenia were still present. The radiologist was able to show that the varices

in the oesophagus were unaltered. Intensive iron therapy was prescribed, and slow improvement is taking place.

In addition to these three cases it was possible to examine radiologically two other patients who had been subjected to splenectomy for classical "Banti's disease." In a young man who had had haematemesis both before and since operation there were extensive varices throughout the lower two-thirds of the oesophagus. In a middle-aged woman, in whom there had been no bleeding but in whom hepatic cirrhosis had been found at operation, no varices were to be seen.

The results of pedicle ligation will be of interest to those who advocate the operation. The general effect in Case 2 can be described as excellent, since the lad has grown to his proper height and weight and is able to follow a normal life. Locally the spleen has shrunk remarkably and cirrhosis of the liver has not appeared. Yet his life is hazarded by a problem in vascular mechanics. In Case 3, where the ligation was more deliberately carried out, the result was not so good, but further improvement may be seen. Though the red cells and haemoglobin are kept at healthy levels with the use of iron, there are still many general symptoms. The spleen has been reduced, but it is even now too big to be regarded as inactive. The varices, and therefore the risk of further haematemesis, seem unaltered. There was a good deal of post-operative pain and reaction, as would be expected with such a drastic interference with the blood supply. To counterbalance this there is probably a lower immediate risk, and certainly from the low platelet rise much less danger of thrombosis. But on the whole the patient would have been better off with splenectomy, and may even yet need it. From this small experience one might suggest that ligation of the pedicle may be useful in two situations: where the platelet level is normal or high and splenectomy is likely to be followed by a thrombocythaemia of over 1,000,000 per c.mm.; and at those laparotomies where the adhesions are too thick for safe splenectomy.

It becomes clear, then, that the post-operative study of this type of patient shows that whether the dilated veins at the cardia are formed either from portal obstruction or from a more local obstruction they persist after splenectomy and pedicle ligation. The fact that half the individuals with previous haematemesis do not bleed again is probably due to lessening or stoppage of the blood flow upwards through the vasa brevia. That the other half do bleed again is due to the direct communication between the varices and the superior vena cava. Portal obstruction is therefore not essential to maintain the distension. No doubt the bigger the veins are before operation the more likelihood there is of subsequent haemorrhage. It is a fair analogy to point out that cure of varicose veins in the leg is not attained by distal ligation. The proximal ligation or removal of oesophageal varices is a matter of great technical difficulty and beyond my province. Walfers and Kegaries (1933) have suggested the submucous injection of sclerosing solutions. But one may conclude that in those instances where haematemesis follows splenectomy, and haemorrhage, not cirrhosis of the liver, is likely to be the cause of death, the purely mechanical problem of dealing with the varices will have to be faced.

Summary

It has been shown that, because of the persistence of oesophageal varices after operation in cases of "Banti's disease," neither splenectomy nor splenic pedicle ligation will prevent recurrence of haematemesis.

2. The wasting of muscle is frequently not manifest until many years have elapsed since the original injury.
3. The problem of the way in which the atrophy is brought about is discussed.
4. From the medico-legal point of view alone the subject is of very great importance.

I am indebted to Dr. M. E. Disney, medical registrar, for assistance with the case notes at the Bristol Royal Infirmary.

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AETIOLOGY OF ACUTE APPENDICITIS*

BY

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I. The History of Acute Appendicitis

Although appendicitis is usually regarded as a disease of modern civilization a small number of Egyptian mummies have been found to possess unmistakable signs of chronic inflammation of the organ, and in one case, that of a young royal princess, an acutely inflamed and perforated appendix was beautifully preserved.

The first recorded case in modern Europe was in a patient of Mestiver (Germany) in 1759, but the disease does not appear to have been recognized in England until 1812, when Parkinson diagnosed it in London. For some years the aetiology was obscured by the use of the term perityphlitis; but after 1820 appendicitis was increasingly recognized. Between 1820 and 1840 there were thirty-three recorded cases, and during the twenty years 1840-60 the number had risen to 102. In 1918 the deaths from the disease totalled 2,416. The figures showing the incidence of the disease at the Bristol Royal Infirmary are of interest. In 1880 out of 2,591 patients there were four cases of appendicitis. By 1905 the proportion had risen to sixty-four cases out of 3,762 patients, and by 1918 it had reached 113 appendicectomies in 4,021 patients.

DISTRIBUTION OF THE DISEASE IN THE COMMUNITY

Both sexes are equally prone to the disease, and the age of greatest liability is from 10 to 30 years. While it does occur in infants it is rare to find the disease before 3 years of age. It is also rare to find it at the other extreme of life, but it has been known to occur at 84 years. The disease is more serious at the extremes of life than it is during the years of its maximum incidence. As regards the influence of social position, the disease is definitely more common among the well-to-do; poorer people, especially those living in institutions, enjoy a relative immunity. For instance, there was only one case in ten years at Portland Prison. At Clifton College, Bristol, twenty cases occurred among 500 boys in five years, while at Müller's Orphanage, also in Bristol, there were only four cases among 950 children in the same period.

NATIONAL DISTRIBUTION

The disease is commonest in the United States of America, where its incidence is nearly twice what it is in Great Britain. Holland and Sweden have an incidence

equal to our own, but the disease is less common in Denmark, Italy, Spain, and Greece. In the West Indies it is extremely rare among the natives but relatively common among the white population. In the villages of India and China the disease is unknown, but it is seen in the towns, both among the white population and those natives who adopt a European diet. This in fact is true all over the world. Native peoples, among whom the disease has been previously unknown, become very prone to it as soon as they live on a European diet. In seeking a cause of appendicitis the following summary of historical facts will be found helpful.

1. The disease was present, but relatively rare, in this and other countries until the end of the nineteenth century, since when it has become increasingly common in most countries. The rise in England began in 1890, and was pronounced between 1895 and 1905. From 1905 onwards it has been fairly stationary.

2. The rise was at first most marked in the towns; later the rural districts were affected, until at present the incidence is the same for town and country.

3. Inmates of institutions, living on a plain diet, are less prone to the disease than are more well-to-do people.

4. The privations of the war did not affect the frequency of the disease.

5. Appendicitis is unknown in wild animals, while it is common among animals in captivity.

THEORIES OF CAUSATION OF APPENDICITIS

As with all diseases of unknown causation, theories of the cause of appendicitis abound. One of the earliest was that it was due to the replacement, by the water-closet, of the squatting position in the act of defaecation. Another was that the fault lay with the substitution of stone flour rollers by steel ones, but no pieces of steel have ever been found in the appendix.

Of greater interest is the theory that the disease is due to an alteration in the food habits of the people, resulting in a marked reduction of the cellulose intake. During the last forty years English diet has changed very considerably, and it is of interest to examine these changes to see whether they have any bearing on the causation of appendicitis.

- (1) Since 1890 there has been a tremendous increase in the consumption of cocoa and chocolate; but these articles can be dismissed at once, since animals in captivity which develop appendicitis do not eat them.

- (2) *Bananas*.—West Indian natives eat large quantities of bananas, but they do not develop the disease.

- (3) *Butter*.—This commodity has always been plentiful.

- (4) *Meat*.—There is a very close resemblance between the increase in appendicitis and the rise in imported meat in the period 1895-1905. During these years our meat imports doubled, both beef and mutton being affected. There is no doubt but that the average consumption of meat per head of the population increased parallel to the rise in appendicitis, but if we examine the problem further we find that large sections of the community were heavy meat-eaters before 1895. In 1889, for instance, Pearce's dining-rooms in London supplied 30,000 carmen daily with a lunch containing 5 oz. of meat, and each soldier in the British Army was allowed 12 oz. of meat a day, yet the incidence of appendicitis among them was very low.

- (5) *The Reduction in Cellulose Intake*.—Between the years 1890 and 1915 the consumption of preserved meats, butter, tea, cocoa, chocolate, rice, bananas, etc., increased considerably, as has been mentioned, so that the older, coarser, cellulose-containing foods, such as swedes, turnips,

* The successful thesis entered for the Martyn Memorial Scholarship in Pathology in the University of Bristol.

concussion of the spinal cord, which produces a molecular disturbance of the grey substance, and in this way leads to progressive muscular atrophy.

Influence of Injury

The question is further discussed, with the description of another case, by Brodin, Lhermitte, and Lehmann (1931). They state that for some years they have been greatly interested in the subject of the influence of injury on the production of maladies of the central nervous system, on account of the frequency with which certain associated complications appeared which apparently resulted from a "shaking" of the spinal cord. These authors state that they were able to produce progressive muscular atrophy in dogs as a result of trauma, and that pathological examination subsequently revealed that the grey substance of the cord showed degeneration, particularly the anterior horn cells. They were greatly interested in the latent intervals which separated the date of the injury from the first manifestation of the wasting, and describe the case of a patient aged 59 whose past history was entirely uneventful.

In 1925 he was caught between a heavy plank and a ladder after having fallen down several steps, and sustained severe contusions in the region of the dorsal spine. Some months after the accident there appeared very gradually a slight weakness of the right arm. Two years later he sustained a further injury when he fell from a height on to an obstacle and was rendered unconscious.

When seen by the authors in 1931 wasting and fibrillary tremors were well marked in the arm and shoulders, particularly on the right side. There were no abnormalities of sensation, but while the cutaneous reflexes were normal the tendon reflexes were completely abolished in all four limbs. The electrical reactions were correspondingly diminished. There was no sphincter trouble, and no sensory changes were present. The vertebral column did not show any sign of injury or other abnormality.

The authors point out that the latent interval, as manifested in this case, is quite the rule and should not detract from the diagnosis of progressive muscular atrophy, for, as they have shown, it is also borne out by animal experiment.

I shall now describe the history of a patient whom I saw myself on May 22, 1936.

The patient, a man aged 62; stated that for a year and a half there had been increasing weakness in the right arm, together with occasional twitching, as well as slight numbness of the fingers. The past history revealed that forty-two years ago he had sustained a very severe depressed fracture of the skull as the result of a jack falling on his head. Some years later traumatic epilepsy ensued, and this was relieved twelve years after the injury by Sir John Lynn-Thomas, who removed a piece of bone which was pressing on the motor area. The patient stated that he had remained quite well from that time until eight years ago, when the right leg began to swell and was painful. He found, however, that he was able to compensate for this by wearing an elastic stocking.

On examination the first thing to which one's attention was drawn was a very long and deep depression involving the left parietal, temporal, and frontal regions. Then one noticed that fibrillation was very marked on both arms and on both sides of the face. Wasting of muscles was pronounced in the region of the right shoulder and the right arm. The extensor muscles of the right arm were so impaired that he was unable to dorsiflex the wrist. There was the usual wasting, resulting in a typical claw hand. The right arm was flaccid and flail-like, and all reflexes were diminished.

A thorough examination of the central nervous system failed to reveal any other abnormality. The disks were clear

and the fundus oculi was normal. The cranial nerves were normal; the pupils reacted to light and accommodation, and there was no "intention tremor" and no "Rombergism." The sense of position was not impaired, and sensation to heat, cold, pin-prick, and cotton-wool was normal. Speech was also unimpaired. The plantar reflexes were flexor, but the right knee-jerk was rather greater than the left knee-jerk. Muscular power, however, was unimpaired in the legs. The blood pressure was 130/80, and other systems of the body were quite normal.

Since I first saw the patient fibrillation of muscle has become widespread, but though wasting is more marked in the right arm it is as yet not present elsewhere.

I have quoted these cases together with the subsequent discussion at some length because, while British neurologists recognize that syphilis and acute anterior poliomyelitis are occasional aetiological factors in progressive muscular atrophy, the majority deny the association with trauma. For many years, however, eminent neurologists on the Continent have recognized that trauma is a definite causal factor in a small proportion of cases.

During the period 1925 to 1934, inclusive, thirty-one cases of progressive muscular atrophy were admitted to the Bristol Royal Infirmary, and in only three of these do the case notes include a history of injury. It is probable that this number would have been higher but for the fact that many physicians do not inquire about a previous history of injury in such cases because the importance of this is not recognized.

Commentary

There is really no evidence in favour of the idea that trauma merely "pulls the trigger" in cases where there is a congenital predisposition, nor is there any practical support for the suggestion put forward by Thiemann that an ascending neuritis occurs which ultimately involves the anterior horn cells and so produces the muscular atrophy. In the first place we do not generally find such changes with neuritis, and, secondly, symptoms of neuritis are conspicuous by their absence in the history of practically all the cases of post-traumatic progressive muscular atrophy. Localized reflex wasting after injuries of bones and joints is an entirely different condition. We are faced here with the problem of widespread progressive muscular atrophy developing in some cases years after a severe injury. It seems to me that, as some of the French authors have suggested, we are bound to assume that a molecular disturbance of brain or cord is occasioned by the injury. Is this followed by slow degeneration, or does it render the cells susceptible to the subsequent attack of an unknown virus or toxin? With regard to this it will be recalled that a most mysterious feature of the disease is the lack of correspondence between the pathological process and the symptomatology. It is possible, therefore, that degeneration of the Betz cells in the cortex and of the anterior horn cells in the cord may be occurring for some years after the injury before clinical signs become manifest.

In the present state of our knowledge, however, we can only speculate on the way in which the atrophy is brought about, and the purpose of this paper is primarily to put forward evidence that trauma is a definite aetiological factor in some cases of progressive muscular atrophy. From the medico-legal point of view alone it will be realized that this association is of very great importance.

Summary

1. Cases are described which show that trauma is a definite aetiological factor in some cases of progressive muscular atrophy.

Average Time Taken for Various Stages of Inflammation to Develop

Catarrhal inflammation	22 hours (5 cases)
Suppurative	24 " (3 ")
Gangrene	26 " (4 ")
Perforation	42 " (8 ")

Range of Temperatures found in the Series

Subnormal	2	100.1°-101°	1
Normal	1	101.1°-102°	3
98.5°-99°	5	102.1°-103°	1
99.1°-100°	7		

Range of Pulse Rates found in the Series

80-85	6	101-105	0
86-90	4	105-110	1
91-95	4	111-120	4
96-100	1		

V. Examination of the Results obtained during the Investigation**INCIDENCE OF BENT OR STRAIGHT APPENDICES**

75 per cent. of the affected appendices were markedly bent, thus confirming Aschoff's finding that bent appendices are more prone to disease than straight ones. A suggested reason for this will be given later in this paper.

INCIDENCE OF EMPTY AND FAECES-CONTAINING APPENDICES

Aschoff's opinion that diseased appendices are more often empty than full is not upheld, as 75 per cent. of the specimens contained either faecaloliths or fluid faecal matter. This finding will be referred to again in the discussion as to the causation of acute appendicitis.

PROPORTION OF CASES ASSOCIATED WITH SORE THROATS

35 per cent. of the patients complained of a sore throat. Of these, 10 per cent. suffered from chronic sore throat, and in each case the appendix was found to be chronically inflamed. In the remaining cases the patients had never had a similar abdominal pain before, and no trace of chronic inflammation could be found in 90 per cent. of the appendices. These figures are suggestive, if nothing more, and it would appear that there is an association between at least some cases of appendicitis and a slightly preceding sore throat. The series of cases examined was not, however, large enough for any definite results to be obtained.

AVERAGE TIME TAKEN FOR VARIOUS STAGES OF INFLAMMATION TO DEVELOP

Some authors are of the opinion that a definite timetable for the various stages can be made out, but this is certainly not true of the present series of cases. The average time for gangrene to develop is only four hours longer than the average for catarrhal inflammation in a total of twenty-six hours. Perforation, however, seems to be definitely later than the onset of gangrene (forty-two hours as compared with twenty-six hours). The only inference which can be drawn from this part of the investigation is that where a patient has had a characteristic pain for two days, and has a pulse and temperature of 100 or over, the appendix is probably perforated.

PROPORTION OF CASES SHOWING VARIOUS SIGNS AND SYMPTOMS

A point of interest under this heading is the low proportion—40 per cent.—of cases with constipation, which is usually regarded as being one of the most characteristic symptoms. Vomiting—90 per cent.—was a much more reliable symptom.

In 75 per cent. of the cases pain began at the umbilicus, shifting later to the right iliac fossa. This figure corresponds exactly to the incidence of faecaloliths (75 per cent.). Of the cases with faecaloliths 90 per cent. showed pain

commencing at the umbilicus, which would indicate that the initial distension of the appendix is greater in these cases than in those where only a stricture is present. The pain due to the distension is referred to the midline at the umbilicus, because the gut is developed in the midline (Arey).

Two cases showed the interesting condition of pain commencing at the right iliac fossa and later becoming localized around the umbilicus. There is no explanation of this phenomenon in the literature, but both appendices revealed the presence of chronic strictures, and it may be that the localized pain in the right iliac fossa was due to the organ being unduly near the peritoneum of the abdominal wall, so that it was infected early. Simultaneously the stricture was in effect becoming thicker from the mucosal hypertrophy which always occurs and was damming back any faeces in the distal part of the appendix. This would produce distension and consequently pain around the umbilicus.

One case showed diarrhoea instead of constipation. No aperient had been taken.

RANGE OF TEMPERATURE AND PULSE IN THE SERIES

It was confirmed that in acute appendicitis it is unusual for the temperature to rise above 100°, with a corresponding increase in the pulse rate.

INCIDENCE OF FAECALITHS AND STRICTURES

Perhaps the most important point on which the results of this investigation differ from those of Aschoff is in the incidence and importance of faecaloliths. Aschoff holds that their presence is purely fortuitous, and that the inflammation begins not around them but distal to them. In the present series faecaloliths were found in 70 per cent. of cases and strictures in 45 per cent.: only 15 per cent. were free from either. In 20 per cent. both faecaloliths and strictures were seen. Aschoff's finding that the tissue around the faecalolith was not affected was not upheld in a single case. In every instance there were inflammatory changes of various degrees in the tissue around the faecaloliths. In some cases there was chronic thickening, in others catarrhal inflammation, while two appendices were actually perforated around the faecalolith. Of their importance, then, there can be no doubt, and the suggestion is made that they play an important part in the causation of acute appendicitis, upon the following lines.

For some as yet unknown reason faecal matter in the appendix becomes inspissated to form a hard structure—the faecalolith. It is possible that its formation is linked up with the reduction in the cellulose intake, suggested by Mr. Rendle Short to be the cause of the present widespread nature of appendicitis. I would suggest: (a) That if the caecal contents are bulky from the presence of much cellulose the faeces will not enter the appendix as easily as do the very fluid faeces associated with a low cellulose diet. Hence faecaloliths would only be able to form in a smaller number of appendices, because a larger proportion would not contain any faeces for them to form from. (b) That once the faeces had entered the appendix the mucosal glands absorbed water from them. Now in the case of the faeces from a low cellulose diet the result is a hard mass which easily becomes impacted, but where the faeces contain a high proportion of cellulose the result is a softish fibrous mass which can easily be extruded and which would never evoke the inflammatory response which the hard faecalolith calls forth.

Once the faecalolith has been formed it is regarded by the appendix as a foreign body, so that an inflammatory

carrots, parsnips, leeks, and cabbages, have been crowded out, and it is suggested that this reduction in the cellulose content of the diet is at least a prominent predisposing cause of appendicitis. The following points are of importance in this connexion:

(i) The time incidence is correct. Both occurred between 1895 and 1905.

(ii) Cellulose foods were in favour longer in the country than they were in the town, whereas nowadays country and town diets are alike.

(iii) In institutions the older, cheaper cellulose foods persisted longer than among the well-to-do.

(iv) Apes in captivity do not get the coarse fibrous food they do in the natural state.

(v) Rabbits on a cellulose-free diet get appendicitis.

(vi) The disease is also very common among the inhabitants of Tristan da Cunha, who live on an exceptionally low cellulose diet owing to the impossibility of growing cereals on the island.

OTHER CAUSATIVE FACTORS

1. It has been suggested that there is a relation between appendicitis and sore throats.

2. Trauma has inevitably been suggested as a cause.

3. Foreign bodies are sometimes found in inflamed appendices and may be at fault. Especially is this so when the foreign body is one, or more, oxyuris.

4. Faecal concretions are present in 15 to 20 per cent. of cases and in 10 per cent. of apparently normal appendices. Kroghs found concretions in 35 per cent. of perforated appendices and in 27 per cent. of non-perforated appendices.

5. Kinks of all kinds have been accorded a causative function.

6. The disease has been said to follow chronic intestinal stasis.

II. The Bacteriology of Acute Appendicitis

Aschoff has done a considerable amount of work on the bacteriology of the disease, and gives his results in his monograph on appendicitis. The point he stresses is that the distal part of the appendix, where the inflammation usually starts, has a special bacterial flora of its own, different from that of the proximal part of the organ and certainly very different from the caecal flora. As examination proceeds from the proximal to the distal end of the organ there is first a reduction in the larger bacteria, especially of the spore-bearing organisms of the gas-gangrene group. There is a similar but less rapid reduction in the coliform Gram-negative organisms. The closer one gets to the apex the more Gram-positive organisms there are, but the larger cocci, streptococci, and diplococci disappear, until there only remain fine Gram-positive diplococci and rods (enterococci A and B, haemolytic streptococci). Smears from acute appendices do not usually show a pure culture; some coliform Gram-negative organisms are always present and may even be in pure culture. This bacterial flora is found equally in healthy and acutely inflamed appendices, and the important question arises as to how the fine Gram-positive organisms at the apex suddenly take on an increased virulence, sufficient to cause an acute inflammation of the organ. To this question Aschoff knows no answer. Ricker states that it is due to a circulatory disturbance of nervous origin, causing haemorrhagic infarction of the mucosa through which the organisms can enter. But appendices removed early in the course of the disease do not show this, and Aschoff maintains that no demonstrable circulatory disturbances arise.

Stagnation of Faeces.—Aschoff's experience is that acute appendicitis occurs more often in empty appendices than in those containing faecal matter, and he dismisses the presence of faecaliths as being purely fortuitous. He points out that the inflammation begins *distal* to the faecalith, not around it. (These points are discussed later.) Contrary to Rendle Short, Aschoff holds that diet is of no importance, except that perhaps the amount of food taken may be of some consequence. In his opinion figures concerning frequency of the disease among the various classes of people are useless, as they only take into account the cases which come to operation. But he is probably wrong here, for in such a disease the total incidence and the number of cases operated upon run parallel to each other. Aschoff believes that curved or bent appendices are more prone to the disease than straight ones.

Hilgermann and Pohl contend that the disease is caused by oral organisms which have reached the appendix; and while this may be true for the very few cases in which the pneumococcus has been found in pure culture, it probably does not hold generally, since one would usually expect a preceding history of rhinitis and/or pharyngitis from the virulent organisms.

III. The Purpose of the Present Investigation

This investigation was undertaken in order to elucidate, if possible, certain points about which Aschoff says more information is needed and to see whether the information gained would shed any light on the causation of acute appendicitis. In addition, a number of factors about which there is a difference of opinion and some factors of general interest were investigated. The investigation dealt with the following points:

1. The proportion, position, and importance of faecaliths and strictures.

2. The proportion of empty and full appendices affected.

3. The incidence of sore throats preceding the attack of acute appendicitis.

4. The proportion of bent and straight appendices affected.

5. The proportion of cases showing various symptoms, such as constipation, vomiting, etc.

6. The length of time taken for suppuration, gangrene, and perforation to appear in order to determine whether it is possible to construct a time-table of acute appendicitis, so that its condition may be clinically diagnosed from the time of onset of symptoms.

IV. Data obtained during Investigation

Proportion of Bent or Straight Appendices Affected

Bent appendices	..	..	..	..	..	..	..	15
Straight appendices	..	..	..	..	..	..	..	3

Incidence of Faecaliths and Strictures

Faecaliths only	..	..	14	Multiple faecaliths	..	3
Strictures	..	..	9	Neither	..	3
Faecaliths and strictures	..	..	4			

Empty or Faeces-containing Appendices Affected

Containing faecal matter	..	..	..	..	..	..	15
Empty	..	..	..	..	..	..	3

Incidence of Various Symptoms

Constipation	..	..	8	Pain starting in R.I.F. and		
Vomiting	..	..	18	later moving to umbilicus	..	2
Pain starting at umbilicus	..	..	15	Diarrhoea	..	1
" " in R.I.F.	..	..	3			

Incidence of Sore Throats

Acute sore throat up to 7 days before appendicitis	..	..	..	..	..	3
Chronic sore throat	..	..	..	..	..	2

It is suggested (Bruce, 1937) that the haemorrhage in the second group may be due to rupture of a miliary aneurysm or at a junctional area, and some support is given to this by the record of two patients who had a massive intraperitoneal haemorrhage from an aneurysm of a splanchnic vessel in the absence of gross arterial disease in the abdomen (Illingworth, quoted by Bruce (1937), a man of 75 with aneurysmal rupture of the middle colic artery; Budde, 1925, a man of 27 with aneurysmal rupture of the left gastro-epiploic artery).

Though from the clinical and operative findings the case described would be considered to belong to Group 1, it should, I think, be placed in the second group in the absence of any gross disease of the main abdominal blood vessels.

I am indebted to Dr. Hugh Smith for the post-mortem findings.

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Clinical Memoranda

Pseudo-hypoglycaemic Attacks

In view of the anxiety and distress caused to the parents and the physician by the occurrence of hypoglycaemic attacks during the treatment of diabetes by insulin, the following case record has considerable interest and importance. In the first place, it is interesting to find a young patient—and one, be it noted, who never to our knowledge had had a genuine hypoglycaemic attack—simulate this therapeutic accident. He had, however, through association with another patient in whom hypoglycaemic attacks were the great bugbear of her parents, opportunities of learning of such catastrophes, and it is not unlikely that this was the source of his knowledge. The importance of the clinical story is that it reveals how treatment may be unwarrantably interfered with through the administration of the very article of food to which the patient is intolerant and the withholding of the very means by which this intolerance is circumvented. Indeed, in the patient above referred to as being very liable to hypoglycaemic attacks, the fear of such has led to interruption of the treatment and the rapid development of coma on more than one occasion.

CASE REPORT

The patient is a boy, aged 12 years and 9 months, who has been under observation since 1930. A sister is also a diabetic. Both children have been dieted and been given insulin, and have done fairly well. They have been in hospital on many occasions to have the diet regulated, or because of an upset of balance in consequence of a septic focus or some other intercurrent infection. The boy has been a particularly difficult patient. He resents all restrictions, and unfortunately parental discipline is very unsatisfactory.

On March 6, 1937, he was readmitted to hospital in order to start a high carbohydrate diet and for the regulation of the insulin dosage. At first an attempt was made to stabilize him

on a diet containing 66.5 grammes protein, 57.5 grammes fat, and 110 grammes carbohydrate per day. This was found very difficult: there was considerable glycosuria and slight acetonaemia. Insulin was increased from 14, 14, and 12 to 18, 18, and 16 units before breakfast, dinner, and supper respectively. The boy thought he was being kept in hospital longer than had been promised: he became more and more impatient, and was always asking when he was going home.

March 20.—At 10 p.m.—that is, four hours after his evening dose (14 units) of insulin—he was found by the nurse unconscious, cold, and clammy, with a poor pulse and unable to swallow. He was given immediately 50 c.cm. of normal saline intravenously and 15 grammes of glucose in 2 oz. of orange juice, and by 10.15 p.m. he was quite conscious and seemed better.

March 23.—The diet was changed to 70 grammes protein, 62 grammes fat, and 140 grammes carbohydrate, with 55 units of insulin daily. On this diet there was no acetonaemia, but moderate glycosuria before dinner.

March 25.—At 12.6 p.m. he received 18 units of insulin preparatory for the midday meal. Eight minutes later he became drowsy: he refused to eat his dinner. When shaken he drank some orange juice, but he kicked much, and there were peculiar jerking movements of the arms and legs, which suggested to the resident staff a convulsion. Blood was taken for sugar estimation and he was then given 20 c.cm. of a 10 per cent. solution of glucose intravenously and 30 grammes of glucose by mouth. He was quite normal at 5 p.m. The report of the blood examination revealed 0.155 grammes of glucose per c.cm., a finding which at once raised the question of the attack having been psychic in nature.

March 29.—At 12.15 p.m., about three minutes after the injection of insulin, he had another attack similar to the one described above. Blood was again taken for examination and revealed 0.148 grammes of glucose and 10.4 mg. of calcium per 100 c.cm. Nothing at all by way of treatment was given on this occasion, in view of the previous blood finding, and he came round almost at once.

April 1.—About 11 a.m. (last dose of insulin at 8 a.m.) he became drowsy and ultimately would pay no attention to anything. By 12 noon he was apparently unconscious, and neither the midday dose of insulin nor the midday meal was given. I saw him at 2.30 p.m. He was very drowsy. He refused to answer questions or do anything asked of him, but he could easily be roused by pressure behind the angle of the jaw. The pulse was of good volume and numbered 60 per minute. The opinion was expressed at the bedside that he was "putting it on" and that nothing was to be done. He was then left alone. At 3 p.m. he sat up and said that he would like to have his dinner. This was given with the usual dose of insulin. Urine passed just before the meal was yellowish-green to the Benedict test but contained no acetone. He had another attack of drowsiness at 10 p.m. which lasted for ten to fifteen minutes, but no attention was paid to him and he was soon all right.

On the following day the boy was told that he would be allowed home on a certain date and that we only wished to see how he could stand the extra sugar. From then he had no further attacks; he co-operated well and was quite contented. The diet was changed to 70 grammes protein, 35 grammes fat, and 200 grammes carbohydrate per day, with 24, 22, and 22 units of insulin before breakfast, dinner, and supper respectively. During the last week of residence there was no glycosuria and no acetonaemia, and, as promised, he was discharged on April 26, when he weighed 62½ lb.

Since dismissal in April he has been on the same diet, and since October on protamine insulin, 30 units a day. He has been well of himself, but there is still irregular glycosuria. There have been no recurrences of the above peculiar pseudo-hypoglycaemic attacks, and on December 2 he weighed 67½ lb.

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response is set up around it. If the faecalith is not very big the peristalsis of the appendicular musculature may be sufficient to force it into the caecum, after which it passes along the intestine. But the inflammatory response it has evoked results in the formation of fibrous tissue—a stricture—and it is noteworthy that all the strictures in the present series were found in the same situation as the faecaliths—that is, at the proximal end of the organ. If, however, the faecalith is too large to be forced into the intestine the inflammatory response will be all the greater. The resulting oedema and compression of the surrounding tissue will compress first the lymphatics and veins, and later perhaps the arteries which drain and supply the apex of the organ. Hence it is usually at the apex that the mucosa is first seriously damaged. Once this has happened the small Gram-positive cocci and rods which Aschoff consistently found can make their way through the mucosa, become increasingly virulent, and set up an acute inflammation.

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MASSIVE SPONTANEOUS INTRAPERITONEAL HAEMORRHAGE

BY

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Massive intraperitoneal haemorrhage in the male in the absence of trauma or gross visceral disease is rare, and for that reason it was thought justifiable to put a further case on record.

Case Record

The patient, a man aged 52, was admitted to hospital with a history of a sudden onset of acute abdominal pain six hours previously. This had come on in the umbilical and hypogastric regions and doubled him up. It had since radiated to the right side of the chest and occasionally into the shoulders. On deep breathing the pain in the right hypochondrium was worse. He had had a similar attack of pain a week before. This was confined to the umbilical region and had not radiated. It had lasted three days. During the whole of the week he had had two or three attacks almost daily, the pain lasting a few seconds. There was no history of indigestion and none of trauma, but some frequency and scalding of micturition was experienced. He had been on a diet for high blood pressure and had lost 2 stone.

The previous medical history—for which I am indebted to Dr. R. O. Knowles of Birkenhead, who sent the patient into hospital—showed him to have suffered from bronchitis for some time. He had had two attacks of pulmonary oedema, as well as anginal attacks, and his systolic blood pressure was 200 mm. Hg. For this he had been dieted. He was a fairly well built man, with an emphysematous chest. On admission he was pale and somewhat cyanosed, cold, and clammy. His pulse was 96 and temperature 96.8°. The whole of the abdomen was very tender, this being especially marked in the upper abdomen and right subcostal regions. There was no real rigidity and no loss of liver dullness. In view of the shocked condition of the patient, his history and build, it was thought that he might have an acute pancreatitis. However, though there was doubt as to the actual causative lesion, there was no doubt that the case was one of acute abdominal emergency and should be explored. The pulse had remained stationary during the period before operation, being 98, and his temperature had risen to 98°.

Under spinal anaesthesia the abdomen was opened through a mid-line supra-umbilical incision and was found to be full of blood. A considerable amount was evacuated, and the hand was passed to the splenic region as it was thought that there might have been a spontaneous rupture of the spleen. Unfortunately, the spleen could not be brought into the wound, but nothing abnormal was felt on palpation. The liver, gall-bladder, pancreas, stomach, and intestines were normal; there was no retroperitoneal mass of clot, which was looked for as it was thought that the bleeding might have come from an aortic abdominal aneurysm. The kidneys felt normal, and there was no retroperitoneal collection of blood in the vicinity. The pelvis was also normal. There was staining of the mesentery and omentum, but no intramesenteric clots were present. As gross aneurysm appeared to have been excluded attention was again given to the spleen, as the quantity of blood there seemed to be greater than elsewhere. An attempt was made to bring it into the wound for inspection; this was successful, but in doing so an adhesion was torn. The spleen appeared to be normal; there was a tear in the capsule about one inch by one-quarter inch, certainly due to operative trauma. There was no pulping of the spleen or any subcapsular haematoma. As the patient's pulse was becoming very weak the abdomen was closed, a drain being left in. His pulse improved in volume once the abdomen was closed. A transfusion of one pint of citrated blood was given an hour later. After the operation his pulse rose to 150 and his temperature to 102°, and in the first twenty-four hours the pulse dropped to between 120 and 136, the temperature at the same time varying between 99.4° and 101.6°. However, thirty-six hours after the operation his pulse became weaker; he became much more dyspnoeic; and he started vomiting, dying soon after.

PATHOLOGICAL REPORT

At the necropsy the abdomen still contained a considerable amount of blood, with what appeared to be a greater proportion in the splenic region and an accumulation in an inguinal hernia sac. The stomach was dilated, and the small intestine also slightly distended but otherwise normal, as also were the liver, pancreas, kidneys, suprarenals, and bladder. The spleen was normal in size and texture. There were two tears in the capsule, each about one inch by one-quarter inch, which were considered by me to have been secondary to the operative trauma. The abdominal aorta showed only very slight evidence of atheroma. The heart was enlarged. The orifices of the coronary arteries were normal. There was slight blood-staining on the upper surface of the diaphragm. Though the individual splanchnic vessels were not carefully dissected the absence of any retroperitoneal clot was thought to exclude any aneurysmal rupture.

Comments

Cases of massive intraperitoneal haemorrhage in the male in the absence of trauma or gross visceral disease appear to fall into two main groups:

1. An older group of patients, aged 44 to 60, with marked arteriosclerosis and high blood pressure, the haemorrhage coming from a ruptured splanchnic vessel. Six cases have been described which can be included in this category; of these, two were not operated on, being discovered post mortem (Moorehead and McLester, 1936), and four were operated on. In three of the latter (Starcke, 1923; Green and Powers, 1931; Buchbinder and Greene, 1935) the bleeding point was found, the vessel was ligatured, and the patients recovered. In the fourth case (Hilliard, 1918), where no bleeding point was discovered, the patient died.

2. A younger group, in which the vascular system is healthy and no bleeding point is found. Three cases come under this heading: Churchman, 1911—a man aged 48; Hartley and McKechnie, 1934—a man aged 31; and Bruce, 1937—a man aged 34. Of these only the last-named survived laparotomy.

conventional headings of neurasthenia, hysteria, anxiety, compulsions, etc. But when we turn to such a common perplexity to the general practitioner as stammering, what do we find? "In the unconscious of many stammerers the whole body represented a penis and the mouth represented the opening of the urethra and anus. Consequently, as Fenichel says, 'The fundamental pleasure in stuttering is that of playing with words which analysis has found repeatedly to be a continuation of infantile playing with faeces, displaced from below upwards—the words being held back as faeces were held back in infancy to produce an auto-erotic pleasure.'" Again, "speech is closely related to the anal-sadistic stage of development. It is found that stutterers have been children who were very difficult to train in toilet habits or whose training itself was over-severe." Or again, in relation to the other bugbear of practice, enuresis, the enuresis of the small girl is attributed to the thwarted desire to be impregnated by the father, and the revenge is taken by the production of "a urinary baby." In both these conditions the authors admit the value of retraining, but hold that the disclosure of the hidden motives such as the above by psycho-analysis is by far the most valuable and useful line of treatment.

It is possible that these conceptions of infantile sexuality may be useful to those who, having made a life-study of the subject, thoroughly understand the genesis, development, and application of the concepts, but we cannot imagine that the general practitioner or the medical student is going to get much help or advantage from a short and rather superficial exposition of them. We would advise those who are interested in "Freudian psychology" to submit themselves to the discipline of a complete study of the subject, and unless they are prepared to undertake that task it is unlikely that this or other similar books will do anything but mystify and mislead them.

THE UROLOGY OF CHILDHOOD

Pediatric Urology. By Meredith F. Campbell, M.S., M.D., F.A.C.S. With a Section on *Bright's Disease in Infancy and Childhood* by John D. Lytle, A.B., M.D. (Vol. i, pp. 570; Vol. ii, pp. 540; 610 figures, 2 coloured plates. £3 3s.) New York: The Macmillan Company. 1937.

Recent years have seen a greatly increased interest in the genito-urinary tract of children and its disorders, partly due to the ingenuity of the surgical instrument manufacturers, and the time is ripe for a comprehensive textbook on the subject. Few if any specialists in this branch of surgery are better qualified than Professor Meredith F. Campbell to write such a book, and his *Pediatric Urology* will be welcomed by all those, physicians and surgeons alike, who deal with sick children. The work is divided into two volumes (each with an index covering both), and there are over 1,350 illustrations, including two coloured plates. In the first volume Professor Campbell discusses methods of examination and diagnosis, and there is also a long chapter on the anatomy, physiology, embryology, and anomalies of the urogenital tract. The other two chapters in this part are concerned with obstructions of the urinary tract and with urinary infections. The second volume contains chapters on diseases of the genital organs, injuries, calculus, tumours, enuresis, and the special surgery of the genito-urinary tract in childhood. Dr. John D. Lytle contributes a valuable account of Bright's disease in infancy and childhood—for Professor Campbell holds that the urologist should be as conversant with medical as with surgical diseases of the kidney. There is also an

interesting chapter on disorders of the neuro-muscular mechanisms of the urinary tract.

The first impression of these two beautifully produced volumes is that the author has performed his task in a thorough manner. He explains in a preface that it has taken ten years to do this, and the extensive bibliographies given at the end of each chapter indicate that he has drawn not only on his own extensive experience but also upon the experiences of others in a vast and increasing volume of literature. Random sampling of sections likely to contain controversial matter provides evidence of a balanced judgment, and opposing views are fairly quoted and criticized. Professor Campbell is perhaps pessimistic when he states that "about half of all children suffer from a form of urologic disturbance before they reach puberty." Even, however, if such a statement is somewhat exaggerated, paediatricians are likely to encounter in their daily practice many of the disorders described in this monograph, and it is probable that these volumes will afford great help to them in arriving at a full understanding of this branch of their work.

LOCAL IMMUNITY

Les Immunités Locales. By A. Besredka. (Pp. 224; 35 fr.) Paris: Masson et Cie. 1937.

Professor Besredka's original book on local immunity is out of print. He has now written a new book on the subject, including much recent material. A large part of this is made up of records of successful applications of local immunization, with vaccines or antiviral, both among animals and man. Among the most striking examples are those of oral immunization against typhoid fever. There is little reference to adverse criticism or unsuccessful experiences. In places Professor Besredka wanders away from local immunization and discusses the superiority of intradermal inoculation as a method of producing general immunity. He also discusses the advantages of injecting antisera near the site of invasion, when passive immunization is employed.

It seems that local immunity can appear in the absence of circulating antibodies. The whole question is therefore wrapped up with that of cellular immunity. Professor Besredka gives a short account of experiments showing the development of immunity in plants, in which the action of circulating antibodies can hardly be invoked.

A GUIDE TO GYNAECOLOGICAL AND OBSTETRIC NURSING

Obstetric and Gynecologic Nursing. By Frederick H. Falls, M.S., M.D., F.A.C.S., and Jane R. McLaughlin, B.A., R.N. (Pp. 492; 83 figures. 12s. 6d. net.) London: Henry Kimpton. 1937.

One of the great faults inherent in the modern method of nursing instruction is that so much attention is directed to purely theoretical subjects that actual nursing technique is reduced to a minimum. It is no doubt essential that the pupil should have a knowledge of the fundamentals of anatomy and physiology, but the tendency to treat her as a kind of second-rate medical student must inevitably detract from her efficiency. This tendency is well shown in the contents of many textbooks and examination papers, some of which imply a standard of medical knowledge at once unnecessary and unattainable. It is for this reason that the latest addition to the literature on the subject is particularly welcome, for while much information of a purely medical character is included, it is given simply and succinctly, and is used mainly as

Reviews

CONGENITAL DEFORMITIES OF THE EYE

Developmental Abnormalities of the Eye. By Ida Mann, D.Sc., M.B., F.R.C.S. With a foreword by Sir John Herbert Parsons, C.B.E., D.Sc., LL.D., F.R.C.S., F.R.S. (Pp. 444; 284 figures. 50s. net.) Cambridge: The University Press. Published for the *British Journal of Ophthalmology*. 1937.

Not so many years ago every congenital deformity of the eye was regarded as the result of a hypothetical intra-uterine inflammation. This conception was itself a reflex of the dominant place that inflammation occupied in general pathology. With fuller appreciation of late years as to the aetiology of disease the multiplicity of factors that may lead to disturbances has come to be recognized, and it is clear that no monistic conception of disease is likely to be valid. Endocrinology, the study of vitamin deficiencies, allergy, and immunity have all affected ophthalmology, but none so markedly as the study of inheritance of disease. Indeed ophthalmology, largely through the pioneer work of Nettleship, was instrumental in guiding other disciplines in this direction.

The modern outlook as applied to maldevelopments of the eye is ably brought out by Miss Ida Mann in her monograph. This is a subject that bristles with difficulties: even the descriptive terms used are exasperating monuments of our ignorance on fundamentals. Such a seemingly innocuous term as "congenital" hides endless difficulties. Chronologically, any injury or disease present in a newborn baby would be regarded as congenital, yet an apparently perfect infant may be the subject of an affection that will make itself manifest later on in life, and which none the less is something that it carried from the days before its birth—retinitis pigmentosa being a case in point. Indeed, birth is itself but a point in a continuous biological development. It is conceivable that a maldevelopment might be due to mechanical interference during foetal and embryonic development, and this has in fact been proved to be the case by experimental embryologists. Yet clinical experience has emphasized the great significance of heredity in many maldevelopments. As it is known that the placenta is not an absolute barrier for the protection of an embryo against noxious substances in the mother's circulation, and that considerable disturbances do occur in the medium in which the embryo grows to natal maturity, the question arises as to how to assess the relative value of these factors on the one hand and of predetermined genetic influences on the other. To that problem no final answer is as yet possible. No balance between genetics and embryology has yet been achieved, and Miss Mann has put ophthalmology under an obligation by her skilful compilation of the clinical data available and her critical review of the likely mechanism in the different groups of maldevelopment.

So much has been achieved by embryologists in the recognition of dissimilar disturbances produced by similar influences at different times in embryonic development that the temptation is strong to see in maldevelopments permanent witnesses of such disturbances at particular times, and to rest on the safe ground of experimental observation.

Miss Mann has written a book with a strong bias in the direction of embryology: the emphasis is not always that which would have been given by other writers, especially geneticists, but the facts are there from which

the reader may draw his own conclusions. Those to whom the minutiae of embryology are deep waters will find simple and clear accounts of the clinical aspects of an important branch of ophthalmology. The references, while not exhaustive, are ample and exceedingly helpful. On the scientific side the book is a contribution that is bound to influence the development of British ophthalmology.

DISEASES OF THE EAR, THROAT, AND NOSE

Diseases of the Ear, Throat, and Nose. By J. Douglas McLaggan, M.A., M.B., F.R.C.S. Eng. & Ed. (Pp. 338; 9 plates, 135 illustrations. 15s. net.) London: H. K. Lewis and Co. Ltd. 1937.
Quelques Vérités Premières (Ou Soi-Disant Telles) en Oto-Rhino-Laryngologie. By M. Ombrédanne. (Pp. 86. 24 fr.) Paris: Masson et Cie. 1937.

Under the first title Mr. J. D. McLaggan has contributed a volume to Messrs. Lewis's General Practice Series. The author has chosen his material so as to offer a full account of those simpler methods of examination and treatment of common diseases that may be required daily in general practice. Endoscopic examination and the more elaborate operations are not included, though a few which the general practitioner is not likely to perform are described in some detail. The book may thus be said to achieve the aim of providing an account of everything which the practitioner is likely to undertake, and even a little more; but it fails to give even an outline of all that can be done by the specialist for these patients. The book, as intended, should be helpful in general practice, but is not suitable for house-surgeons or clinical assistants.

Dr. M. Ombrédanne presents in the form of a series of aphorisms a complete exposition of the principles upon which the practice of otology and laryngology is based. In a book of fewer than ninety pages he tells in laconic sentences all that a beginner needs to know in order to obtain a comprehensive grasp of the subject. There are neither illustrations nor superfluous words, and we are shown how much information can be packed into a little space without making it unreadable. Nor are a few flashes of worldly wisdom lacking. This is written of the removal of wax from the ear: "Si c'est une femme coquette à qui vous avez rendu ce service, laissez-la réjouir du résultat obtenu. Mais ne lui montrez pas le corps du délit; elle vous en voudrait mortellement de vous être permis de supposer qu'elle avait les oreilles sales!" This book is warmly recommended.

COMMON NEUROSES

Common Neuroses of Children and Adults. By O. Spurgeon English, M.D., and Gerald H. J. Pearson, B.A., M.D. (Pp. 320. 12s. 6d. net.) London: George Allen and Unwin Ltd. 1937.

The very multiplicity of books which seek to expound Freudian doctrines to the general practitioner and the medical student shows how difficult is this task. Each author is dissatisfied with the attempts of his predecessors, and full of enthusiasm embarks on the hopeless task himself. In such books the table of contents is always promising, and the one under notice is no exception. Part I covers the structure of the personality, normal development, and the factors which interfere with this and the method of symptom formation. Part II is devoted to the common neuroses of childhood, comprising vegetative and motor and sensory disturbances, social maladjustments, delinquencies, etc. In Part III the common neuroses of adults are discussed under the

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OXYGEN WANT AND OXYGEN THERAPY

During the past fifteen years our knowledge of anoxia (oxygen want) and oxygen therapy has been extended and clarified in many directions. Two concise reviews in book form have been published within the past few years. The first of these was written by two researchers in this country.¹ The second review, which is French, appeared quite recently, the author being Dr. L. Dautrebande, professor in the faculty of medicine, Liège.² Very fittingly he has dedicated his volume to the late J. S. Haldane, the leading authority of modern times in the study of respiration. A third volume³ which touches on parts of these subjects has been reviewed in this *Journal* (October 30, 1937, p. 854).

Although a great deal of information was to hand, from the Haldane and Barcroft schools of research, regarding the effects of oxygen want on respiration and blood gases respectively, what was actually happening in the cells and tissues was not so clear. This required more direct study of gas pressures in the tissues themselves.⁴ Normally in the resting subject the oxygen pressure in the extracellular fluids—for example, serous fluid, lymph, urine—and probably in the cells themselves, is certainly not zero, but varies for different regions between 20 and 40 mm. Hg, or 3 to 6 per cent. atmosphere, while the carbon dioxide pressures are about 40 to 60 mm. Hg, or 6 to 8 per cent. As might be expected, these figures, which apply to man and all laboratory mammals tested, resemble the pressures usually given for gases in venous blood. Effects of oxygen want and oxygen therapy upon tissue gas pressures may be easily tested with experimental animals. Thus acute oxygen want, apart from the histotoxic variety—for example, poisoning with cyanide, which affects the ferment system—always lowers the oxygen pressures in the tissues considerably, and if the fall is much below 40 per cent. of the normal death results. Life is not possible with a tissue oxygen pressure in general anywhere near zero. Locally a zero oxygen pressure is approached only where there is pus, necrosis, and

stasis of circulation—for example, in pyopneumothorax or in the large intestine with food present and fermentation proceeding.

As regards acclimatization to the more severe degrees of oxygen want, the oxygen pressure in the tissues is not raised to normal again even when there is increase both in volume breathed and in red cell count. Such increases seem to be used not to raise the tissue oxygen pressure to normal again but to relieve the work of the heart that is to limit the minute output. Acclimatization is due to the vital organs becoming accustomed to function under the lowered tissue oxygen pressure. Possibly there are changes in the cells concerning such substances as the glutathione of Sir Frederick Gowland Hopkins and the reactions described by Professors Warburg and Keilin. Oxygen secretion, if it does occur in the lungs, is—like any other factor in the body—not capable of keeping the oxygen pressure in the tissues at a normal level during severe degrees of oxygen want. Another important result is that administration of oxygen—even in only double the normal (21) percentage—definitely raises the oxygen pressure in the tissues in a normal animal. This affords the scientific basis for oxygen therapy.

Concerning the powers of endurance, it is found⁵ that mammals cannot live continuously in regions where there is only 10 per cent. or less of oxygen in the atmosphere; this is equivalent to an altitude of about 20,000 feet. Such degrees of oxygen want cause atrophy, degeneration, and even necrosis in the liver, heart, brain, and other organs.^{1, 2, 6} This limit of 10 per cent. was first established with laboratory mammals, and has recently been confirmed for a highly selected community in the South American Andes, as recorded by Dr. Ross McFarland.⁷ Some sulphur miners there work at a slow pace at 19,000 feet, but find that they cannot continue in health if they sleep and live continuously above 17,500 feet. Their camp at 17,500 feet is claimed to be the highest permanent village in existence. The miners descend to 12,000 feet for a proper game of football and also send their wives to this level for confinement, though fertility appears to be maintained at 17,500 feet, where the arterial blood saturation with oxygen is about three-quarters of normal. It is obvious that the Everest climbers should not spend too long camping above 18,000 feet. Some of these climbers, like the experimental animals, have exhibited some temporary resistance, but, since at 27,000 to 28,000 feet the climbers are reported to have suffered from delusions and to require ten breaths for each step forward, oxygen should be at

¹ Campbell, Argyll, and Poulton, E. P. (1934). *Oxygen and Carbon Dioxide Therapy*. London.

² Dautrebande, L. (1937). *Oxygénothérapie et Carbothérapie*. Masson, Paris. (55 fr.)

³ Loewy, A., and Wittkower, E. (1937). *The Pathology of High Altitude Climate*. London.

⁴ Campbell, Argyll (1931). *Physiol. Rev.*, 11, 1

⁵ Campbell, Argyll (1935). *Brit. J. exp. Path.*, 16, 39.

⁶ Büchner, F. (1937). *Klin. Wochschr.*, 16, 1499.

⁷ McFarland, Ross A. (1937). *J. comp. Psychol.*, 24, 189.

a necessary basis for the more practical description of the various treatments involved.

Written jointly by the medical and nursing directors of a large obstetric and gynaecological department, the book is devised more particularly for qualified nurses practising in these subjects, and is meant to supplement rather than to replace the more standard works. Most of the methods described are those employed in English hospitals, though exception might be taken to the routine use of lysol, the administration of pituitrin for retained placenta, and the somewhat violent technique for the resuscitation of babies. The purely medical opinions expressed are also mainly orthodox, though there are some notable omissions—for example, the mandelic acid treatment of pyelitis, the importance of insomnia in pregnancy toxæmia, and the prevention of spread of puerperal sepsis. It is also stated that one-child sterility is due to gonorrhoea, that amenorrhoea is rare in ectopic gestation, and that syphilis is a common complication of pregnancy. But apart from these points, and inevitable Americanisms like "hypodermoclysis," "eclamptogenic," "gavage," etc., the book is a valuable contribution to specialized nursing, and should be studied by all those engaged in its practice.

Notes on Books

It is thirteen years since Dr. LOGAN CLENDENING, clinical professor of medicine in the University of Kansas, brought out *Methods of Treatment*, which contains chapters on special subjects by ten collaborators; and that the book is now in its sixth edition (Kimpton, 42s.) is eloquent evidence that it meets a definite demand. The revision has brought the text into conformity with the eleventh edition of the *United States Pharmacopoeia*; the author has departed from his conservative view about the use of artificial pneumothorax, and in the rewritten chapter expresses agreement with the general opinion. Other changes and additions have been duly made.

In his *Short Dictionary of the History of Medicine* (Jena: Gustav Fischer, 1937, RM. 9, paper; bound, 10.50) Professor B. MAYRHOFFER, head of the Museum of the History of Medicine and formerly rector of the University of Innsbruck, has compiled an excellent work of reference which will be of value not only to the medical historian but also to the practitioner who can read German and takes an intelligent interest in the history of his profession. Within the short space of 224 pages Professor Mayrhofer has accumulated an immense amount of interesting information, including short biographies of eminent doctors and men of science, and a brief description of the most important diseases, drugs, operations, and schools of medicine in all ages. Errors are few and comparatively trivial, such as the omission of Klebs in the mention of the diphtheria bacillus, the attribution of the death of John Howard, the prison reformer, to plague instead of to "camp fever," as typhus was then called, the addition of a superfluous terminal "n" to the name of Sir William Bowman, the substitution of "Paul" for Pierre as the Christian name of Bretonneau, and the date of birth of Sir Frederick Banting as 1991.

In a pamphlet entitled *Prejudicial Assumptions in Poison Cases* (Westhope and Co., 6d.) Miss ALICE RAVEN, barrister-at-law, declares that juries in our criminal courts of assize habitually adopt a prejudiced attitude towards accusations of murder by arsenic. They assume without sufficient evidence, she says, that a lethal dose of arsenic is the cause of death; that previous gastro-intestinal trouble is due to arsenic; that arsenic found in the body was criminally administered; that it was given by the person with the best opportunity; and that to such a

person any benefit accruing from the death is a sufficient motive. She supports these criticisms with an analysis of the Maybrick and the Bryant cases. It is a little surprising to learn that the judges of the King's Bench, whose duty it is to direct juries and later to correct their mistakes on appeal, have these serious blind spots in their otherwise admittedly keen and well-trained eyes. No doubt they will be grateful to Miss Raven for pointing out their shortcomings, and think themselves fortunate in having a critic so free from their disadvantages of training and experience.

The Rickman Godlee Lecture, *The Price of Progress*, delivered by the Very Rev. W. R. INGE at University College, London, on November 22, 1937, is now published, and may be obtained on application, enclosing postal order, to the secretary, University College, Gower Street, W.C.1. (Price 1s.; post free 1s. 2d.)

H.M. Stationery Office has issued in pamphlet form abstracts of the official papers, numbering 140, published from the National Physical Laboratory in the scientific and technical press during the year 1936. It is the first of a series which will be continued annually. The purpose of the abstracts is to provide a concise summary of the completed work of the laboratory, supplementing the information given in the annual reports. An author index and a subject index are included. The price is 1s.

Preparations and Appliances

VITAMIN PREPARATIONS

"Nestrovite" (Roche Products Ltd.) is a preparation of vitamins issued as emulsion and as tablets. It is the result of prolonged researches undertaken with the aim of providing the four indispensable vitamins (A, B₁, C, and D) in a form both pleasant to take and medicinally reliable. One teaspoonful of "nestrovite" emulsion contains the following vitamin content as measured in international units: vitamin A, 5,000; vitamin B₁, 42; vitamin C, 135; and vitamin D, 500. A single tablet contains about one and a half times each of these amounts. These quantities are approximately equivalent to one teaspoonful of cod-liver oil, two teaspoonfuls of orange juice, plus an adequate daily dosage of vitamin B₁.

Both preparations are very palatable and provide a simple method of ensuring an adequate supply of all the essential vitamins. The prices are: 3s. 3d. for a 4½-oz. bottle of emulsion and 14s. for 100 tablets. The marketing of this price of a preparation containing four vitamins in a purified form is striking evidence of the rate at which vitamin chemistry has advanced in recent years.

CALCIUM MANDELATE

Calcium mandelate (Burroughs Wellcome and Co.) is stated to be entirely free from the unpleasant taste which characterizes the soluble salts of mandelic acid (that is, sodium or ammonium mandelate). The mandelic acid is absorbed but not the calcium, and hence the degree of urinary acidity produced is equal to that produced by ammonium mandelate and superior to that produced by sodium mandelate. The manufacturers claim that the compound makes effective mandelic acid treatment possible without the setting up of digestive disturbances. The normal adult dose recommended is 4.4 grammes of the powder, which is equivalent to 3 grammes of mandelic acid.

CAPSULES FOR FURUNCULOSIS

"Glesol" capsules (prepared by the French house of Couturier, Paris, and marketed in this country by Savory and Moore Ltd.) are stated to contain a yeast extract, colloidal tin, colloidal sulphur, lactic ferments, and a gluten coating. They are recommended for furunculosis and other staphylococcal infections.

the treatment is unsatisfactory, or at best uncertain. There are a few obvious causes, such as congenital maldevelopment of the vertebrae, nervous diseases—of which poliomyelitis is the most important—intrathoracic disease—generally empyema—and rarities such as von Recklinghausen's disease. But when all these have been eliminated we are left with a substantial majority in which no obvious cause is present. An immense amount of energy has been expended in trying to explain these "idiopathic" cases. Yet so far no theory, let alone scientific proof, of the causation of lateral curvature has managed to command wide acceptance. It is best to be honest and admit that we do not know. The circumstances attending the appearance of this sinister curvature, which may progress until the patient is hideously deformed, are well known. Girls are affected more often than boys, and the trouble generally begins during the years of puberty—though it may appear any time during childhood. Postural curves, antero-posterior and lateral, develop during the same period, but they are unaccompanied by the structural changes, of which wedging of the vertebral bodies is the most obvious, so characteristic of scoliosis.

Two obvious lines of investigation suggest themselves. Can we find evidence of some obscure bone malacia which causes the spine to buckle under the severe and constantly changing stresses of the growth period? The answer so far has been in the negative, and it is significant that rickets, about which we know a great deal, does not cause scoliosis, unless the disease is of unusual severity. Can we, on the other hand, find a neurological condition which will upset the delicate balance of the muscles controlling the spine? Poliomyelitis comes to mind immediately, and must not be lightly dismissed. We are all familiar with the case of unilateral pes cavus, sometimes accompanied by a little shortening of the affected limb, insidious in onset, and dating from nothing in particular. It is reasonable to suppose that this deformity is the result of poliomyelitis, which was so mild in its acute phase as to escape attention. There are cases in which the abdominal muscles, and apparently no others, have been similarly affected, and a scoliosis has resulted. It is just possible that many "idiopathic" curves are due to the same condition in more deeply situated muscles for which at present there are no satisfactory methods of examination. During the past summer we have been reminded of the ubiquity of the poliomyelitis virus in this country, and it is possible that one of its more remote crimes is the production of lateral curvature of the spine; this line may be worth following.

But why girls rather than boys? On another page Dr. R. G. Abercrombie has advanced a hypothesis which postulates abnormality in an entirely different sphere. He suggests that the trouble is psychological—due to what he calls "bashfulness." There is no doubt that girls at puberty often become "all girlish" and that they are acutely conscious of changes in their physical condition. It has often been noticed that they try to hide the most obvious change by assuming a hunched-up (kyphotic) attitude, and that explanation and reassurance rather than exercises will generally cure the condition. Yet it is hard to believe that faulty posture due to excessive bashfulness can lead to the development of serious structural changes, often the beginning of a lifetime of trouble. This new approach is interesting, perhaps valuable: but we would like to see more evidence, properly documented. Has Dr. Abercrombie got a definition and standard of bashfulness? Is there any hope of independent observers agreeing on their findings after examination of the same series of children? How many bashful children fail to develop scoliosis, and what about bashfulness in boys? Mr. Philip Wiles¹ has recently investigated postural antero-posterior curvatures in adolescents. He found a psychological element among the responsible factors, but he also found an organic abnormality (pelvic inclination) of even greater importance. How much more, then, are we likely to find an organic cause for the serious organic derangement so typical of scoliosis, but perhaps with psychological disturbances as a contributory factor!

ANTI-SCARLATINAL SERUM IN ACUTE RHEUMATISM

The relation of haemolytic streptococcal infections of the throat to acute rheumatic fever has been demonstrated in a convincing manner during the past few years, and this, coupled with a growing dissatisfaction with the immediate and remote results of the use of salicylates, has led J. Eason and G. Carpenter² to study the action of anti-scarlatinal serum in rheumatic polyarthritis and chorea. Their communication deals in detail with just under fifty cases, and the results may be fairly described as encouraging. A stock concentrated anti-scarlatinal serum supplied by Parke, Davis and Co. has been used throughout, all patients being tested first for serum sensitivity. Non-sensitive patients received 30 c.cm. of serum intramuscularly, and this was repeated in thirty-six hours. Sensitive patients were desensitized and the full dose given gradually. There were some departures from this programme—for example, in the case of patients too ill with carditis to receive the full 20 c.cm. at once. Thirteen cases of

¹ *Lancet*, April 17, 1937, p. 911.

² *Quart. J. Med.*, 1937, 6, 93.

hand to prevent further calamity in these very high regions.

That mammals cannot live continuously in an atmosphere containing only 10 per cent. of oxygen leads to interesting conjectures. Some authorities hold that at one early period of the earth's existence there was no free oxygen in its atmosphere and life was anaerobic; the oxygen now present was freed, under the influence of the sun, by that green plant life which laid down enormous deposits of coal. Dr. W. M. Clark, who has carried out important researches on oxidation-reduction potential, considers that oxygen is a scavenger clearing up the waste products of cell metabolism by combustion. From the above it might be tentatively suggested that when mammals were first sprouting from the tree of life the oxygen present in the surrounding atmosphere had risen above 10 per cent., and that is why mammals cannot now become acclimatized to lower oxygen pressures. When the condition of a patient with oxygen want resembles that of an individual forced to breathe less than 10 per cent. of oxygen continuously recovery is impossible.

Turning to modern oxygen therapy, the late J. S. Haldane and others—including Professor Dautrebande²—have much improved the mask method employed by Beddoes (1760–1808) at Bristol; he and Chaussier (1780) appear to be among the first to administer oxygen to patients.¹ Some of the present forms of mask apparatus are too heavy for weak patients but are inexpensive to run and of service for the stronger patients. Sir Leonard Hill introduced the recent chamber and tent methods, but the first comfortable chamber was that of Sir Joseph Barcroft at Cambridge, while tents have been much improved by Dr. A. L. Barach and others. The chamber, or room, methods are the most comfortable, but running expenses are high. Even the simplest tents—for example, the Guy's Hospital tent and the open-top tent of St. George's Hospital in this country—though cheaper than oxygen chambers, cost up to about thirty to forty shillings a day to run, and often demand constant skilled attention. Still cheaper and simpler methods for nurses are the twin catheter method, the forked nasal tube, and the box mask or face tent; the nasal methods cannot be used with blocked nasal passages. Sir Arthur MacNalty includes the references and gives the most recent comparison of all these methods in his annual report (1936) to the Minister of Health. Tents seem valuable for children and for the more restless patients.

Oxygen therapy should of course be used in all cases of excessive dyspnoea and asphyxia as emergency treatment. Also in diseases with cardio-respiratory embarrassment it may certainly keep

a patient alive and enable other therapy—for example, serum in pneumonia—and natural processes to produce a favourable result. Pneumonia, the disease most frequently treated with the aid of oxygen, is responsible for about 500,000 patients, with 100,000 deaths, a year in the United States, where much research is being directed towards reducing this incidence and mortality. With less than half the population of the United States, England and Wales (1936) had 46,000 cases, with over 30,000 deaths. The value of early treatment with oxygen—within the first six hours of onset—in lessening serious complications seems to have been proved in America. Pure oxygen should be used for short periods only—a few hours—the limit recommended for prolonged treatment being 60 per cent., since with higher percentages the late Lorrain Smith found evidence of damage to lung tissue.

Professor Yandell Henderson's advocacy of carbon dioxide as a respiratory stimulant is justified; for carbon monoxide poisoning 7 per cent. carbon dioxide with 93 per cent. oxygen gives the best results, according to a prolonged test in the New York emergency service. In anaesthesia and asphyxia neonatorum 5 per cent. carbon dioxide with 95 per cent. oxygen is useful. Dame Louise McIlroy's apparatus is simple and efficient with the newborn. Artificial respiration is often used in conjunction with oxygen therapy; the Sharpey-Schafer method is still the simplest and most efficient for general purposes, and there is also the recent rocking method of Dr. Eve. The Bragg-Paul pulsator for rhythmical compression of the chest is simple and useful for prolonged periods: it kept a patient with progressive muscular atrophy alive for some years. The Drinker apparatus, although complicated, is perhaps the most physiological, and has been much used in respiratory paralysis. Some recent and fairly full data³ seem to show that with this Drinker treatment only about 10 per cent. of the cases with bulbar respiratory paralysis eventually recovered, as did about 30 per cent. of the cases with spinal respiratory paralysis; nevertheless the immediate and dramatic value of the apparatus is obvious.

LATERAL CURVATURE

If some inquisitive wag circularized the orthopaedic surgeons of this country and asked them—confidentially—what condition baffled, bored, and irritated them more than any other it is probable that most of them would unhesitatingly answer scoliosis. The causes of structural lateral curvature of the spine are for the most part unknown, and

³ Current comment (1937). *J. Amer. med. Ass.*, 109, 1130.

mitted to a rigorous inspection, and a long questionnaire, dealing with the structure of the vessel, accommodation, food, water supply, sanitation, and deratization, has to be answered. Pilgrims are not allowed, as formerly, to bring their own food and individually prepare it: loud speakers inform them when meals are ready for being eaten under sanitary conditions. Medical surveillance is maintained throughout the voyage. Ample arrangements for camp hygiene are made. Improved water supply and drainage, installation of electric lighting, refuse destructors, disinfectors, clean kitchens and bedding all have the effect of keeping the general health good. Some 16,700 pilgrims passed through the quarantine camp at Tor, where examinations of stools, blood, and sputum of any suspected cases were undertaken. These measures found the pilgrims appreciative of all the efforts made for them. A programme of steady improvement in the encampments during the past ten years has thus been rewarded by excellent health conditions among these thousands of more or less irresponsible devotees who congregate at the two holy cities. These annual printed reports form a useful record for reference in the management of mass movements of people under tropical hygienic superintendence.

EMANUEL SWEDENBORG

On January 29 the 250th anniversary of Emanuel Swedenborg's birth will be commemorated by a meeting to be held in the Queen's Hall, London, under the chairmanship of the Swedish Minister, Baron Palmstierna. A many-sided genius who, like Aristotle, Leonardo da Vinci, Goethe, and Thomas Young, took all knowledge for his province, Swedenborg was a physicist, mathematician, chemist, physiologist, astronomer, geologist, philosopher, poet, and theologian. He designed a submarine to attack ships under water, sketched a flying machine, manufactured lenses, designed an ear-trumpet, invented a new stove, was a skilful engraver and book-binder, and an active reformer in the House of Nobles. Though he understood the anatomy and physiology of the spinal cord better than his contemporaries, it was the physiology of the brain which particularly fascinated him because he was searching for the seat of the soul. Psychological activity he believed to reside in the smallest cortical elements hanging at the ends of nerves (nerve cells), different departments of activity being localized in different parts of the cerebral cortex. He further localized the motor centres in the cortex and knew of the relation between the corpora quadrigemina and the movements of the eyes. At a time when methods of investigation were few and imperfect he was interested in the ductless glands, and his constructive imagination anticipated many later discoveries. Appointed assessor of the Royal College of Mines in 1716, Swedenborg held this post until 1747, when he decided to devote his life to the contemplation of spiritual matters. He died in 1772. The first of the English Swedenborg Societies was founded in London four years after his death and became afterwards known as the "London Universal Society for the Promotion of the New Jerusalem

Church." The present Swedenborg Society was established in 1810. First and rare editions of his works and reproductions of his manuscripts may be seen at Swedenborg House, 20, Hart Street, W.C.1. His original manuscripts are preserved in the Royal Swedish Academy of Sciences and in other Swedish libraries.

TUBERCULOUS TRACHEOBRONCHITIS

Cases of tuberculous tracheobronchitis associated with pulmonary tuberculosis have often been reported in the past, and stenotic lesions have been described fully by Eloesser, Haslinger, and Jackson. But the clinical recognition of the earlier manifestations of tuberculous tracheobronchitis and the importance of its occurrence as a complication of parenchymal tuberculosis have been neglected, though the condition is not rare and is of significance in regard to both treatment and prognosis. Three papers have recently been published on this subject, however, from the medical school of the University of Michigan. The attention of the tuberculosis unit had been drawn to a group of patients who developed dyspnoea, wheezing respiration, cyanosis, and intractable cough in the course of pulmonary tuberculosis, these symptoms appearing in some cases when the pulmonary lesions had been regressing satisfactorily. The patients did not respond well to any type of collapse therapy, and 47 per cent. died within a year of the establishment of a diagnosis of tracheobronchial ulceration or stenosis. Bugher, Littig, and Culp¹ have based their pathological study of this condition on 122 necropsies; in every case tuberculosis was the primary cause of death. No less than 41 per cent. of these cases showed lesions in either the trachea or the main bronchi, or both, due to direct contact with sputum containing tubercle bacilli, which gained entrance through the epithelium or through the ducts of the mucous glands, except in some cases in which the main bronchi were affected by direct extension from the peribronchial lesions; this last mechanism was even more important in the intrapulmonary bronchial branches. Tuberculous tracheobronchitis was more frequent in patients with long-standing pulmonary tuberculosis, and although the larynx also was often affected there was no direct relation between the two conditions. Involvement of the tracheobronchial mucosa when it occurred tended to be widespread and most pronounced along the posterior wall. The authors found no definite evidence of healing in any of the ulcers examined, and no presumptive evidence that primary tracheal tuberculosis ever occurs. Samson² describes the characteristic symptoms, stressing particularly the wheezing and rattling, asthma-like attacks in which the difficulty is in inspiration, and paroxysms of coughing. Important physical signs are localized, persistent, audible, and palpable parasternal rhonchi, and the evidence of scattered areas of atelectasis. The diagnosis can usually be made clinically but must be confirmed or refuted by bronchoscopy; gentle manipulation is essential, and the removal of material

¹ *Am. J. med. Sci.*, 1937, 193, 515.

² *J. Thorac. Surg.*, 1937, 6, 561.

rheumatic polyarthritis were treated with serum alone and no relapses occurred. In a second group salicylates were also employed at some time, and in assessing the value of the results special attention was paid to the following: (1) duration of pain and fever; (2) relapse rate; (3) average duration of confinement to bed and to hospital; (4) course of convalescence; and (5) incidence of sequelae. Serum was less efficient than salicylates in securing an afebrile condition, but this was to be expected, and it is interesting that after twenty days all the serum-treated cases were afebrile, whereas about 87 per cent. of untreated cases still showed fever. There were only four cases of true relapse following one course of serum, and the average duration of confinement to bed and hospital, admittedly a fallacious source of information, was forty-two days. The authors wisely refrain from comparing this with the results of other methods of treatment. They believe that the course of convalescence is much more rapid after serum treatment than when salicylates are given; they do not intend at the moment to comment on the incidence of sequelae. There were no untoward results in the patients treated, and while urging that serum therapy should only be carried out in hospital or in equivalent conditions in private practice, they believe that its dangers have been exaggerated. The injections cause a certain amount of local pain, there was an immediate exacerbation of the fever, and about 75 per cent. of the patients developed a mild serum rash. There was one serious reaction: a patient with definite evidence of heart disease developed what may be regarded as a "focal" reaction. The authors suggest that this may be avoided and the serum given even to very ill patients with grave carditis, provided gradually increasing daily doses are used instead of the two ordinary doses in the course. In discussing the effects of the anti-scarlatinal serum it is suggested that some of these may be due to a non-specific action. Three cases of acute rheumatic polyarthritis were given concentrated horse serum containing an equivalent amount of pseudo-globulin. These three cases all showed at least one relapse, so possibly it is the combination of a non-specific element and a specific element in the anti-scarlatinal serum which produces the satisfactory results reported.

CULTURE, COSMETICS, AND MEDICINE

Dr. J. P. Montgomery, in an opening address delivered at the medical school of the Royal Victoria Hospital, Belfast,¹ proved that the humanities are still studied by some members of the medical profession. He called his address "Some Aspects of Medicine and Literature," quoting translations from the Greek anthology made by Dr. J. D. Rolleston and from Martial's epigrams in verse by Sir Raymond Crawford. Dr. Montgomery's survey extends from classical times to those of Clifford Allbutt and William Osler. How little things have changed with the years is shown by the jokes on the *saeva noverca* and the satires on the painting of faces. The Greek anthology tells of a young man who hung a garland on the column at his stepmother's tomb,

thinking that death might have changed her feelings towards him. The column fell and killed him. "Children," says the anthologist, "beware even of the grave of a stepmother." Speaking of the use of cosmetics by the ladies of his day, Lucian says, "Countless drugs are used to doctor their wretched faces. They mix numerous pastes to give a lustre to their disagreeable skins. Some dye their hair like wool, others with colours as bright as the sun at noonday. Those who think that dark hair becomes them best spend their husband's money in scenting themselves with Arabian perfumes. They shamelessly paint their cheeks with bright colours on purpose to show up the excessive pallor of their skin." And so Dr. Montgomery continues his lively paper throughout the ages, giving quotation after quotation with chapter and verse appended until he comes to Dickens and to George Eliot, one of whose characters (Lady Chettam in *Middlemarch*) was assuredly no lover of the highly educated doctor, for she said: "I like a medical man more on a footing with the servants."

THE HEDJAZ PILGRIMAGE

The latest report of the Egyptian Maritime and Quarantine Sanitary Council¹ is the tenth of the series which is annually presented to the Permanent Committee of International Public Health at Paris and to the health authorities of all the countries interested in the pilgrimage to the holy cities of Medina and Mecca. The religious ceremonies, which began on February 20, were attended by about 100,000 worshippers, and there was an increase from 1936 in the number of pilgrims; in the case of those coming from the north it amounted to 60 per cent. The general health was very satisfactory, and the council was able to certify the pilgrimage as having a clean bill of health because of the absence of infectious diseases. As the season for worship advances each year by eleven days it now coincides with a cooler temperature, which accounts for the infrequency of intestinal troubles. In 1936 only a few pilgrims travelled from Jeddah to Medina by air, but this year 105 came by aeroplane, and there are indications that this mode of transport is going to be much more popular in future. Three classes take part in the pilgrimage: (a) Egyptian pilgrims, (b) foreign pilgrims coming via Alexandria, Port Said, and Kantara, and (c) those arriving in steamships by the Suez Canal. All of them have had to submit to variolar vaccination and double inoculations against cholera and typhoid fever. The epidemiology of the countries of origin is studied by the Regional Bureau of Sanitary Inspection for the Near East, and the council is thus made aware of possible sources of infection. By means of international sanitary measures carried out in close co-operation it is not now possible for a pilgrim to obtain a passport unless he is in possession of a medical certificate from recognised doctors stating that he is free of disease. Pilgrims, before being chartered for the voyage, are sub-

¹ *Rapport sur le Pèlerinage du Hedjaz, 1937. Conseil Sanitaire Maritime et Quarantenaire d'Egypte. Alexandrie: Société de Publications Egyptiennes.*

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

METHODS OF GIVING BLOOD TRANSFUSIONS

BY

H. F. BREWER, M.D., B.Ch.

In the consideration of this subject a brief note on some of the indications for blood transfusion and on the selection of a donor and the withdrawal of the blood forms a suitable introduction.

Indications for Blood Transfusion

In the anaemia of acute or chronic haemorrhage blood transfusion should be regarded as imperative if the haemoglobin falls to 40 per cent. (Haldane). A drop below this level is dangerous to life: if the haemorrhage has been controlled transfusion will shorten an otherwise long convalescence. In a severe infection (with or without proved septicaemia) transfusion is indicated if the haemoglobin recedes to 65 per cent.: it aids the patient's resistance by combating the anaemia and also by supplying fresh human complement.

Before a severe surgical operation a minimal haemoglobin figure of 70 per cent. should be aimed at. In surgical shock blood transfusion constitutes the best method of increasing blood volume, which has diminished owing to stagnation of blood in the abdominal veins. Lastly, blood transfusion is a valuable therapeutic weapon in the haemorrhagic states and in blood diseases; in the former it is the only specific, though temporary, remedy for haemophilia.

Selection of a Donor

Any adult individual of either sex, with a normal but not necessarily robust bill of health, is suitable. Syphilis and malaria form the two significant transmissible diseases that must be excluded, and allergic individuals are best avoided. Good superficial elbow veins are of practical advantage. It is better that the donor should be of the same blood group as the patient than that Group O subjects should be employed as "universal" donors. In addition to the standard grouping (satisfactory agglutinating serum is now available commercially, from Messrs. Burroughs Wellcome and Co., with a duration of potency of six months) a direct test for compatibility between a drop of the intended donor's blood and the recipient's serum is advised; this provides a check on the original groupings and also excludes the possibility of a subgroup reaction peculiar to the two individuals concerned. Where grouping sera are not available this direct test may alone form the basis of compatibility. It is preferable that a donor should not have had a heavy meal within two hours of being bled; women may donate without ill effect during menstruation providing the latter be normal.

Collection of Blood from Donor

The donor should lie supine on a table, couch, or bed with the selected arm supported on a small firm pad or sandbag. The pneumatic cuff of a sphygmomanometer is adjusted round the upper arm, and the skin over the front of the elbow well cleaned with ether. The veins are rendered full and prominent by inflating the cuff to a

pressure of 75 to 85 mm. of mercury and also by the donor opening and closing his hand on a roller bandage. On selection of a suitable vein (using palpation, if necessary, as well as inspection) a small intradermal injection of 1 to 2 minims of 2 per cent. novocain is given over the site of intended puncture; about two minutes are allowed for this to act. A tiny nick of about 1/8 inch is then made in this anaesthetized area of skin with the point of a scalpel, its length being only slightly greater than the diameter of the small French's needle to be subsequently introduced: it heals rapidly, does not require a stitch, causes no inconvenience, and is not to be confused with a deliberate incision by cutting down on the vein.

Removal of the blood is carried out by a small French's needle (Fig. 1) attached to about twelve inches of stout

ACTUAL SIZE



FIG. 1.—Small French's needle (stainless steel; length of shaft 35 mm.; 7 S.W.G. at mount, tapered to 13 S.W.G. at point; uninterrupted lumen).

rubber tubing of relatively wide bore (internal diameter 5/16 inch) and preferably interrupted by a short glass tubing connexion near the needle to serve as a window. The needle is inserted into the lumen of the distended vein through the small nick in the skin and held firmly in position by the operator: slight adjustment in the depth of insertion ensures the maximum flow of blood, which is aided by the donor opening and closing his hand on a roller bandage about every half-minute. The secret in securing a satisfactory volume of blood from a donor without difficulty is to obtain a good and rapid flow through the needle and tubing throughout the period of collection; liability to clot formation is thus reduced to a minimum.

Sets of rubber tubing with the glass connexions may be sterilized by boiling, or by being wrapped in a towel and put in an autoclave at 120° C. for half an hour. The French's needles, the points of which it is imperative to inspect regularly with a lens and keep well sharpened, are sterilized in spirit or placed in liquid paraffin in a small glass container that is put in a hot oven at 155° C. for one hour. The tubing and attached needle are well rinsed through with sterile normal saline preparatory to use.

The donor's blood is collected in a sterile graduated receptacle containing sodium citrate solution as an anti-coagulant, admixture being ensured by gentle agitation as the blood flows in. Fifty c.cm. of 3.8 per cent. (isotonic) sterile citrate solution is recommended for 600 c.cm. of blood, this amount being increased or decreased according to whether a larger or smaller volume of blood is to be collected. A concentrated sterile solution of sodium citrate—1 gramme in 4 c.cm. of distilled water—is put up by the British Drug Houses Ltd. in small dark-glass ampoules, and keeps well under these conditions: the contents of two of these ampoules added to 50 c.cm. of distilled water or normal saline (the latter resulting in a slightly hypertonic solution) form a satis-

for biopsy is unjustified, since it may lead to a spread of the parenchymatous disease. Four types of lesion can be differentiated: non-ulcerative and non-stenotic, hyperplastic, ulcerative, and fibrostenotic, though in each type the symptoms must be due to some reduction of the bronchial or tracheal lumen. For this reason healing may not necessarily be beneficial, and perhaps this accounts for the fact that "in general the results with regard to the tracheobronchial lesions have been equally poor whether the patient was treated by bed rest only or by collapse therapy, and whether the designated treatment was instituted before or after the appearance of the symptoms of tracheobronchial disease." In only the first type of lesion, therefore, should a patient be given collapse treatment. In the third paper of this series, Barnwell, Littig, and Culp¹ suggest that ulcerative tuberculous tracheobronchitis is a possible and, in fact, probable cause of obstructive atelectasis, the tendency to which is increased by collapse measures. It is also a probable source of the tubercle bacilli found in the sputum of patients with little radiological evidence of pulmonary tuberculosis, and patients with adequate collapse of the lung. It is easy to understand why these lesions are not affected by collapse therapy, which shortens but does not collapse the rigid bronchi; the symptoms may disappear, however, when bronchial obstruction is produced. Collapse therapy is justifiable only when the pulmonary lesion itself is likely to lead to early death. Tuberculous tracheobronchitis is not merely a clinical curiosity, but a syndrome of practical importance in diagnosis, prognosis, and treatment. It may explain the persistence of tubercle bacilli in the sputum in certain cases and the occurrence of atelectasis; and its detection may prevent unnecessary collapse treatment. This is particularly important in the surgical treatment of patients with long-standing disease, in whom these lesions are much more likely to be present.

ELEPHANTIASIS CHIRURGICA

Swelling of the arm after radical amputation of the breast may indicate a recurrence of carcinoma, but this is by no means always the case. With the object of ascertaining the state of and the part played by the axillary vein in these swollen arms, J. R. Veal² of New Orleans has studied twenty cases radiologically after the injection of thorium dioxide into the basilic vein. He finds that post-operative oedema of the arm may be the result of lymphatic obstruction and so correspond to the elephantiasis chirurgica which Halsted described in 1921, or it may be due to constriction or occlusion of the axillary vein, or to both lymphatic and venous obstruction. Obstruction of the lymphatics alone may appear shortly after operation, or may become perceptible months or even years later. The oedema is persistent and brawny, and may be associated with recurrent inflammatory reactions. Venous obstruction produces a different type of swelling. The oedema is soft, pits on pressure, and subsides partially or completely when the arm is elevated; vasography

clearly demonstrates obstruction to the vein, which may be partial or complete as the result either of thrombosis from handling during operation or of pressure by scar tissue. When the arm is abducted the oedema of venous obstruction may diminish or disappear altogether. Lymphatico-venous obstruction is manifested by a pitting oedema which gradually becomes persistent and brawny, and vasography shows venous obstruction. E. A. Devenish and W. H. Graham Jessop³ have found that non-malignant swelling of the arm appears in one out of every six patients after radical mastectomy, and that in one-third of those so affected the enlargement is great enough to cause some distress. They report encouraging results from continuous suspension of the swollen limb, massage, and the subsequent application of a light corset to the affected arm. These two papers indicate the importance of avoiding injury to the axillary vein when performing radical amputation of the breast. Light artery forceps only should be used upon the tributaries of the vein, and these should be tied with the finest ligature material, close to the vein itself but not close enough to constrict its lumen. Care should be taken that the axillary vein is not handled unduly, that a drainage tube is not left in contact with it, and that so far as possible there is an adequate covering of soft parts to prevent constriction by the healing wound. Not so very long ago some surgeons were amputating these distressingly large arms. The modern treatment of carcinoma of the breast and attention to the details elicited from these recent papers should make such mutilation more than ever unnecessary.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed; they will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Secretary, B.M.A. House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

The standing commission of the International Red Cross held a meeting at the headquarters of the British Red Cross Society in London on January 24, to determine the agenda and arrangements for the sixteenth International Red Cross Conference, which is to meet in London from June 20 to 24.

Sir David Wilkie will deliver the Mitchell Banks Memorial Lecture on "Chronic Duodenal Ileus" in the Medical School of the University of Liverpool on Thursday, February 3, at 4 p.m.

We regret to announce the death, after a short illness, of Sir Thomas Stanton, K.C.M.G., M.D., who had been Chief Medical Adviser to the Secretary of State for the Colonies since 1926, when that post was first created.

¹ *Amer. Rev. Tuberc.*, 1937, 36, 8.

² *J. Amer. med. Ass.*, 1937, 108, 1236.

³ *Brit. J. Surg.*, 1927, 25, 261.

2. Two pieces of narrow stout-walled tubing which fit the side metal tube openings on the barrel of the syringe. One of these, about ten inches in length, has a weighted perforated sinker at one end; the other, about six inches long, terminates in a male tubing mount which exactly fits into the mount of the metal Jubbé needle.

3. The Jubbé needle, with its well-fitting trocar, the sharp point of which projects just beyond the rounded end of the needle when the mounts of both are in apposition.

The two pieces of rubber tubing are fixed to the side tubes of the syringe, and the perforated sinker at the end of one is placed in sterile saline solution. The syringe and attachments are now filled completely with saline by drawing the latter into the barrel whilst the groove on the plunger is opposite the saline connexion opening, and expressing it through the other piece of tubing after rotating the barrel through 180 degrees to bring the groove opposite the outlet orifice; more saline is then drawn into the syringe, which is left full.

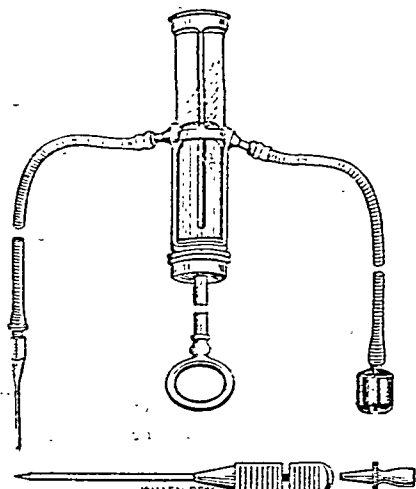


FIG. 4.—Jubbé syringe and needle.

With the same technique as described under Method A, the Jubbé needle, with its projecting trocar, is pushed into a distended anterior elbow vein of the patient through a nick in anaesthetized skin at the site of intended puncture. A rapid efflux of blood from the needle following momentary withdrawal of the trocar indicates a satisfactory insertion. The sphygmomanometer cuff is immediately deflated and the needle fixed to the skin by adhesive strapping, which passes over its shoulder. The trocar is now withdrawn and the male mount on the end of the syringe outlet tubing quickly attached to the needle mount. By pushing down the plunger of the syringe, with the groove opposite the outlet orifice, and injecting saline into the vein it can be seen whether the needle is well inserted. This assured, the tubing end with the perforated sinker is transferred from the saline to the container with the donor's citrated blood. The latter is drawn up into the syringe and injected into the patient in a series of syringefuls by manipulation of the plunger as described. At the termination of the transfusion the needle is withdrawn still attached to the tubing mount and a small dry dressing applied.

The Jubbé syringe components and the needle and trocar may be sterilized in spirit and then rinsed in sterile saline; the pieces of tubing and their fittings may be boiled. In cases of difficulty the recipient's vein may be exposed and

the needle and trocar inserted direct; on withdrawal of the latter the needle may be pushed a short distance up the lumen of the vein so as to anchor it more firmly.

(C) THE KEYNES FLASK METHOD

The equipment (Fig. 5) for this comprises:

1. A thick glass conical flask of about a litre capacity provided with a side tube to which a piece of rubber tubing

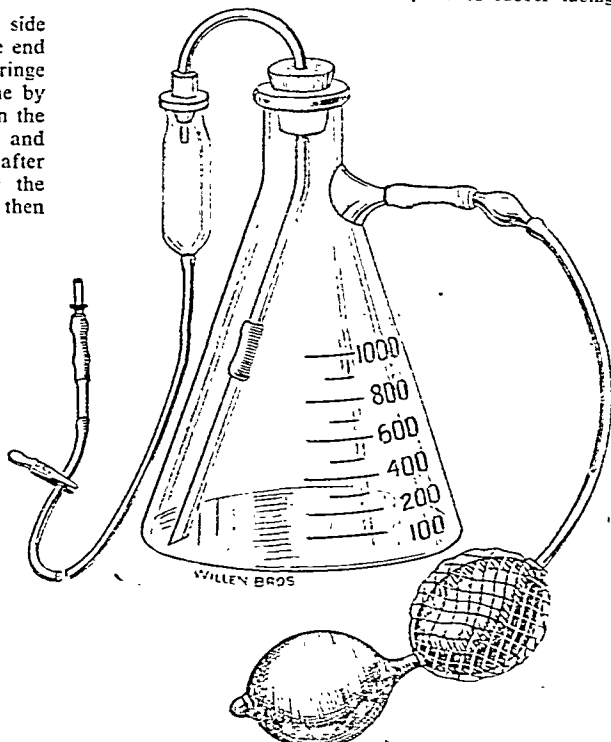


FIG. 5.—The Keynes flask and fittings.

carrying a glass air filter and rubber bellows may be attached. The flask is graduated in 100 c.c.m.

2. A rubber bung which closely fits the mouth of the flask and carries a curved glass delivery tube angulated inside the flask so that its lower end, ground slightly obliquely, reaches into the corner. (This part of the delivery tube may with advantage be interrupted at about its middle by two inches of stout-walled rubber tubing.) The portion of the delivery tube outside the flask is curved to end vertically in a tapered extremity, which projects through a small rubber cork about the level of the upper part of the flask neck.

3. A small glass barrel of some 10 c.c.m. capacity which serves as an air lock. The mouth of this accurately fits the cork on the delivery tube, and to its lower end is attached two feet of rubber tubing (3.16-inch bore) terminating in a male Record-fitting mount, with a small glass window interposed immediately above the latter; close to the mount is a bulldog clip.

Blood is collected from the donor direct into citrate solution in the flask; the bung with the delivery tube is then inserted tightly into the mouth (it is wise, before collection of the blood, to confirm the correct position of the end of the delivery tube with the bung inserted), and the air bellows and filter are attached to the side tube. The barrel of the air lock and its tubing are completely filled with normal saline and placed ready in any suitable sterile container.

factory anti-coagulant for 600 c.cm. of blood. The amount of citrate used allows of considerable latitude, but, speaking generally, it should be in the proportion of approximately 0.3 gramme for every 100 c.cm. of blood collected; this is known to err on the safe side, as well as being harmless. It is advisable that the water (including that used in the preparation of normal saline) be rendered as free as possible of dead bacteria and other organic particles by being doubly distilled.

When the requisite volume of blood has been obtained from the donor the sphygmomanometer cuff is deflated and the needle then withdrawn. A dry dressing, to be kept on for forty-eight hours, is all that is required; the application of iodine is to be deprecated, on account of its liability to cause a burn. The donor should lie down for half an hour and be given some light refreshment before leaving. Maximum suggested donations from an average man or woman are 800 c.cm. and 650 c.cm. of blood respectively.

"Cutting down" and exposure of a donor's arm vein by deliberate incision should be quite unnecessary (it is rightly not permissible on the members of the vast majority of voluntary blood transfusion services). It will be seen from the foregoing that the indirect use of citrated blood from the donor is advocated; both to the operator and to the donor it has definite advantages over the direct arm-to-arm technique with whole blood, and the small addition of the anti-coagulant salt has from wide experience proved in no way deleterious to recipient or to transfused blood.

Transfusion of the Patient

The types of transfusion used fall under two headings, depending mainly on the rate of flow and volume of blood given: (I) the ordinary relatively rapid transfusion of quantities up to 800 c.cm. of blood; (II) the slow continuous-drip transfusion of much larger volumes (necessitating two or more donors). For Type I, which has the wider application—although 750 c.cm. of blood raise the actual haemoglobin of an average-sized adult patient by approximately 15 per cent. only—three convenient methods are described, and they are, in order of simplicity:

TYPE I.—(A) FUNNEL GRAVITATION METHOD

The apparatus consists of:

1. A 300-c.cm. capacity graduated cylindrical glass infusion funnel (Fig. 2), attached to the outlet of which is two feet of rubber tubing (3/16-inch bore) ending in a male Record-fitting mount. The funnel and tubing are run through with normal saline, which displaces air in the latter, and about 40 c.cm. of saline are allowed to remain in the funnel by closing a screw clip on the upper part of the tubing. (A Laurie glass drip bulb can be conveniently interposed in the tubing near the funnel, but is not essential.) The mouth of the funnel is lightly plugged with sterile gauze.

2. Two inches of narrow stout-walled tubing (1/8-inch bore) having a female Record-fitting mount at one end and a similar male mount carrying a Record-fitting needle (1.5 mm. diameter or smaller, and 36 mm. length) with a short bevel at the other. A bulldog clip is affixed to the proximal part of the tubing (Fig. 3).

The anterior elbow veins of the patient are rendered full and prominent by inflating a sphygmomanometer cuff placed round the upper arm to about 80 mm. of mercury, the patient co-operating, if possible, by opening and closing his hand on the same side. The arm is fully extended with adequate support, in a good light.

The skin at the site of puncture of a chosen vein is anaesthetized by a small intradermal injection of 2 per cent. novocain and a small nick is made in it, as described for bleeding a donor. The Record needle, attached to the short piece of narrow stout-walled tubing already described, is pushed through the skin nick into the vein;

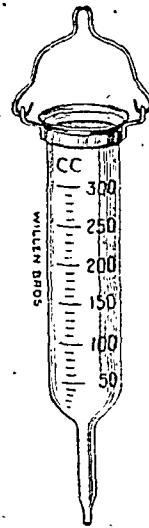


FIG. 2.—Cylindrical glass infusion funnel.

its point is indicated to be in a satisfactory position in the lumen of the latter by a brisk flow of blood from the female mount at the end of the tubing on momentarily releasing the bulldog clip; slight adjustment in the depth of the needle may be necessary to obtain this. The sphygmomanometer cuff is then immediately deflated and the needle fixed firmly in position with a

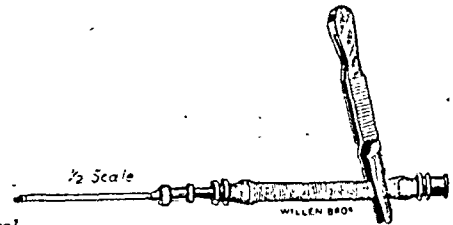


FIG. 3.—Needle tubing connexion.

piece of adhesive strapping passing over the mount and the proximal part of the shaft. Warning is given to the patient not to move the arm. Firm connexion is now made, by adjusting the mounts, between the needle tubing and that attached to the funnel; the bulldog clip on the former is removed, the screw clip on the latter opened, and with the funnel held above the patient's level saline will flow into the vein. Before the saline is exhausted the donor's blood at 37° C. is added to the funnel and replenished from time to time when the level falls to about the 50-c.cm. mark. The rate of flow can be controlled by the screw clip or by raising or lowering the funnel in relation to the patient. At the end of the transfusion the bulldog clip is replaced on the needle tubing, the needle withdrawn, and a simple dry dressing applied.

With the exception of the needle the whole of this simple apparatus may be sterilized by boiling or in an autoclave. In a patient who is very restless, or in whom the veins are small and difficult, the Record-fitting mount at the end of the funnel tubing may be inserted into two inches of narrow tubing carrying a small glass Keynes cannula; the latter is then tied into a suitably exposed vein (see Method C below), after displacement of the air, by running through some of the saline from the funnel.

(B) JURE SYRINGE METHOD

The apparatus (Fig. 4) consists of:

1. The special syringe. This comprises a glass barrel with two side metal tube openings, and a metal plunger with a longitudinal groove which does not quite reach its base. The components are fitted together by means of a screw cap; the capacity of the syringe may be either 5 or 10 c.cm. With the plunger pushed right down and the longitudinal groove opposite one of the side openings withdrawal will suck in fluid only by way of the latter; if the plunger be now rotated through 180 degrees, so that the groove is directly opposite the other side opening, pushing it down will empty the syringe through this orifice. The principle depends on unmasking one of the barrel openings with the groove of the piston while sealing the other with the convexity.

and displace air in the pressure tubing and terminal cannula. A saline level with air lock is produced in the drip bulb by momentarily inverting it. The screw clip is then almost closed and the saline flow in the bulb reduced to a slow drip; this and the corresponding flow from the end of the cannula is stopped by occluding the pressure tubing, a short distance proximal to the latter, by a strong bulldog clip. Under local anaesthesia a vein in the forearm, antecubital fossa, or the internal saphenous just above the malleolus is exposed and ligatured; the cannula is introduced up to the shoulder of its bend and tied into the vein just distal to this—using a technique

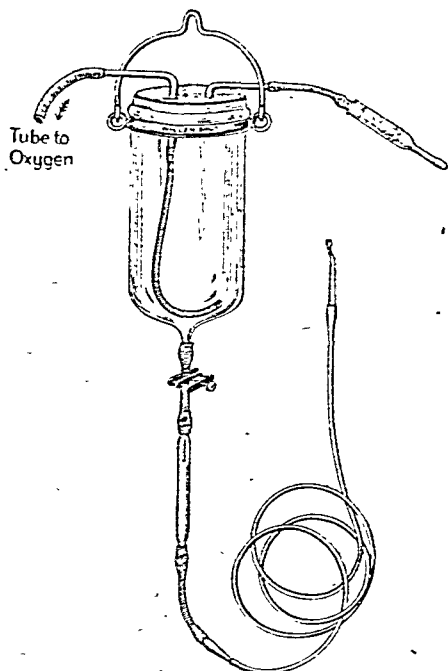


FIG. 6.—Continuous-drip transfusion apparatus (Marriott and Kekwick).

on the lines previously described for a Keynes cannula. Removal of the bulldog clip should now allow the flow of saline as observed in the drip bulb to begin again. The skin edges are sutured above and below the point where the cannula enters the vein. The barrel of the cannula and the distal eighteen inches of tubing, loosely looped, are securely fixed with strips of adhesive strapping to the surface of the limb, covered with sterile gauze and wool, and bandaged lightly. The oxygen is now turned on at a rate of 80 to 100 bubbles per minute, as judged by its flow, through the remaining saline in the container (a Woulfe's bottle, half full of water, through which the oxygen passes, can with advantage be interposed between the cylinder and the suspended container). The rubber bung is temporarily removed and sterile citrated compatible blood up to two pints introduced. The blood used in the container must all be of one group, preferably the same group as the patient; provided care is exercised in its collection from the donors into the citrate solution there is no need to strain it. Forty drops per minute—that is, a pint in four hours—is a satisfactory rate of drip for which to adjust the screw clip, but a faster or slightly slower delivery can be utilized, according to indications.

The frequent attention of a nurse is necessary to control by the screw clip any fluctuation in the rate of drip; it is essential that this be not allowed to slow up unduly or cease for even a short interval. In addition the oxygen flow must be maintained but over-frothing controlled; prevention of red cell sedimentation is also assisted by an occasional manual agitation of the container. More blood is added to the latter when its contents have dropped to about 150 c.cm. The amount necessary to bring the haemoglobin percentage up to a given level can be assessed on the knowledge that 750 c.cm. of blood in an average-sized adult will raise the haemoglobin about 15 per cent.; in the presence of bleeding more is required. A haemoglobin estimation carried out from time to time during the course of the transfusion is helpful.

The donors are conveniently bled in pairs and their blood stored in a cool place: it is shaken up gently and brought to body heat before addition to the reservoir. The advantage of using a forearm vein in the patient is that some mobility of the limb can be allowed. With an antecubital or the internal saphenous vein (thrombosis is less liable with the former) insertion of the larger-size cannula is possible and advantageous, but the limb should then be immobilized with a small splint or sandbags. At the end of the transfusion the screw clip is closed and the cannula removed under local anaesthesia; the vein is then ligatured, if necessary, on the proximal side and the skin edges resutured. All the apparatus used, except the oxygen cylinder, is sterilized by autoclaving in a dressing drum.

In concluding this article it must be emphasized that the methods of blood transfusion are legion: those described above represent a few proved techniques by means of which this valuable remedy may be employed in general practice.

The apparatus of the various techniques considered is obtainable from Messrs. Willen Bros., New Cavendish Street, W.I., who have kindly provided the drawings.

S. Lomholt (*Ugeskr. Laeg.*, 1937) bases his belief that gonorrhoea is on the increase among women in Copenhagen on the returns of the venereal disease dispensaries which provide free treatment under the auspices of the municipal authorities. These dispensaries, which deal with at least two-thirds and possibly three-quarters of all the recent cases of venereal disease in Copenhagen, make detailed monthly returns. The figures for 1931 showed 1,207 male cases and 312 female cases. The corresponding figures for 1936 were 1,647 and 631 respectively. It will thus be seen that the figures for female patients have been more than doubled in five years, whereas the rise in the number of male cases has been much less marked. After discussing possible sources of error which might exaggerate these variations, the author admits that the true rise in the number of male cases may be comparatively small. But the enormous rise in the number of female cases is not to be gainsaid, and he attributes it to the growing alacrity with which young women at the present time indulge in premarital and extramarital sexual relations. It is particularly between the ages of 16 and 18 that this movement has been most marked. The author points out that at least 50 per cent. of all cases of inflammation of the uterine appendages are gonorrhoeal, and that the annual reports of the five municipal surgical hospitals in Copenhagen for 1935 and 1936 have shown that more than 500 cases of salpingitis were treated in them. Every year between 1,000 and 1,200 young women contract gonorrhoea in Copenhagen, and as the prospect of their early and complete cure is problematic, the outlook with regard to stamping out this disease is very poor in the absence of any reliable specific drug or remedy.

With a similar Record needle and short rubber tubing attachment and mounts as described under Method A, the needle is inserted in an anterior elbow vein of the patient by an identical technique and strapped in position. The mount on the end of the air-lock tubing is now fitted to that on the needle tubing and the clip on the latter removed. On releasing the clip on the tubing of the air lock, held above the patient's arm, satisfactory insertion of the needle will be indicated by a slight drop in the saline level in the barrel. The mouth of the latter is then fixed securely to the rubber cork on the end of the delivery tube and the clip on the air-lock tubing removed.

Positive pressure being produced inside the flask with the bellows, citrated blood rises in the delivery tube, pushing the air in the latter into the barrel of the air lock, from which a corresponding volume of saline passes into the recipient's circulation. As the blood begins to flow into the air lock the remainder of the saline solution is driven on into the patient's circulation, to be followed by the blood, an upper level of which is present in the barrel. The rate of flow, as judged by the efflux from the delivery-tube nozzle in the air lock, is easily controlled by variation in the positive pressure produced by the bellows. When the flask is almost empty it is held tilted towards the end of the delivery tube inside so as to aid exhaustion; as soon as air rises in the delivery tube and displaces the blood level in the air lock the tubing on the latter is clipped and the needle withdrawn from the patient's vein. If preferred a Jubbé needle and trocar, with a corresponding mount at the end of the air-lock tubing, may be employed for the venepuncture.

When the veins are small or inaccessible a Keynes glass cannula with a short narrow tubing connexion tied on to the air-lock tubing mount and full of saline can be used. Omitting application of a sphygmomanometer cuff, except for preparatory localization, the vein is cut down on and exposed for about three-quarters of an inch under local anaesthesia (2 per cent. novocain with a small addition—1 minim to each drachm—of liq. adrenalin. hydrochlor. 1 in 1,000, as a haemostatic). With a blunt aneurysm needle three separate lengths of No. 0 catgut (or No. 0 silk) are passed under the vein, and the latter tied distally with one of these. Just proximal to this ligature a transverse cut (not complete division) is made with a sharp pair of iris scissors in the wall of the vein, held in forceps; the end of the cannula is introduced into the lumen of the vein through this opening and tied in position around the slight constriction on its neck with one of the lengths of catgut already in position. At the termination of the transfusion the ligature around the cannula is cut and removed; an assistant then withdraws the latter as the vein is tied above the opening in its lumen with the remaining lengths of catgut. The edges of the skin incision are sutured with horsehair.

Sterilization of the apparatus (omitting the bellows) is best carried out in the autoclave after wrapping in towels; the needles are placed in spirit.

All the above methods—A, B, and C—will give satisfactory results. The infusion-funnel gravitation technique involves the use of very simple apparatus; but it has not the reserve of pressure sometimes necessary to overcome venospasm in a collapsed patient. The Jubbé apparatus is compact, easily sterilizable, reliable, but expensive. The Keynes apparatus is very satisfactory in the hands of those well acquainted with their own apparatus: the various connexions and the glass and rubber tubing need frequent supervision and overhaul.

Whatever method is employed sterility throughout is imperative and all apparatus must be scrupulously clean; both for donor and recipient the employment of well-sharpened needles in rendering the task of the operator easier cannot be too strongly emphasized. The blood should not be transfused into the patient too rapidly—a pint in half an hour is a reasonable rate. Lastly, in this relatively rapid type of transfusion care should be taken to give the blood at as near body temperature as possible; strict attention to this also eliminates mild reactions in the patient resulting from minor degrees of cold agglutination. In Method A warm blood is added to the infusion funnel about 150 c.cm. at a time. In B and C the blood receptacle and the Keynes flask respectively are stood in water at 37° C. during transfusion. In infants and young children, in whom the antecubital veins are very small, the introduction of a needle or fine glass Keynes cannula into the internal saphenous vein, exposed near the ankle, is recommended.

Untoward post-transfusion (non-haemolytic) reaction in a patient is best controlled by the hypodermic injection of morphine tartrate 1/6 to 1/3 grain, and adrenaline hydrochloride (1 in 1,000) 7½ to 15 minims, the dose varying according to the size of the patient and the degree of reaction.

TYPE II

The slow continuous-drip transfusion, introduced by Marriott and Kekwick in 1935, has proved very valuable in raising the haemoglobin percentage of a severely anaemic patient to a high level by giving such amounts as one to four litres over twelve to forty-eight hours. It is especially applicable in severe gastric or duodenal haemorrhage: besides markedly improving the general condition of the patient treated medically, it renders surgical intervention much safer should this prove necessary.

The apparatus (Fig. 6), based on the original description, comprises:

1. A glass container of about four-pint capacity fitted with rubber bung carrying two short pieces of bent glass tubing. To the inner end of one of these a piece of rubber tubing is attached reaching to the bottom of the container; through it filtered oxygen can be bubbled, so preventing red cell sedimentation. The other piece of glass tubing, furnished with a filter, is an exit for the oxygen. The container is encircled by a metal hanger for suspension.

2. A long Laurie glass drip bulb,* fitted to the outlet on the container by about four inches of rubber tubing on which is an adjustable screw clip.

3. Six or seven feet of fine pressure tubing (5 mm. external diameter) connected to the lower end of the drip bulb via a glass adapter and terminating in a special Marriott glass cannula (supplied in three sizes). The right-angled bend near the bulbous tip of the latter enables it to be tied into a vein without causing kinking.

4. An oxygen cylinder with pressure regulator and fine adjustment tap, connected to the inlet glass tubing on the rubber bung of the glass container by rubber tubing interrupted with two or three filters.

About 100 c.cm. of sterile normal saline are poured into the glass container, suspended three to four feet above the patient; by opening the screw clip wide some of this saline is allowed to run through the drip bulb

* The provision of a short side tube towards the upper end of the drip bulb is a recent improvement introduced by the originators of this technique. The side tube terminates in a short piece of rubber tubing closed by a metal clip. By means of this lateral airway the level of the blood in the bulb is easily adjusted during the course of the transfusion. Further, by applying to it a syringe containing air, and closing the screw clip on the tubing above, the pressure in the bulb can be momentarily raised to expel any small clot obstructing the terminal cannula.

Nova et Vetera

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, 1787-1937

On May 14-15, 1937, the fourth oldest medical society in North America celebrated the 150th anniversary of its foundation. John Redman was the first president, and the famous Benjamin Rush, who had signed the American Declaration of Independence in 1783, delivered on February 6, 1787, a discourse on the objects of the College. In the full report of the celebration now published, Rush's discourse is described as "a Declaration of Independence of the American Physician." The Philadelphia College of Physicians started with twenty-four Fellows, and now has 680. The original twenty-four founders were divided into twelve seniors and twelve juniors, and among the former was John Morgan the elder (1735-89), the father of medical schools in North America, for he founded in 1765 the medical department of the University of Pennsylvania, the first to be established in the British colonies. The College of Physicians of Philadelphia, though originally modelled on the Royal College of Physicians of London, is now in some respects more like the Royal Society of Medicine than the London College, for it has five sections—of ophthalmology, otolaryngology, general medicine, medical history, and public health, preventive, and industrial medicine—each with its own chairman, "clerk," and executive committee, and meets every month from October to April. The College does not confer diplomas to practise, and has many surgeons among its Fellows, the word "physicians" meaning medical men, and not being restricted to those sometimes called "internists": thus Professor D. Riesman, in his account of the College's library, refers to Sir James Paget, the surgeon, elected a Fellow in 1874, as "one of the most distinguished British physicians." On the other hand, the Philadelphia College has its four censors: and its *Transactions*, which began in 1793, resembled the *Medical Transactions* (1769-1820) of the London College in that a number of the articles in both were in the form of letters addressed to, and communicated by, Benjamin Rush and William Heberden the elder respectively, who were the active spirits in connexion with the *Transactions* of the two Colleges.

The library of the College of Physicians of Philadelphia is an outstanding feature. At its centenary in 1887 it contained 38,000 volumes; now the number has reached 178,000. It is particularly rich in incunabula, books printed in what has been called the cradle period of the printer's art—namely, before 1500. Of these it possesses 415 out of the 600 known medical volumes, being second to the Army Medical Library at Washington, which has 450. In 1876 the College received 80 out of the current 280 medical periodicals: now it takes about 1,200 out of the 1,800 in existence.

A number of addresses were delivered at the recent celebration: Sir Henry Dale, the delegate of the Royal Society, speaking on medicine as an experimental science, recalled the solemn warning given him by the late Samuel Gee to forget all the physiology he had learnt, "as it was an experimental science and had nothing to do with medicine, which was still an empirical art": adding, "Some day we hope that medicine, too, may become an experimental science, but that day is not yet with us." Sir Henry rightly believes that the day has now come. Other addresses were on the future of medical research, by the Hon. Roland S. Morris, president of the American Philosophical Society, which has long been closely associated with the College; on the transformation of medicine by public health development, by Professor Hans Zinsser, who considered the part that such institutions will play

in the future: on the question why academies were founded, by Professor H. E. Sigerist; on the College, by Dr. G. P. Muller, its president; and on the College from 1887 to 1925, by Dr. F. R. Packard, an ex-president and editor of the *Annals of Medical History*.

ANNALS OF MEDICAL HISTORY

The final instalment of the volume for 1937 contains four main articles, a smaller number than usual, but of very considerable interest and generously illustrated. Harold Wellington Jones, librarian of the Army Medical Library, better known by its former title, the Library of the Office of the Surgeon-General of the United States Army, contributes from his splendid store "A Portrait Gallery of Physicians." This is accompanied by twenty-five illustrations, including fine reproductions of the paintings of Surgeon-General William C. Gorgas and Dr. Robert Fletcher. Many of the portraits are of former Surgeons-General with old-fashioned beards, but there are also pictures of John Hunter and Bichat. Dr. Francis R. Packard gives an account of William Cheselden and some of his contemporaries and their American pupils, such as John Jones, who was Benjamin Franklin's doctor and the best-known American surgeon before Philip Syng Physick. A kindred subject, the "Rise of British Surgery in the Eighteenth Century," by Dr. Fernick Besterman, also well illustrated, necessarily covers some of the same ground, but in wider detail, and reproduces Holbein's famous picture—in the Barber-Surgeons' Hall—of Thomas Vicary receiving the Company's Charter from Henry VIII, of which there is a fine replica in the Royal College of Surgeons of England.

Dr. Gilbert Roy Owen gives an interesting account of the famous case of Lady Anne Conway, "the most learned of the female metaphysical writers of England," for whose "terrific recurrent cephalalgia" the advice of an imposing array of consultants, including Harvey, Willis, Mayernz, Robert Boyle, and van Helmont, was in vain. In a sympathetic editorial the life and services of the late Paul Hoerber, who brought out the nineteen volumes of the *Annals of Medical History*, are sketched by Dr. Packard.

A FLORENCE NIGHTINGALE COLLECTION

In the catalogue of Sir William Osler's library Florence Nightingale rightly occupies a place in its select "Bibliotheca Prima," for it was under her that, to quote Osler in one of the attacks of race-mania, the nursing profession, until then unsettled and ill defined, took its modern position. Many of her manuscripts, letters, and other memorabilia are scattered throughout the world, and to catalogue this material would be a pious task. The School of Nursing of the Presbyterian Hospital in New York has done well to bring out a printed catalogue of its Nightingale Collection, which is splendidly displayed in a special room at the nurses' residence. Each class, after studying the history of nursing—a subject taken much more seriously in America than in Britain—contributes something to this museum. The letters, some of which are transcribed, range in date from 1854—in 1855 Florence Nightingale had taken up her first post as superintendent of the "Sick Governesses' Home" in Harley Street—to 1896, but some are undated. In a letter written from Scutari in 1856 she describes as "a mass of mischief and rubbish" the books sent from England for the soldiers—odd volumes of novels, registers, and treatises on midwifery.

Annals of Medical History. New Series, Volume 9, Number 6, 1937. Edited by Francis R. Packard, M.D. (pp. 517-544). Illustrated. Volume of six numbers, 22 (1937) single numbers, 17s. 6d. New York: Paul B. Hoeber. London: Baillière, Tindall and Cox.

THE SLOUGH SOCIAL CENTRE

[FROM A CORRESPONDENT].

The Slough Social Centre, which was opened last year and was recently visited by the King and Queen, is an ambitious effort to meet the social needs of a rapidly growing industrial area. It can fairly be ranked as a pioneer experiment, for although there are community centres on many of the new housing estates, none is conceived upon such bold lines or attracts so large a proportion of the population at its doors. On any evening of the week 1,500 persons are assembled at the Centre. Slough is described even in current gazetteers as a market town with a population of 16,000, but in recent years it has broken its bounds and multiplied its population more than threefold. On what used to be open country within sight of Windsor Castle there are now on every side factories and working-class houses. There is talk already of Slough as a second Manchester by 1960. Eleven thousand people from the distressed areas alone have migrated to Slough, and we are told that the Welsh accent is heard here as frequently as in the Rhondda Valley.

The Centre, which has been built and equipped at a cost of £52,000, itself resembles a modern factory building, except that there is rather more decorativeness about its 600 feet of frontage and its six large welcoming doors. The building consists of three blocks, one for the junior section, one for the senior, and a central one comprising a great hall, seating 1,000 people, with stage and dance floor. Every kind of social, cultural, and recreational facility is provided. There are three gymnasiums, a swimming bath, with artificial sun-ray equipment for use in the winter, abundant facilities for indoor and outdoor games, also for music, lectures, and discussions, and workshops for the teaching of handicrafts. A canteen has been installed where refreshments can be procured at the lowest economic cost. The Centre is still in course of development, and it is hoped to add running and cycle tracks and athletic grounds—altogether one hundred acres of playing fields.

Provision for Physical Education

Unlike the Peckham Health Centre, which it resembles in much of its layout and activity, Slough is not primarily a health organization. One of its important purposes, however, is to provide physical education. It has classes for this purpose, although the word "class" is not stressed lest it should suggest something irksome. The principal gymnasium, equipped with shower baths, is used by men on two nights a week, and by women on two nights, and certain other events, such as boxing and fencing (the latter for both men and women), fill up the rest of the time. The exercises are carefully graded, and skilled instruction is given. In the junior section—meaning by "junior" the ages 13 to 18—a system, though not a compulsory one, of medical inspection has been set up. It is considered desirable for the purposes of the Centre that it should be known whether the young person is fit for the exercises provided, and it is hoped that the habit of seeking medical inspection will become a routine.

Advisory Medical Service

The Centre has two voluntary medical officers who live in the district. Their province is only to advise; no treatment is given, but it is considered that the facility for inspection may furnish a desirable link between skilled medical supervision and national health insurance. One of the officers is already familiar to the lads as a school doctor; the other, who deals with the girls, is the only woman practitioner in Slough. If a boy or girl is found to be in need of medical treatment the fact is conveyed to the parents with a view to bringing him or her under the care of the general practitioner. Should the parents be remiss in this respect there are other ways of ensuring

that medical attention is afforded. Both medical officers are themselves members of the Centre, and moving among the nightly groups at the various classes and recreations, if they see a lad or a girl who appears to need attention, they put in a timely word. The medical card in the junior section is a very complete document. It includes a space for personal and family history, home conditions, character, athletics, hobbies, physical measurements, conditions as to cleanliness, the state of the teeth and tonsils, heart and lungs, blood pressure; any such abnormalities as varicose veins, flat-foot, or spinal curvature are noted, and there is space on the card for the name and address of the insurance practitioner.

Infant Welfare and Nursery School

For still younger members of the community there is a flourishing infant welfare centre, where about 150 infants are seen every week by a doctor who is a medical officer of the Buckinghamshire County Council, and in a detached building on the site, put up by the county council at a cost of £4,000, a nursery school has been established for children of from 2 to 5 years, which is already taxed to its capacity of 80. The children receive three meals a day, and during the first term not one child failed to grow and put on weight. In the selection of children for the nursery school certain priorities are observed. The idea is to take in children who have no father and whose mother goes out to work, but preference is given to the not infrequent cases where the toddler in a large family is apt to be neglected, and the not less important case of the only child who in the nursery school may be delivered from some of the misfortunes of that situation and learn its first lesson in sharing.

Finance and Administration

The idea of the Centre came from the employers (a valuable lead being given by Mr. A. N. Mobbs, chairman of Slough Estates Ltd.), and was seconded by voluntary associations and public bodies. Buckinghamshire County Council made a contribution to the total cost, and its education committee is contributing £1,500 a year to the support of the junior section. The senior section is self-supporting. The members of the council of the Centre include Slough industrialists and representatives of the county and urban district councils. An advisory committee consists of representatives of such bodies as the National Council for Social Service and the Industrial Welfare Society, with advisers from the Board of Education and the Ministry of Labour, also the medical officer of health and education officer for the county. The junior section is administered by a committee of local people, with representatives of the churches and of youth organizations. The administrative staff has at its head in Mr. A. T. Carr a very competent warden. One of the chief values of the Centre is that it brings about a mixing of the classes, those who can give socially as well as those who receive; although it does not lay the same stress as Peckham on the family unit, it is for the whole family, including the woman stale from domestic work and the adolescent fresh from school. It also represents a happy combination of voluntary and local authority enterprise.

Dr. L. Haden Guest, M.P., secretary of the Leverhulme Research Fellowships, announces that applications are invited for fellowships or grants in aid of research. They are intended for senior workers who are prevented from carrying out research by routine duties or pressure of other work. Any subject which may add to human knowledge may be proposed for a fellowship, but preference is given to subjects in which other provision for research is inadequate. The amount granted will depend on the nature of the research and the circumstances of the applicant. Forms of application, returnable by March 1 at latest, may be had from Dr. Haden Guest, Union House, St. Martin's-le-Grand, E.C.1.

be preferable in non-malignant gynaecological conditions, as the effect of radium could only be quite local and the treatment of the conditions under discussion was so frequently a matter of treating organs other than the uterus.

Value of Radiotherapy

Mr. LEONARD PHILLIPS gave an elaborate analysis of the literature on the subject which had appeared since a discussion at the Royal Society of Medicine in 1933, chiefly concerning the indications for operation or irradiation, and the respective advantages of the methods, in menopausal menorrhagia and fibroids. The advantages of radiotherapy over operation included the lessened morbidity, the shorter recovery time and period of hospitalization, and the lower cost. With radium there was a very slight mortality, and with x rays none. Radium had a certain definite morbidity, due generally to burns, but occasionally other complications, such as broad ligament abscess, phlebitis, pain in the groin, rectal ulcer, and intestinal obstruction, had been noted. The morbidity of surgery, of course, was greater. A moot point was whether radium acted on the ovaries or on the endometrium; if it acted on the ovaries then there was no advantage in using it in preference to x rays; indeed there was a disadvantage, because of the many local sequelae of an unpleasant nature following radium treatment. Forsdike stated that with experimental animals the effect was almost entirely on the endometrium: on the other hand, Clarke and Norris had found that late effects on the ovary were destructive of the follicles. It was a matter on which more experimental evidence was necessary. Undoubtedly x rays acted entirely on the ovaries, but it was difficult to determine whether radium did so.

A great difference of opinion was evident in literature on the question as to what cases (of menopausal menorrhagia and fibroids) should be handed over to the operating gynaecologist and what should be reserved for treatment by irradiation. At one extreme was Bécélère, who declared that fibroids always constituted an indication for x-ray therapy. The general conclusion to be drawn was that the cases might be divided into three groups: those in which surgery was obviously indicated, those in which radiology was obviously indicated, and those in which the indication was doubtful. On the question of the possibility of cancer production by irradiation, Essen-Möller of the Lund Clinic recorded six cases of cancer developing after radium treatment.

Mr. Phillips also analysed 165 cases in which subcastration doses had been given for severe haemorrhage in young women. He thought it was now established that there was no danger to future labours from cervical scarring; Murphy's series of over 400 cases had shown this. There was also apparently no danger of deformity or abnormality of the foetus from preconceptional irradiation. In 600 cases Murphy found abnormality in only a negligible percentage (1.1). With regard to the effect of stimulating ovarian and pituitary irradiation for amenorrhoea, menorrhagia, dysmenorrhoea, sterility, and other conditions, an analysis of 100 cases from the Hospital for Women, Soho Square, was disappointing. In about 50 per cent. radiation treatment was a failure; in 40 per cent. there was slight improvement, and the remainder might be described as cures. The only consistent beneficial effect was an improvement in the attendant headache.

Methods of Treatment Compared

Dr. LOUISA MARTINDALE analysed her treatment of 878 cases of metropathia haemorrhagica, fibrosis uteri, and fibromyomata from 1914 to 1937. Surgical operation (hysterectomy or myomectomy) had been carried out in 471 cases with a mortality rate of 1.9 per cent., radiation treatment in 407 cases (deep x-ray therapy in 298 and radium in 109) with no mortality. Many clinics in which

both methods were practised showed a much lower proportion of cases treated by surgery. Gauss of Würzburg, for example, had treated surgically only 15 per cent. of 1,048 cases. Many people thought that the menopausal symptoms were severe in cases treated by x rays, but the results of a questionnaire sent to her patients with regard to these symptoms did not bear this out. The advantages of x-ray over radium therapy were that x-ray treatment was attended by practically no morbidity and the treatment was very short. There was no evidence that preconception radiation was harmful to the child. An advantage of radium over x-ray therapy was the mere rapid cessation of haemorrhage.

Mr. MALCOLM DONALDSON said that it had still to be proved whether small doses of radiation had any effect on subsequent pregnancies. Until it had been established that this was not the case irradiation should not be carried out on patients under 40. In cases of fibroids radiotherapy should only be used when the fibroid was not larger than at most a full-size foetal head. It was difficult with a large fibroid to be certain of excluding any inflammatory condition in the pelvis. Large fibroids were likely also to undergo sarcomatous changes, and the dose given to create an artificial menopause was not sufficient to prevent this. Before undertaking radiotherapy it was essential to explore the uterus, and if the uterus was to be explored the simplest procedure was to put in some radium at the same time.

Mr. CARNAC RIVETT said that most of the speakers had put forward certain contraindications to the radiotherapeutic treatment of fibroids, and if all of them were accepted it seemed as if the only fibroids suitable for x-ray treatment were those which gave rise to no symptoms at all! He went on to refer to the great severity of the comparatively rare cases of menorrhagia in women of 18 to 20; he knew of one patient who had died from haemorrhage in simple profuse menorrhagia. Mr. RALPH PHILLIPS objected to the term used by Mr. Leonard Phillips—"sub-castration dose." It was a castration dose, but the function recovered: the ovarian function could not be permanently destroyed, certainly not in young women. The radiotherapy of non-malignant disorders in general had suffered from the fact that the cancer problem dominated the mind of the radiotherapist, and while he knew what he was trying to do in cancer he had no idea of what he was aiming at in non-malignant conditions. The fundamental basis of radiotherapy in non-malignant conditions was destruction of the leucocytes and radiosensitive cells of that type. The effect of radiation was invariably destructive even in small doses.

Professor MILES PHILLIPS, president of the Section of Obstetrics and Gynaecology, who wound up the discussion, said that as a practising gynaecologist he had learned more than he had expected from what had been said. He mentioned the effect of stimulation of the ovary in a woman of 29 who had not menstruated for ten years: after radiation menstruation began again, and later she had two children. With regard to the effect of radium in stopping menstruation, he thought this depended upon the time in the menstrual cycle when radium was inserted. If it was inserted in the early stages it was possible to tell the patient with precision that she would not have another period; if in the later stages, another period was likely.

WATER POLLUTION AND TRADE EFFLUENTS

Dr. A. PARKER of the Water Pollution Research Board of the Department of Industrial and Scientific Research, in a paper read before a joint meeting of the Institutions of Civil Engineers and Chemical Engineers, said that the public water supply undertakings in Great Britain distributed from 1,000 million to 1,500 million gallons of water per day to a population of 35 to 40 millions. This quantity was used mainly for domestic purposes, though some is used for industrial purposes.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

Presiding at the annual meeting of the Court of Governors of the London School of Hygiene and Tropical Medicine on January 24 the PRIME MINISTER paid tribute to his brother, the late Sir Austen Chamberlain, whom he succeeds as chairman.

"Even the most inexperienced of statesmen," he said, "would hesitate before taking on fresh liabilities, however nominal, just at the moment when he became Prime Minister. The circumstances in this case were, however, exceptional. In considering the request that was made to me I had in mind the long connexion between my family and this School, the intense interest taken by my father in the study of tropical medicine, my own much more modest share in public health in this country, and, of course, the fact that my brother was for five years your chairman. I think that what finally weighed with me was my sense that your invitation to me to fill my brother's place was perhaps the greatest and sincerest tribute you could pay him."

A Balanced Budget

Continuing, the Prime Minister said he was glad to see that the School had a balanced budget. If they analysed the income they would find that the principal part consisted of the grant from the Exchequer of £40,000. They had £7,000 from students' fees and about the same amount from endowment funds. This meant that the remaining £12,000 of their £66,000 expenditure had to be made up by voluntary contributions and donations. They must expect that if anything happened to give a setback to the present comparatively prosperous condition of the country they might have to face some diminution of voluntary contributions. The existing reserve fund for building and equipment, which was a little over £4,000, was not really adequate, and the moral was that the School was in need of further endowment. One of the most useful forms was the endowment of chairs or readerships. For a professorship £50,000 was required and for a readership £35,000.

The Work of the School

In commending the annual report to the Court of Governors Mr. Chamberlain said that it demonstrated the wide range of the work of the School, the imagination of those responsible for its affairs, and the practical importance of its teaching and research for the public health. The staff had been active both in the laboratories at home and over-seas. He was glad to hear that since the publication of the report a new branch had been instituted through the Ross Institute in Ceylon, in which the School and the Ross Institute would co-operate with a committee of estate proprietors in securing malaria control and other health measures on a group of estates in that country. Mention was made in the report of the conference held in the School in September by the Central Council for Health Education, at which he had himself presided. He was very glad that this School should be associated with efforts to secure a wider appreciation and a fuller use of the public health services, for it was already associated with those services in a variety of ways: in the training of future medical officers of health and in the work carried out on behalf of various Government departments. On behalf of the Ministry of Health, for instance, the School was carrying out researches such as the investigation of problems relating to standards of purity in the milk supply; was supervising the treatment of certain nervous disorders by means of induced malaria; and, in Professor Greenwood's department, was carrying out statistical analyses for the medical intelligence division of the Ministry.

The Dean of the School, Professor W. W. JAMESON, gave an account of the work of the School during the year, and at the conclusion of the meeting it was announced that Mr. Chamberlain had agreed to become chairman of the standing committee of the Ross Institute of Tropical Hygiene.

Reports of Societies

RADIOTHERAPY OF NON-MALIGNANT GYNAECOLOGICAL DISORDERS

At a meeting of the Sections of Radiology and of Obstetrics and Gynaecology of the Royal Society of Medicine on January 21, Dr. R. E. ROBERTS presiding, the radiotherapy of non-malignant gynaecological disorders was discussed.

Uterine Lesions

Dr. W. M. LEVITT said that the principal non-malignant abnormal conditions of the uterus that might be treated by radiotherapy were uterine fibroids, endometriosis, and certain chronic inflammatory conditions. The mode of action on fibroids was largely through the ovaries, and treatment meant sterilization of the patient. Irradiation was therefore contraindicated during the child-bearing age, at all events before the age of 40. He took the age of 40 as a convenient dividing line, but the general impression given by the patient of what might be termed her physiological or ovarian age was a reliable guide. At or near the menopause irradiation became the treatment of choice, except in cases in which the fibroid was of excessive size and causing pressure symptoms, or in which there were acute complications or clinical evidence of fibroid degeneration. X rays had the advantage over radium of greater ease of application and of avoidance of an anaesthetic and of any uterine procedure. Radium had the added disadvantage that a very large dose had to be applied to the uterine mucosa to secure sterilization. In the treatment of endometriosis irradiation was effective, but here again the consensus of opinion seemed to be that it must necessitate sterilization. His own experience of radiation therapy in this condition was limited to one case, in which the result supported this view. If that was so it was obvious that where the lesion could be excised without at the same time producing surgical sterilization surgery was to be preferred to x-ray therapy.

After a brief reference to the treatment of tuberculous and gonococcal conditions by radiotherapy—a treatment practised abroad, especially in Germany, but very little in this country—Dr. Levitt dealt with the possibility of the production of malignant disease by x-ray treatment. The answer to such a suggestion was that malignant disease could only be produced by small doses of x rays repeated over a period of years. Such conditions were only fulfilled in radiologists or in those handling x rays or radium for experimental or trade purposes.

Extra-uterine Lesions

Dr. J. F. BROMLEY said that menopausal symptoms, either natural or induced, were connected with an increased pituitary output, and it was generally agreed that relief could be obtained from appropriate irradiation. The regular occurrence of really incapacitating headaches, for example, might be due to the encroachment of the pituitary in a sella which, without being pathological, was of uncommon type. The gynaecologist was familiar with the relationship of the ovaries to menstruation, and, with the physician, could be invaluable to the radiologist in planning a distribution of dosage over the endocrine system in such a way as to obtain the maximum therapeutic effect with the minimum amount of x-ray dosage to any one endocrine organ. The question whether a "stimulation" dose existed was important and had not been satisfactorily answered. Experimentally the evidence seemed to be against it. There could be no doubt, however, that temporary sterilization in a young patient could be obtained without difficulty by x rays, and did not in any way preclude a later possibility of normal conception and the birth of healthy children. Speaking generally, the use of x rays, as opposed to radium, appeared to

In a brief reply, Mr. Kilner outlined the objects of this newly formed society, which, he said, owed its successful conception, very properly, to Mr. Albert Davis. Manchester medical graduates who are interested in the society are asked to communicate with Mr. Davis (93, Harley Street, W.1).

Medical Society of Individual Psychology

The annual dinner of the Medical Society of Individual Psychology was held at the Florence Restaurant, London, on January 13. The chair was taken by Dr. H. C. Squires and the principal speakers were Dr. R. D. Gillespie of Guy's Hospital and Dr. Henry Harris. The latter took the place of Professor John MacMurray, who was absent through illness. Dr. Gillespie mentioned the relationship of the general practitioner to the psychiatrist and to psychotherapy, and stressed the importance of the Medical Society of Individual Psychology in that it existed for the purpose of helping general practitioners in the understanding of psychological problems. He went on to describe what appeared to the practitioner to be the diversity of testimony in the different schools of psychotherapy. But underneath this apparent disunity he believed there was the unity of truth. The various schools of thought had passed through states of aggressiveness, but he believed there were now to be observed signs of a *rapprochement*. He thought that the great need of the present time was for a council to make decisions upon the questions of nomenclature. Dr. Henry Harris spoke on the necessity of the general practitioner being sufficiently educated in psychotherapy to enable him to treat the early or minor forms of psychological illness just as he treated the minor forms of physical specialties—for example, ear diseases. If the general practitioner did not treat these minor psychological complaints, who could? It would not affect the consultant's livelihood; indeed, in the end he would benefit by the spread of knowledge. So would the patient and the general practitioner. The latter would come to treat his patient as a whole and not think separately of his body or of his mind. By means of the pamphlets it published from time to time the society had been instrumental in encouraging interest in the provinces and had many provincial doctors as members. Another thing it encouraged was tolerance, as members were not expected personally to profess the Adlerian doctrines. Tolerance should be expected from psychiatrists, who ought to have a wider view of life than others. Dr. Squires, in reply, emphasized the value of the society to the general practitioner. Not only were the meetings addressed by eminent psychiatrists of all schools of thought but the members were encouraged to bring their own difficulties in treating patients for discussion. The members of such a group could be of great help to each other. Dr. Cuthbert Dukes proposed the toast to "The Guests," and a message was sent to the president, Sir Walter Langdon-Brown, who was unable to be present, and to Professor MacMurray.

Health Campaign Meeting at Oxford

Speaking at Oxford on behalf of the Health Campaign, Mr. Kenneth Lindsay, Parliamentary Secretary to the Board of Education, said it was most satisfactory to know that Oxford was now linked in a most permanent and practical way with research and public health, largely owing to the Nuffield bequests. The Oxford and District Joint Hospital Board, with representation of local authorities and general practitioners and cottage hospitals, was one of the most progressive bodies in the country. As a city Oxford now had good facilities and equipment, and in many ways a good health record. He hoped, therefore, that out of Oxford, by bringing together clinical experience and laboratory knowledge, there might emerge a fresh outlook on the good life. But in contrast our universities, not excluding Oxford, were lamentably behind in physical education. A most interesting report entitled

Student Health had recently been issued by the National Union of Students.¹ After reviewing the meagre provision in our universities, the report suggests that all students should undergo systematic medical examination and that each university should have a director of physical education and also either a provident scheme, as at Oxford, or a compulsory levy for all students. It did not follow because a student had climbed successfully the educational ladder that he was a fit person at the top and could view the prospects with exhilaration. Mr. Lindsay concluded that as long as we spent £183 million a year on treatment of sickness and forfeited £100 million in lost time in industry we should need health campaigns to remind citizens of the ancient platitude that prevention was still better than cure. Mr. Ben Smith, M.P., after quoting the improvement in the vital statistics, pointed out that the country was spending to-day on sickness, its prevention, detection, and cure, upwards of £52,000,000 per annum; and that despite the great effort being made to improve the housing conditions there were still too many slums and far too much overcrowding. The best index to the success of the campaign for a healthier Britain would be to see the cost of detection, prevention, and cure of sickness falling rapidly as the health of the people improved.

INDIA

Child Welfare in Bombay

The number of live births registered in Bombay during 1936 exceeded by 5,971 the number of deaths in that city. This was equivalent to 5.1 per 1,000 population calculated on the census returns of 1931; there has been no such excess of births over deaths since 1866, the year in which birth-recording was instituted. The number of live births exceeded the figure for the previous year by 1,477 and the average of the last ten years by 9,856. The number of infant deaths registered was 8,946, compared with 8,455 in 1935; this represented a rise of 1,348 over the annual average for the decennium 1926-35. The commonest causes of deaths in infants remain diseases of the respiratory system, with infantile debility and premature birth, the last two conditions still being prominent in the first four weeks of life, while respiratory diseases exact their toll during the remaining eleven months of infancy. The campaign for the prevention of infantile mortality is going ahead, and in his report for 1935 as executive health officer of the Bombay Municipality Dr. J. S. Nerurker comments on the great value of the work done by the ten municipal nurses who visit the poorer homes and popularize elementary knowledge of the principles of hygiene and the prevention of disease, advising prospective mothers to take advantage of the maternity homes, and in some cases supplying bedding for their confinement at home and extra milk and bread during the first seven days of the puerperium. Sick persons are also guided by them to the municipal dispensaries. The proportion of births which were wholly unattended was 4.5 per cent. among the cases where inquiries were made, and that of confinements attended by unskilled women 17.9, these figures comparing respectively with 3.2 and 13.2 in 1935. On the other hand the proportion of childbirths attended by qualified midwives other than the municipal midwives rose to 3.3, compared with 2.8 in 1935, and the percentage of children born in hospital showed an increase of 9. The rate of maternal deaths is falling, it is noted that 70.9 per cent. of confinements took place in maternity homes, compared with 69.2 in 1935. The Infant Welfare Society has been actively engaged in home visits and milk distribution. Dr. Nerurker thinks that the daily milk consumption in Bombay (300,000 lb.) is still

¹ 3, Endsleigh Street, London, W.C.1.

In addition to the large quantity distributed by the public supply undertakings, even larger quantities were drawn direct from rivers, springs, and wells for agricultural and industrial requirements. Beet sugar factories, many textile works, paper works, and other factories, for example, each used several million gallons of water a day in manufacturing processes. Railway companies and most large works required large quantities for raising steam, and enormous volumes were used in condensers and coolers. The largest electricity generating stations each circulated 400 to 500 million gallons of water a day through condensers. Water for many industrial processes need not be of the same high chemical and bacteriological quality as drinking water. But water of high quality was necessary in the manufacture of foods and beverages, in the treatment of textiles, in raising steam, and in some other processes. The water distributed by many public supply undertakings, though suitable for domestic purposes, was in fact often unsuitable for certain manufacturing processes owing to its hardness or to the presence of substances detrimental to the quality of the products manufactured.

Problems of Pure Water Supply

Though it was generally recognized, Dr. Parker continued, that the purity of the water supplies was a major factor in public health, the average member of the community scarcely realized the problems of water supply and the precautions necessary in protecting gathering grounds and wells and in the treatment of water to ensure that the supplies distributed were absolutely safe for drinking and other domestic purposes. Public interest in the subject seemed to be aroused only at times of emergency, when there was a shortage of water during abnormally dry periods, or when there were outbreaks of water-borne disease such as occurred in 1932 at Malton and Denby Dale in Yorkshire, in 1936 near Sutton in Surrey, and recently in Croydon. Available sources of uncontaminated water, both surface and underground, were gradually being allocated. In some areas water had been withdrawn from underground sources for many years at a rate greater than that at which it had been replaced by natural percolation; there had in consequence been a marked lowering of the level of underground water in these areas. Many of the surface supplies were obtained from the upper reaches of rivers where there was little or no contamination by polluting discharges. Considerable quantities—several hundred million gallons a day—however, were drawn by public supply undertakings from the lower reaches of rivers below points of discharge of sewage and trade effluents of various kinds. These undertakings had to incur great expense and shoulder considerable responsibility in purifying the water before distribution.

With the provision of more houses with modern conveniences, and with developments in industry, there was certain to be an appreciable increase in the next few decades in the quantity of water of good quality required in this country. How this increase in demand was to be met would have to be seriously considered. It could be met provided that determined efforts were made to prevent undue pollution of the resources. Unfortunately many rivers and streams in Britain were badly polluted by sewage and trade effluents. In some areas discharges of waste liquids from factories had so polluted the water supplies most easily accessible to adjacent factories that they were quite unfit for the purposes for which they are required. Pollution not only caused difficulty in the provision of adequate supplies of water of the quality required for domestic, agricultural, and industrial purposes; it also adversely affected the fisheries, the recreations of the people, and general amenities. Dr. Parker then discussed some of the difficulties in preventing or reducing pollution by industrial effluents. With regard to the waste waters from the various branches of the milk industry, the work of the Water Pollution Research Board

had proved that the quantities of polluting matter carried away in the wastes could be greatly reduced by simple and inexpensive modifications in the operations within the factories to reduce losses of milk, whey, buttermilk, and other products and by-products. If adequate drainage trays were installed at all the depots and factories in this country the total saving of milk would be of the order of three million gallons per annum, or £150,000 per annum with milk at an average wholesale price for all purposes of one shilling a gallon. The investigation had also demonstrated on a large scale that the waste waters necessarily discharged could be efficiently purified by biological oxidation by methods similar in principle to those in operation at sewage disposal works.

Local News

ENGLAND AND WALES

Hospital Accommodation in the West Riding

Some time ago the West Riding County Council set up a composite committee to consider the question of hospital accommodation in the county administrative area. This committee visited hospitals in Yorkshire and other parts of England and on the Continent, and has consulted with representatives of the medical and administrative staffs of voluntary hospitals in the West Riding. In the committee's opinion 3,178 additional beds are needed for the county as a whole to provide accommodation on the scale of four general hospital beds per 1,000 of population. To meet the requirements of the several areas new hospital accommodation containing 1,250 beds in general hospitals should be provided, and the county council should co-operate with the governing bodies of hospitals for specialized forms of treatment. The Public Health and Housing Committee of the West Riding County Council, having considered the reports from the special composite committee, has adopted these recommendations, and recommends further that one hospital should be built in South Yorkshire between Doncaster and Barnsley, and another to the north of Leeds and Bradford to serve the north-west of the West Riding. A full account of these and other recommendations, and of proposals for further maternity accommodation, appeared in the *Yorkshire Post* of January 18.

London Manchester Medical Society

The first annual dinner of the London Manchester Medical Society was held at the May Fair Hotel on January 20 under the chairmanship of Mr. H. Pomfret Kilner and was attended by some fifty Manchester medical graduates at present in London. The principal guests were Sir Alfred Webb-Johnson and Professor E. D. Telford, and their health was proposed by Professor L. J. Witts, who brought them both within his own sphere by describing them as surgeons—men of blood and iron. To this toast Sir Alfred Webb-Johnson replied in a reminiscent vein. "The M.R.I." was proposed by Dr. Julius Burnford, who recalled the time when the Manchester Royal Infirmary was situated in Piccadilly and had as a resident surgical officer Professor A. H. Burgess. Professor Telford, in replying to the toast, said that the Infirmary continued to make progress and now had an active plastic surgery unit, which owed its initiation to the good offices of Mr. Kilner, a department of thoracic surgery, and a newly constituted unit for asthma research. An outward and visible sign of the advances which had been made was the "Plaster Palace," which was being reared up, so it was said, in order to accommodate Mr. Harry Platt's records. The toast of the chairman was proposed by Mr. E. B. Osborn, the only layman present.

and the profession. But the method is not cheap, nor in practice easy, while Sister Kenny herself has warned us that in the hands of any but her own pupils it may prove disastrous. If, therefore, at the end of the two to three years which she asks individual cases to wait patiently for the final cure, her claims should be found unjustified, what time, what money will have been wasted, and what heart-breaking disappointment awaits patients and relatives! It behoves the medical profession to make the most thorough and scientific investigation of this so-called new system. There is a notable contrast between the careful analysis made by Mr. Harry of thirty-eight cases treated from the early stages on orthodox lines by the highly qualified and experienced staff of the National Orthopaedic Hospital and the thirty-five cases referred to by Dr. Mills as having been treated by Sister Kenny from the onset (under her ideal conditions), but of which he gives no details. Dr. Mills concedes that 25 per cent. of all cases show spontaneous complete recovery; so that we are left with twenty-seven cases on which to judge the method. In Sister Kenny's own book only four or five such cases are described, while the thirty cases entrusted to her at Carshalton are still *sub judice*, as the committee appointed to report on them is not to do so till the autumn, the results having been inconclusive at the end of three months' treatment.

Mr. Harry's analysis shows dramatic improvement under orthodox treatment in all muscles which were not still entirely paralysed four to six months from the onset of the disease. Completely paralysed muscles, therefore, represent the problem in treatment. My only experience of Sister Kenny's methods is a visit with her to the cases under her treatment at Carshalton. These thirty cases did not present any favourable dramatic contrast to the same number of apparently similar cases treated during recent epidemics at the Bath and Wessex Orthopaedic Hospital, many of which have made the most astonishing recoveries: but, as I have already pointed out, this can occur apart from any specialized treatment, and hardly any two cases are scientifically comparable. An unfortunate feature in Sister Kenny's cases was that no detailed muscle charts were available to mark the degree of weakness before treatment was started and to measure progress. Even the muscle chart is subject to personal inaccuracies, but an unrecorded mental impression is even more unreliable. This is particularly so when the worker shows a certain vagueness of anatomical knowledge, which is noticeable in Sister Kenny's book (in spite of her debt to Dr. McKenzie) and in her handling of the cases. Despite her condemnation of splints, Sister Kenny uses a great deal of apparatus, the bulk of her book consisting of details about its construction. To an old-fashioned orthopaedic surgeon, trained by Robert Jones, Lovett, and Putti, her equipment seems antique and often ineffective—for example, her bands to control scoliosis are calculated to disturb the digestive organs even when they are applied correctly to the spine, and apparently her own staff are not always capable of so applying them. Furthermore, her horror of calipers and walking apparatus will induce her to keep bedridden for one or two years the type of case which the orthodox orthopaedic surgeon would have up and attending an ordinary school at the end of six months, which must surely be as sound on psychological lines as a further dose of Sister Kenny's blue curtains. Continuous supervision of such cases for thirteen years, with control of progress on the Harvard Research charts, has shown that they all develop into useful citizens, capable of earning a living wage even under the unfavourable trade conditions of the last decade.

It is sincerely to be hoped that the medical profession at the present moment will give to the extravagant claims made for Sister Kenny in the lay press the cautious Scottish verdict of "not proven," and will take every opportunity of testing them on unbiased and scientific lines. It would be most valuable if all the orthopaedic surgeons who visited Carshalton with her would record their findings.—I am, etc.,

M. FORRESTER-BROWN, M.S., M.D.,

Senior Surgeon, Bath and Wessex Orthopaedic Hospital.

Bath, Jan. 23.

Throat Carriers in Midwifery Practice

SIR.—In their paper recently published in this *Journal* (October 23, 1937, p. 811) Drs. J. L. Miller Wood and F. E. Camps, reflecting on certain cases lately before the courts, discuss the question of the risks in midwifery arising from throat carriers of haemolytic streptococci and set forth certain principles for our guidance. There will be general agreement with much of what they say of the carrier whose throat is manifestly unhealthy and of the procedure to be adopted when cases of infection arise. When, however, with one eye firmly fixed on the hazards of the High Court, they consider the problems of the "clinically normal" throat carrier, I think we are left rather more confused than before.

The nomenclature used is, I think, unfortunate. The authors do not here acknowledge how greatly the practice of serological "grouping" of haemolytic streptococci has simplified the problem of the healthy carrier. In one sentence they speak of "*Sr. pyogenes* Group A." To the general medical reader this may suggest that a Group A strain is one variety of *Sr. pyogenes*. In the rest of the paper they use the term *Sr. pyogenes* alone. Topley and Wilson (1936) have explained their reason for applying the name *Sr. pyogenes* to the haemolytic streptococci which belong to Group A. Either term is therefore correct, but "Group A" is the one now more commonly used and understood by those who are not bacteriologists. By its use the practitioner of midwifery and the public health officer are constantly reminded of the importance of differentiating these Group A strains which are responsible for most serious human streptococcal infections from those which belong to other groups and are relatively harmless. Moreover, it is not clear whether the authors are actually considering only Group A strains. Unless that is expressly stated their argument carries no weight, since only a proportion of the strains found in healthy carriers belong to Group A. They say:

"A certain public authority, before engaging its salaried midwives, recently swabbed their throats as a routine, and a high percentage of positive swabs was revealed, thus placing it in the curious dilemma of being unable to appoint midwives otherwise apparently healthy and with unblemished records without rendering itself liable to serious criticism in the event of subsequent infection occurring. It would appear more reasonable to examine the throats clinically in the first instance and only swab those with a suspicious appearance.

"It is inadvisable to swab all prospective contacts as a routine, since experience has taught that swabbing of clinically normal throats for no specific reason, as, for example, when a known case of infection has occurred, will almost inevitably lead to confusion. Further, the examination of swabs, unless performed by those experienced in working with the organism, is liable to yield a high apparent positive rate.

"The swabbing of clinically normal throats, unless they are believed to be a source of infection, cannot be too much deprecated.

"... there is reason to believe that if the throat is clinically normal the person is probably not infectious."

inadequate, in view especially of the prevalence of vegetarianism; larger schemes of milk importation have, therefore, to be devised, with particular reference to the needs and purses of the poorer people. There was a notable increase in the number of primary vaccinations, the percentage of known successes being 92.46.

The Pasteur Institute, Coonoor

During the year 1936 the number of patients treated at the Pasteur Institute, Coonoor, Southern India, was 493. No deaths from hydrophobia occurred among those treated; this is the fourth time in the thirty years' history of the Institute that the mortality rate has been *nil*. The Paris fixed virus was in use throughout the year for the preparation of Semple's carbolized sheep vaccine, and was in its 978th passage at the close of the year. No complications following treatment were reported. During the thirty years 1907 to 1936 the total number of patients treated was 36,604, and the number of deaths among them was 390, a mortality figure of 1.06 per cent. The work at the out-patient centres increased during the year under review, supplies of antirabic vaccine for 15,302 courses being issued, the mortality rate being 0.16 per cent. Out of the nine deaths among the incompletely treated, seven patients developed hydrophobia during the treatment; the other two ran away before the course had been completed. All these patients were Asiatics. The total number of deaths was nineteen, nine of whom were incompletely treated and ten completely treated. Two deaths followed jackal bites, one a fox bite; the remaining sixteen were due to dog bites. The shortest incubation period noted in 1936 was eleven days (after a jackal bite) and the longest 257 days (after a dog bite). The treatment given at the out-centres was the same as that at the Institute. Two cases of paralysis were reported during the year, both at out-centres. Thirty-four new treatment centres were opened in the Madras Presidency in 1936. The total number of doses of antirabic vaccine issued by the Institute was 210,147, as compared with 192,269 in the previous year. Major Jyengar, I.M.S., director of the Coonoor Institute, reports that special propaganda work was conducted in connexion with the Mysore Dasara Exhibition, which was attended by 150,000 visitors from all parts of the State of Mysore, and a lecture on the war against rabies was broadcast. The general clinical and bacteriological work of the Institute also increased in 1936, and postgraduate training was given.

Typhoid Fever in Calcutta

Week-end messages from Calcutta indicate that the recent small outbreak of typhoid fever in that city has now spent itself. It is more than three weeks since the last case was notified to the public health authorities. Most of the patients had been staying at one of the large hotels in Calcutta, and twenty-one Europeans from this hotel were still in hospital on January 23. By what means the infection was spread has not yet been discovered.

Lord Aberdare, chairman of the National Fitness Council, will open on March 2 an exhibition entitled "Health, Sport, and Fitness," which has been organized by the Royal Institute of British Architects at 66, Portland Place, W.1. The exhibition will remain open until March 31, and will then go on a tour of the principal cities and towns of England. It will consist of some 700 photographic enlargements, models, diagrams, and plans, divided into two main sections entitled "Everyday Health" and "Planning Physical Fitness." The first will show how health is secured and improvement can be made by town planning, collective health services, the provision of clean food, and by healthy living and working conditions in home, school, office, and factory. The second section will show how the extensive planning requirements of the Government's national fitness campaign can be best and most economically met.

Correspondence

Radio-active Pads

SIR.—It is being claimed that the use of these pads is authorized as an additional benefit by the Ministry of Health. I have inquired of the Ministry and am informed that "subject to the production by the member of an Approved Society of the necessary certificate by a medical practitioner with respect to the appliance required, it would be in order for the society to make a payment towards the cost of the hire of the apparatus for use by the member. . . . The claim that the treatment is curing 90 per cent. of cases of rheumatism among railwaymen is based solely on the letters which the society has received from members who have used the apparatus. . . . The power of the society to contribute to the cost of an appliance which has been recommended by a practitioner has been contained in the Additional Benefits Scheme from the beginning, and a statement to that effect by the Department is in no sense a special permission in regard to a particular appliance, and is certainly not an expression of approval as to the medical value of the appliance."

I would point out that the cost of 0.01 mg. of radium at the current price (£4,000 per gramme) is eight shillings; a pad sold for ten guineas with this amount enclosed in it therefore shows a great profit, particularly if the mineral ore be used in place of radium bromide. An electrically heated pad can be bought for about thirty shillings, and is an efficient means of treating rheumatic pain. If an electrically heated pad containing 0.1 mg. of radium be sold for twenty guineas the profit must be immense.

Hewitt, Pillman-Williams, and Russ found no benefit of the clinical conditions other than subjective on treating a series of cases of chronic arthritis with weak doses of radon. There is no trustworthy evidence of any biological action of such. A relatively large dose applied continuously for six days had no effect on the excised beating auricles of the frog's heart, suitably protected from infection and perfused with serum (C. M. Scott, *Sp. Rep. Ser. Med. Res. Council*, No. 223, 1937).—I am, etc.,

January 24.

LEONARD HILL.

Treatment of Anterior Poliomyelitis

SIR.—The articles in the *Journal* of January 22 on the treatment of acute poliomyelitis by Mr. Norman M. Harry (p. 164) and Dr. F. H. Mills (p. 168) will be read with great interest by all practitioners, because it is evident from the progressive incidence of poliomyelitis in Britain, even though the cases are of a mild type, that an increasing burden is going to be put on the profession for their treatment. It is therefore most desirable, in order to avoid waste of time and money, that the profession should face the problem with an agreed policy. The British Medical Association, by its reports on fractures and on physical training, has directed public activity and funds in these fields in an admirable manner. It is to be hoped that a similar unanimity will be attained in regard to the treatment of poliomyelitis. This is not easy to achieve, for the distribution of the paralysis and its rate of recovery are so erratic in this disease that almost any measure applied to a case is likely at one time or another to get the credit for a "miraculous cure."

The claims made by Sister Elizabeth Kenny and her pupils, such as Dr. Mills, for the attainment by her technique of nearly perfect end-results in about 90 per cent. or more of cases make her non-operative, "non-splint" methods very attractive, at first sight, both to the laity

A Spurious Record of Trichiniasis in Britain

SIR.—In a letter headed "Trichinosis" in your issue of December 18, 1937 (p. 1249), Dr. S. W. Sutton comments on the failure of Mr. van Someren to refer in his article¹ to "an outbreak among the boys on the training ship *Worcester*" reported about 1880 by Mr. Power of the Local Government Board.

I find that Mr. Power's report appeared in the Supplement containing the Report of the Medical Officer for 1879 in the Ninth Annual Report of the Local Government Board, 1879-80. It is entitled "On an outbreak of 'fever' that proved to be of the nature of trichiniasis on board the reformatory school ship *Cornwall*." The cases were clinically atypical and the "proof" is given in Appendix A: "Memorandum on microscopical examination, two months after death, of muscles and viscera from the body of Richard Pierce," signed by W. H. Power and Robert Cory. The memorandum (No. 6, pp. 47-64) is illustrated by three plates with eight figures. Even from a superficial examination of these illustrations one can say quite emphatically that the microscopical nematodes found were certainly not *Trichinella spiralis*. They have a double-bulbed muscular oesophagus of a type common in soil nematodes. This memorandum is immediately followed by a second memorandum (No. 7, pp. 68-77) by Dr. Charlton Bastian, F.R.S., who had been asked to examine and report on the drawings and specimens. Bastian carefully described and illustrated the worms anew, and identified them as males and females of a new species of free-living nematode which he named *Pelodera setigera*. His article is entitled "On some nematodes found in the body of a boy who had died from an epidemic disease (supposed to be trichiniasis) on board the reformatory school ship *Cornwall*."

From the above facts it is evident that Mr. van Someren would not have been justified in adding this "outbreak" to his list of reported cases of trichiniasis in Britain.—I am, etc.,

London School of Hygiene and Tropical
Medicine, Jan. 19.

R. T. LEIPER.

SIR.—In the *Journal* of December 11 (p. 1162) Mr. V. D. van Someren states that in the cases there recorded all those of trichiniasis which it had been possible to trace as having occurred in the British Isles were included. From this it appears that no other cases have been noticed in England, but I venture to think that others have been seen but not specially reported. I remember quite well at a post-mortem examination at St. Bartholomew's Hospital in 1913 or 1914 (I have no record of the exact date) seeing one case, and have a hazy recollection of a second at about the same time. The first case was that of an adult male who had died from some other cause. The abdominal muscles were simply one mass of trichinella larvae.—I am, etc.—

Coonoor, S. India, Jan. 6.

G. F. ROWCROFT,
Colonel.

Shortage of Calcium in the Diet

SIR.—Dr. Ian Murray suggested in your issue of January 22 (p. 202) that in our article on the shortage of calcium in the poorer-class diet (*British Medical Journal*, 1938, 1, 59) we had come to a false conclusion as to the inadequacy of the calcium content of this diet and that we had been led to this through a false analogy between the

needs of a relatively slow-growing organism like the child and a rapidly growing animal like the rat. The poorer-class diet which we used was described in full in our paper, and it certainly was deplorably low in dairy products, as the poorer-class diet always is. The fact that it did not contain sufficient calcium for growing rats was shown clearly in our experiments, and it was that which made us wonder whether it contained sufficient calcium for the growing child. A chemical analysis of this diet and of the tap-water of the Bloomsbury district showed us how much calcium a child would obtain provided he ate enough food to satisfy his caloric requirements and drank enough water to satisfy his thirst (average). Leitch's review in *Nutrition Abstracts and Reviews* (1937, 6, 553) told us how much calcium a young child requires, and the comparison of these two figures indicated to what extent the poorer-class diet was deficient in that factor. Undoubtedly if this diet is supplemented by three-quarters of a pint of milk per day (the school supplement is usually only one-third pint) much of the deficiency will be made good, but I would repeat that the calcium deficiency of the poorer-class diet that we described is an actual deficiency determined by comparison of the calcium content found by chemical methods and the generally accepted calcium requirement of the child. It is quite independent of any experiments on animals. Our conclusion, therefore, was drawn independently of the results of our rat experiments, which had in fact merely brought this deficiency to our notice in a most dramatic way.—I am, etc.,

London, W.C.1, Jan. 24.

KATHARINE H. COWARD.

Lower Abdominal Pains of Cervical Origin

SIR.—Dr. T. F. Tedd (*Journal*, January 22, p. 201) refers to possible untoward effects from alcohol employed for blockage of the pelvic nerves. During five years' experience, first with alcohol and later with procaine, I have seen no such results.

His second ground of criticism—the uncertainty of results based upon subjective pain sensations—is so commonly urged that I suppose it must often be relevant. Here, however, women who have suffered previous and sometimes multiple operations (appendicectomy, uterine fixation, removal of tubes and ovaries, hysterectomy, presacral neurectomy, etc.) without benefit respond as well as others. My long experience of ailing women has convinced me that, just as such pains in the lower abdomen felt year in and year out in the same region have a local physical cause, so the degree of relief is a real measure of the success of our physical procedures. I have seen nothing to make me suspect that in this large group, many seriously ill, the "personality of the individual doctor," or the other "camouflaging factors" to which Dr. Todd alludes, play an appreciable part. I would even protest that a sincere and intimate study of this well-defined pain entity must convince us that to seek an explanation for the relief in any influence other than that which is obvious is as idle as the common and often disastrous policy of lightly regarding similar pain entities as "psychogenic" because we fail to discover a local physical cause. As a corollary it follows that the subjective response is rarely ambiguous: an apparent anomaly has a true physical meaning. Thus, one-sided relief means imperfect blockage: the frequent persistence of the commonly accompanying backache after disappearance of the abdominal pain enables us to use the subjective response to differentiate out the elements in a combined pathology, while complete failure often points to an error in diagnosis.

¹ "The Occurrence of Subclinical Trichinosis in Britain. Results from 200 London Necropsies." *British Medical Journal*, December 11, 1937.

Thus the authors base their recommendations on "probabilities" and on personal experience of matters about which, so far as I can find, there is very little definite evidence. They argue that clinically normal throats do not carry strains capable of causing puerperal infection in a parturient woman if they gain entrance to the vagina. So confident are they that they emphatically deprecate any attempt to find such strains. Yet their faith is not so strong that they refuse to swab the clinically normal throat of a midwife who is a contact of a case of puerperal sepsis. They advise for such a "clinically normal" carrier whose streptococci are refractory to painting and gargling a seaside holiday and/or even tonsillectomy. In other words, they are content to wait for a case of sepsis to reveal a dangerous carrier and "deprecate" the attempt to find her by routine examination. It is here that I venture to join issue with Drs. Miller Wood and Camps.

In the first place, what is a clinically normal throat? Or, worse still, a clinically normal nose, for we know that the nose has its victims as well as the throat. I cannot think that even experts, much less general practitioners, public health officers, or bacteriologists, would be likely to agree on a standard of normality, nor do I think that such highly controversial evidence would be acceptable in a court of law. Therefore I strongly favour the use of the general term "healthy carrier" to describe a carrier with no history of recent or recurrent nasopharyngeal infection other than ordinary colds. Secondly, so far as I can find, there is no evidence to show how frequently and for how long such "healthy carriers" do carry Group A strains or whether such strains, though causing no symptoms in their host, may not become dangerous in conditions favourable to their pathogenicity such as exist in the genital tract after labour.

Before I ventured to enter the lists with Drs. Miller Wood and Camps I sought in vain from other laboratories for the evidence which is so urgently needed on these points. Hare (1935), examining 145 strains of haemolytic streptococci found in noses and throats, concluded that "on an average about 7 per cent. of normal persons have Group A strains in the upper respiratory tract." In my investigation into the source of infection in puerperal fever (1935) I had histories of nasopharyngeal infection in the carriers apparently responsible for infecting thirteen patients. Such histories were absent in the case of the other fifty patients, but since no direct inquiry was made for them this negative evidence is inconclusive.

Many local authorities now send to this laboratory or elsewhere swabs taken from their suspected cases or their carrier midwives. Strains isolated are "grouped" by a rapid technique. Very valuable information is thus obtained; an early diagnosis is made, potentially dangerous carriers of Group A strains are recognized, and the suspension of carriers of strains of other groups is avoided. It is, unfortunately, difficult to see how this service could be extended to include the collection of reliable information about antecedent infection in the midwives swabbed. In maternity practice as it is, however much we may deplore it, it is certain that persons suffering from colds or even slight sore throats will still attend confinements. If one of their patients should develop puerperal fever the attendant would be very likely when questioned to "have forgotten" or to make very light of the nasopharyngeal symptoms. Conclusions of scientific value could not be drawn from such data.

While awaiting evidence to the contrary, therefore, I shall continue to regard any carrier of a Group A strain as a potential source of danger; I sympathize with the expectant mother, who would rather know that her nurse

was swab-negative than that her nose and throat had gained the highest certificates of clinical normality; and I consider that it is part of our duty to our patients to discover and exclude carriers of Group A strains whenever it is practicable to do so. Unfortunately we know that it is not at present practicable to swab sufficiently often all persons engaged in midwifery. By even fortnightly swabbing we should spot the chronic carrier; but to ensure complete security it would be necessary to swab every midwife, say, two days before a confinement and to safeguard her from exposure to any infection after the swab had been taken—a procedure clearly impracticable except possibly in the highest-class domiciliary practice. In hospitals and nursing homes where maternity nurses are completely segregated from septic cases and their attendants sufficiently frequent routine swabbing might be practicable if there were an adequate reserve of nurses to replace the suspended carriers. Meanwhile, should we not cease to speak of "unsuspected sources" of infection? The modern antiseptic obstetric technique is so rigorous because we know that each patient is exposed to potential—that is, suspect—sources of infection from noses and throats—her own and those of her attendant and familial contacts, as well as from the dust of her room or ward.

Our experience in this laboratory fully supports the contention of Drs. Miller Wood and Camps that swabs should be taken only by competent persons and that they should be examined by bacteriologists experienced in this work. I would add that the person who takes the swab must satisfy himself that no antiseptic of any kind has been applied to the nose or throat for some hours previously; as a corollary to this, that no conclusions should be drawn from sterile swabs; and that the "all clear" report should depend on at least two consecutive negative swabs. From the medico-legal point of view it is always advisable to keep for at least six months stock cultures of puerperal infecting strains and of any nose or throat strains isolated at the time of the infection.

Some of the evidence given in the recent cases to which Drs. Miller Wood and Camps refer came as a shock to me. I wish that we as bacteriologists could do more than we do to convince practising doctors and nurses that it is deplorable to defer the diagnosis of uterine infection until the patient is very gravely ill or to reserve it for cases of "septicaemia" and so postpone until too late any search for the infecting organism and the source of the infection. From my revered teacher in gynaecology and midwifery, Professor Miles Phillips, I learned that "every woman is pregnant till you have proved she is not." In that generous spirit we should regard every case of fever in the puerperium as due to uterine infection till we have proved it is not. And there is only one way of proving it—by bacteriological investigation. We still have to persuade practitioners that for diagnosis the direct evidence derived from the examination of one vaginal swab outweighs all indirect evidence put together, not excluding that gained by a study of the character of "the swings on the temperature chart," as described by one witness. What you lose on the swings you gain on the swabs.—I am, etc.,

DORA C. COLEBROOK.

Queen Charlotte's Maternity Hospital,
Bernhard Baron Memorial Laboratories,
London, W.6, Jan. 21.

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tainer should therefore be shaken thoroughly before using the contents. The emulsion is very cheap, a litre costing about two shillings, which suggests its use as a universal dressing for wounds and abrasions as well as for burns and scalds.—I am, etc.,

J. WALKER TOMB, M.D., D.P.H.

Westerham, Kent, Jan. 14.

Treatment of Psychoneuroses

SIR,—I feel that some of the questions raised in the discussion have been dealt with satisfactorily, particularly by Dr. Ross in his last letter (*Journal*, January 15, p. 144). In my original communication one of the points I wished to emphasize was the tendency to overcrowding in the psychological department—a tendency which, in view of the long time necessary for dealing with any single case, is not felt to the same extent in other medical out-patient departments. As Dr. Ross states, "if the doctor is to have half a dozen new patients sent to him every time he comes to the clinic the thing cannot be done." Dr. Ross, like myself, has realized this particular difficulty, and to meet it he offers a valuable piece of constructive criticism—namely, the necessity for impressing on other members of a hospital staff the utility of the department. This is undoubtedly the solution of the problem, and it will be accomplished in time; but again, as he says, "there are many important physicians and surgeons who do not yet believe that our labours are of much value for the present or of promise for the future." It was the recognition of this very fact that called out my original letter.

Until the medical student is given some elementary knowledge of modern psychotherapy this attitude of scepticism will remain, and it is to be hoped that with increasing facilities for such instruction being included in the curriculum the next generation of general practitioners will have sufficient interest in the neuroses to attempt to deal with them in the consulting room. Like Dr. Ross, I am not now referring to those cases for which special knowledge of psychotherapy is demanded—for example, cases of profound obsession—but to the general run of so-called functional cases—neurasthenia, traumatic neurosis, and the like—which could, I think, be dealt with satisfactorily by the general practitioner if he had sufficient interest, which can only be attained by adequate instruction.

Finally, if I might venture to mention one other difficulty which is very obvious in my own practice, it is that the educational attainment, or rather the standard of intelligence, of the patient is a very important matter. It is probably a little lower here than in London and the south generally; it is well-nigh impossible in many cases to attempt any form of explanatory therapy, and one is driven to the use of suggestion in one way or another. But any form of therapy which offers a hope of improving the economic position of a patient out of work is an advantage, and even in quite illiterate labourers, perhaps sometimes because of their illiteracy, suggestion therapy may be successful. Nevertheless one feels that, though removal of a symptom by suggestion may be satisfactory, it is merely an anodyne, and that some form of mental exploration is the method of choice whenever possible. Such mental exploration need not, as Dr. Ross points out, be very deep; in fact it may often be kept on the conscious level and yet be truly curative. The really deep mental analyses can be looked upon as rather in the nature of research problems and not essential to clinical therapy.—I am, etc.,

Sheffield, Jan. 19.

E. FRETSON SKINNER.

Medical Hydrology

SIR,—A report which appeared in the *Supplement* of January 15 (p. 35) of a lecture on spa treatment and rheumatism that I gave to the Plymouth Division of the British Medical Association has just been brought to my notice. In it I am reported to have said that I "did not consider that the mineral content of the waters was of any special importance." What I actually said was that I had not "time to deal with the merits and demerits of various types of mineral water"; and again that "this was a difficult question when one must tread warily," meaning that benefit from the treatment of rheumatism must depend largely on clinical impressions, and no one has the necessary clinical experience of all "waters." I am sorry if these remarks were misunderstood.

May I endorse the remarks made by Dr. Alfred Cox in the *Journal* of December 18 (p. 1249) with regard to the necessity for teaching the student more about the treatment of rheumatism and of the value of hydrotherapy and spa treatment. Scientific hydrotherapy, best combined with rest and change of surroundings at a spa, is invaluable, but it is only one part of the treatment. If the best results are to be obtained each individual must be considered from every aspect and a programme drawn up to include physiotherapy, orthopaedics, removal of sepsis, vaccines, gold, etc., according to the individual's requirements. Until the student is taught this there will be no true balance; either he will be a spa addict believing in the supernatural power of the waters to cure all ills or he will consider spa treatment quackery. There is in existence a Committee for the Study of Medical Hydrology in Great Britain, which has formed a panel of lecturers consisting of men specializing in this science from all over the country. They are willing to give lectures to any medical students' or practitioners' society. I shall be glad to furnish further particulars to anyone interested.

We are attempting to rationalize treatment, but it is only by obtaining recognition in the medical curriculum that we can satisfactorily do so. At Leeds University this recognition is forthcoming; lectures are given and questions asked in examinations under the heading of therapeutics. Several lectures have also been given to students' societies at the London hospitals. It is time the young practitioner knew more instead of less than the average layman about hydrotherapy. It is, to say the least of it, ignominious to show a complete lack of knowledge when asked questions by one's patient.—I am, etc.,

G. D. KERSLEY.

Hon. Sec., Committee for the Study
of Medical Hydrology in
Great Britain.

Bath, Jan. 24.

The Problem of the Final M.B., B.S. Lond.

SIR,—As the present discussion on this subject, which is vitally important to London medicine and its students, seems to have degenerated into a personal and political one, and as this seems likely to obscure the real point at issue, may I state the case from the point of view of one who has no axe to grind?

The primary cause of the falling away from the final examination of students who have started upon its course is the fact that the Conjoint Board offers to the student an easier examination (at a considerably heavier charge) which he can begin taking six months before the completion of his medical training, which he can take in parts, and which allows him to take any part he has failed in again in three months' time. Herein lies the key to that £16,000 which the financial foresight of the Colleges

To answer Dr. Todd's other point: in the present state of our knowledge a problematic and minor risk does not justify the refusal of nerve blockage for that large residue in whom cervical drainage alone fails to give complete relief. In 183 cases there were forty-eight such—that is, about 26 per cent.—many sorely tortured women.—I am, etc.,

British Postgraduate Medical School,
London, W.12, Jan. 24.

JAMES YOUNG.

Rehabilitation Centres for Injured Workmen

SIR,—Mr. W. J. Eastwood, in his letter on this subject (*Journal*, January 22, p. 202), quotes from two sources figures in connexion with permanent incapacity from industrial injuries. On the one hand he refers to the evidence given before the committee to the effect that the inevitable permanent incapacity rate is less than 5 per cent. in organized clinics, and on the other hand he quotes a large insurance company as stating that the figure for "some permanent incapacity" is about 35 per cent., irrespective of whether the clinic is organized or not. In asking for an explanation of the discrepancy, and in making a plea for the avoidance of overstatement, Mr. Eastwood will have the sympathy of all. There is a growing interest on the part of the Government in the organization of centres for the treatment of industrial injuries, and the British Medical Association is to be congratulated on fostering it. It is important that its growth should not be retarded by doubts as to the accuracy of statistics which so strongly suggest the necessity for an extension of organization and the immediate establishment of an experimental rehabilitation centre.

From a personal knowledge of the work of organized clinics in the Liverpool district I am satisfied that there will be fairly wide variations in both directions from the 5 per cent. rate for permanent incapacity. To instance the possibilities, may I refer to fracture of the shaft of the femur? This injury is liable to produce a deficiency of flexion of the knee of about 10°. So far as a dock labourer is concerned this disability, though possibly permanent, does not prevent him from returning to his work, and he is not regarded from an insurance company's point of view as "permanently incapacitated." If, however, the patient is a collier, then he is unquestionably incapacitated, since his work demands nothing short of full flexion of the knee. Similarly, an orthopaedic surgeon who is unfortunate enough to sustain a fracture of the terminal phalanx of the big toe need not cease work even for a day, while the average duration of incapacity for a dock labourer who suffers from this common injury is nearly five weeks. In these and many other possible comparisons, does there not lie an answer to the doubt which has been raised as to the accuracy of the figures given in evidence to the committee? Is it not possible that the figure was arrived at from a consideration of injuries treated in clinics where there is a small proportion of workers in the heavy industries? Of all vocations that of a collier demands the strictest and most rigid criteria in regard to fitness for work.

It may be suggested that this factor alone cannot explain the discrepancy. I find the insurance company's figure quite incredible, and am confident that your correspondent could produce statistics from his own clinics which would demonstrate that the 35 per cent. incapacity rate is an "overstatement," in deploring which all will join him. A true estimate of the value of organization in the treatment of injuries can be arrived at, not by comparing one hospital with another but by comparing

statistics for, say, Merseyside, where organization is fairly well advanced, with those of some other similar district in which it is manifestly absent. It is possible that insurance companies are in possession of such statistics, and it is to be hoped that they will be presented as evidence before the committee. There can be no possible motive for overstatement by the surgeons from whose clinics the figures were obtained. Those whose work lies in the treatment of injuries must surely be unanimous in affirming that the case for organization and for the establishment of rehabilitation centres is so strong that every possible investigation by the insurance companies, or by the Government, is to be welcomed. The financial support of the insurance companies is needed as urgently in the personal interests of the workers as in their own pecuniary interest. The establishment of organized clinics and rehabilitation centres will prove as sound a business proposition in this country as it is reputed to have been for years in Vienna.—I am, etc.,

Liverpool, Jan. 24.

W. S. DIGGLE,
M.Ch.(Orth.), F.R.C.S.

Acriflavine Emulsion

SIR,—In the article on the use and abuse of antiseptics in the *Journal* of December 25, 1937 (p. 1286), Professor Garrod and Mr. Keynes point out that the antiseptic action of acriflavine in the treatment of infected wounds is "hindered by intimate admixture with an oily basis, as in the acriflavine emulsion of the B.P.C." They also state that "this elaborate preparation has no demonstrable antiseptic action whatever." In the *Prescriber* of June, 1935 (p. 207), I published a formula for making readily, simply, and cheaply an elegant and highly antiseptic emulsion of acriflavine, as follows:

Acriflavine, B.P.	...	...	...	1 gm.
Lime water, B.P.	...	...	...	500 ml.
Olive oil, B.P.	...	...	...	500 ml.

Dissolve the acriflavine in the lime water, add the oil, and shake thoroughly. (A slightly rancid commercial olive oil is more satisfactory than a highly refined salad oil on account of its higher fatty acid content.)

Acriflavine is acid in reaction, but its solution in lime water in no way diminishes its efficacy as an antiseptic whatever chemical change may occur through its solution in an alkaline liquid. As is well known, its bactericidal action is increased in the presence of serum, also an alkaline fluid. While acriflavine is freely soluble in water (1 in 3) and in alcohol, it is highly insoluble in fixed oils and other organic solvents. On account of this insolubility in oils various methods have been devised to make an emulsion of it, and those so far advanced have been more or less complicated and time-consuming.

The acriflavine emulsion of the B.P.C. is prepared as follows:

Acriflavine	...	...	...	1 gm.
White beeswax	...	...	...	41 gm.
Distilled water	...	...	...	250 ml.
Liquid paraffin	...	...	...	750 ml.

Melt the white beeswax in the liquid paraffin and add with constant stirring a warm solution of the acriflavine in the distilled water; stir until cold.

The emulsion made with lime water and olive oil is, *per contra*, simply and quickly prepared; it ensures complete solution of the acriflavine, and provides an elegant and highly antiseptic preparation which is particularly soothing and healing in cases of burns of lesser degree and of scalds. Though stable, the component parts of the emulsion may separate slightly after some time; the con-

SIR.—In the letters on this subject which appear in the *Journal* of January 15 both your correspondents strike the same note. Both complain that there are available in London at the same time two qualifying examinations, and that therefore there is entailed needless work for two sets of examiners and double expense for the students or their parents. Why fix on the number two? There used to be more in my day—nearer the round half-dozen if one counted those in the provinces as well. Such arguments as those contained in your correspondents' letters are entirely beside the point, which is of far greater importance than one would judge from their letters. Sir Ernest Graham-Little in the latter half of the opening paragraph of his letter in the *Journal* of January 22 puts the matter clearly; and I would especially draw to this letter the attention of all London graduates and others interested in this question.—I am, etc.,

Llandilo, Carm., Jan. 24.

J. H. LLOYD.

Correct Footwear

SIR,—In the correspondence on this subject I have looked in vain for any suggestions as to what constitutes correct footwear. If one examines the average shoe after it has been worn for some time the sole is usually most worn along its outer border, showing that the principal weight of the body is carried by the outer side of the foot. When the normal foot is on the ground most weight is borne by the heel, the inner arch, and the great toe. The foot is slightly everted and abducted, and there is no lateral movement at the ankle-joint. If the weight is displaced outwards, as in the modern shoe, the foot becomes inverted and adducted, and the weight falls on the outer arch and the distal portion of the transverse arch formed by the heads of the metatarsals. The latter collapse and draw down the corresponding phalanges with them. This causes apparent shortening of the toes by tilting them upwards and backwards. This movement is resisted by the upper of the shoe, and deformity results. The toes become crowded together and pressed against the shoe, corns, callosities, hammer-toes, etc., resulting. The toes may become twisted or displaced either behind or in front of their neighbours, and show evidence of pressure from the shoe, from the other toes, or from both. The great toe no longer supports the body weight, tends to be displaced outwards, and may lie against the second toe or above or below it; a bunion sooner or later develops on its metatarso-phalangeal joint.

The aim of treatment is to bring the foot back to the position of slight abduction and eversion, with the body weight supported by the heel and great toe. This is done by building up the sole of the shoe to make a curved inclined plane centred on the metatarso-phalangeal joint of the great toe, and by stiffening the remainder of the sole to the heel. This raises the depressed metatarsals and outer side of the sole, keeps the foot everted, and displaces the weight of the body to the heel and great toe. The fore part of the foot is broadened and the toes are no longer crowded together. The phalanges are straightened and the foot is lengthened; the balance of the body is restored.—I am, etc.,

London, N.11, Jan. 23.

W. SIMPSON.

Pasteurization of Milk

SIR,—May I thank Dr. Maule Horne for his courteous letter and regret that Dr. Hawthorne's was not equally so (*Journal*, January 22, p. 199). The milk supply of our great towns is in a parlous state, and possibly nothing but

pasteurization can make it endurable, but that is no reason why more wholesome methods should not be tried wherever possible. My letter (January 15, p. 148) was written simply to give an account of our experience, and to plead that compulsory pasteurization for the whole country would be a great mistake. Dr. Hawthorne's assumptions are great, but one should be contradicted at once in the general interest. Letchworth is not a "rural retreat" which has no relation to the busy life of the people. The foundation of Letchworth has been the most successful piece of public health work in this country during the past thirty years. It is characteristic that it is far better known and imitated abroad than in England, and Dr. Hawthorne will be interested to hear that our "rural retreat" contains over a hundred factories.—I am, etc.,

Letchworth, Jan. 22.

NORMAN MACFADYEN.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, OXFORD, 1938

From July 29 to August 2, in Balliol College, Oxford, the International Medical Society for Psychotherapy will hold its tenth annual congress. The first event will be a reception on the Friday night. Papers will be read and discussed on Saturday morning and afternoon, Sunday afternoon, Monday morning and afternoon, with intervals for entertainment and recreation, and the Congress will break up at midday on Tuesday.

The Congress is under the presidency of Professor C. G. Jung, who is assisted by a Council representative of the British Medical Association, the Medical Section of the British Psychological Society, the National Council for Mental Hygiene, the Child Guidance Council, and several other bodies, and in co-operation with the Board of Control. The languages of the Congress will be English, German, and French. Summaries of the papers read will be provided for all members in the three languages; adequate interpretation will be provided for the discussions. Delegations have been invited from Germany, Austria, France, Holland, Switzerland, U.S.A., Rumania, Hungary, Czechoslovakia, Poland, Norway, Sweden, Denmark, Belgium, Italy, and it is hoped that a large and representative number of British delegates will attend to welcome and exchange views with their colleagues from abroad.

The purpose of the International Medical Society for Psychotherapy is to provide a platform for all schools of medical-psychological thought; and the characteristic of the congresses held by it hitherto has been the catholicity of approach. Up to 1936 the society held its congresses in Germany. The 1937 Congress met in Copenhagen; and this year's meeting in Oxford will be the first occasion on which a congress of the society has taken place in an English-speaking country. At the last Congress it was decided that one of the main themes for discussion in 1938 should be psychotherapy at the various periods of life.

Details concerning the programme and accommodation will be announced later. The fee for membership of the Congress has been fixed at a sum not exceeding 17s. It would greatly assist the organizers if all those interested in or intending to attend the Congress would communicate immediately with the honorary secretary, Dr. E. B. Strauss, 81, Harley Street, London, W.1.

As there are so many specialized sections of applied chemistry which are on the fringe of the work of the Society of Chemical Industry's subject groups, such groups are to be allowed to form panels. The first panel will deal with microbiology as applied to all industries utilizing micro-organisms—for example, food, agriculture, dairy, leather, and the fermentation industries. At the same time the panel will deal with the prevention of micro-organisms and such subjects as the microbiological spoilage of raw or manufactured materials.

manages to guide into their otherwise rather empty coffers.

The arguments of the students with whom I have discussed the matter are these: (1) That they can begin taking the Colleges' examination six months before they can sit for that of the London University. (2) That by taking it they can with more certainty qualify up to time and are then "off" their parents' hands—a noble aspiration. (3) That if they fail in the M.B., B.S. they are referred for six months against the Colleges' three. (4) That when qualified they can take a hospital appointment, or otherwise earn a living, and can take the London University examination at leisure—a dangerous argument, as experience proves. (5) That it gives them practice at writing examination papers, at which they get no practice in their particular hospital. Lastly, there is one argument which is not always mentioned, and that is that some of them are in a hurry to get married.

In my opinion these arguments are theoretically sound, and if the intentions which they embody were carried out there would be little to say against them, save that they carry with them that awful waste of £16,000, which might be used to greater advantage to the students. But results show that the ambition to take the higher examination too often fades away, and the reasons are not far to seek. If I put aside the powerful narcotic effect of the drug prescribed by Cupid the following appear to me to be the more important. (1) The student is called upon to take the London examination almost immediately after the completion of that of the Colleges; he finds himself examination-weary, and is unable to summon the necessary grit for further work. (2) By taking the Colleges' examination in parts he almost certainly neglects those subjects in which he has passed to concentrate upon those for the final part, and these neglected subjects will have to be revised in the short time between the two examinations. If he fails in the M.B., B.S. examination he has to wait another six months before the next examination. On the assumption that he passes at the next attempt he will have spent a whole year in taking mere qualifying examinations—an unjustifiable waste of time in the life of a medical man. Is it to be wondered at that only the more determined students are willing to face these conditions?

There is no doubt that all these troubles could be avoided by the institution of a State examination, and this should be our ideal to aim at. But while the State examination lingers there is much in the present trouble which could be avoided if the London examinations were held four times a year instead of twice. The examinations would be no easier, and much time and money would be saved. It would also enable the examiners to refer candidates for three, six, or more months according to the knowledge they have shown, and thus failure would not fall so heavily upon those who have only just failed to satisfy the examiners.

I have no wish to enter into the discussion of any other point in relation to the London examinations, of which I know there are many. I wish only to emphasize the opinion that if the examinations were held four times a year instead of twice the number of students entering for the examination would certainly be greater. And I feel sure that if the University could manage to make the change in the near future they would receive the gratitude of all their medical undergraduates.—I am, etc.,

STANLEY COLYER, M.D., B.S.Lond.

Mayfield, Sussex, Jan. 24.

SIR.—Had the subject under discussion been the number of University students taking the M.B., B.S. degree, then

there would be some point in Sir Ernest Graham-Little's argument; but we have not been discussing this, but the percentage of students taking the degree. This being the case his deductions are not at all obvious.

I should not have thought that any statement of mine could be interpreted as suggesting that the Court had acquiesced to any lowering of the standard of the degree examination. Everyone who has anything to do with the University of London knows that the Court does not concern itself with academic matters, and therefore would not be in a position to know anything about the standard of the examination. Any remarks of mine, therefore, on this subject can clearly not have been applied to the Court.

Sir Ernest again repeats a statement which he made in the Graduates' Association manifesto that the Faculty Board proposed that "the examination in medicine, surgery, and midwifery for the final M.B. should in effect be conducted by the Conjoint Board on its present standard." Had Sir Ernest taken the trouble to read the Senate minutes on the subject he would have found that "the Faculty Board have come to no decision in regard to these suggestions."

Professor Greenwood's peculiar form of humour makes it rather difficult to follow his arguments. In any case the tone of his letter relieves me of any necessity for a reply.

A great deal has been written in the course of this correspondence that must be very confusing to those who are not thoroughly conversant with the internal workings of the University. As I do not propose to trouble you with any further letters on the subject, may I just again point out what are the real points at issue. In order to find a solution to the problem of the small percentage of University medical students who take the M.B., B.S. degree, the Senate has authorized representatives of the Board of the Faculty of Medicine to consult with the Royal Colleges. No proposals have been made by the Board and the field of discussion is entirely open. Any proposals that emanate from the conference will have to be referred to the Senate, and Sir Ernest Graham-Little and his friends will have ample opportunity to debate them. It seems to me a little unfortunate that Sir Ernest should have used a senatorial election in an attempt to hamstring these discussions from the start, and particularly that he should imagine that the support Mr. Mitchiner has received was entirely due to objections to the action of the Senate without taking into consideration the personal popularity of the candidate or the methods employed in obtaining that support.

As I pointed out in my first letter, Sir Ernest and his friends appear to take no interest in the student or in his educational career. They must be aware of the difficulties in arranging suitable courses of instruction for students who are preparing for the two sets of examinations which overlap in point of time, and they must further be aware of the strain, both mental and financial, which the present system entails. Fortunately, the Senate as reconstituted under the Act of 1927 (which Sir Ernest so vigorously opposed both in and out of Parliament) includes for the first time among its members some of the deans of the medical schools. Thus people with a practical knowledge of these problems now have some say in the policy of the University. They realize that the Conjoint Board cannot be dismissed as a negligible factor, and that the present condition can only be improved by cut-throat competition or by co-operation. Of these two choices the latter appears to be the more desirable. Only by conference is it possible to say whether it is practicable.—I am, etc.,

London, W.1, Jan. 24.

A. M. H. GRAY.

tion, and the Dean Orphanage, all educational institutions, and he was for many years a member of the Education Authority of Edinburgh. He had for long been one of the directors of the Royal Blind Asylum, and recently became chairman of the managers of the Thomas Burns Home for Blind Women. He was prominent in the activities of the Church of Scotland, having been for many years one of the leading members of St. Cuthbert's Kirk Session, Edinburgh, and from time to time a member of the General Assembly of the Church of Scotland. He was physically a man of great activity and a keen golfer, curler, and bowler.

Dr. Sym is survived by his widow and by several sons and daughters, of whom one daughter is an M.D. of Edinburgh University and a son is at present a student of medicine. A funeral service was held in St. Cuthbert's Church, Edinburgh, on January 22, which was attended by a large number of professional colleagues and of representatives from the various institutions with which Dr. Sym had been connected.

OTTO LEYTON, M.D., D.Sc., F.R.C.P.

Physician to the London Hospital

We announce with regret the sudden death on January 21 of Dr. Otto Leyton, physician to the London Hospital, who was well known for his clinical studies on diabetes. A letter from him on one aspect of insulin therapy appeared only last week in our correspondence columns.

Otto Fritz Frankau Grünbaum (he changed his name by deed poll to Leyton in 1915) was born on October 20, 1873, the younger son of Joseph Grünbaum, a naturalized British subject. His elder brother Albert, who died in 1921, had been professor of pathology in the University of Leeds. From the City of London School he went to Trinity College, Cambridge, and there gained first-class honours in Part I and Part II of the Natural Sciences Tripos. He continued his medical studies at St. George's Hospital, took the M.A. Cantab. in 1898, the B.Ch. in 1900, and proceeded M.D. in 1904, having in the meanwhile obtained the M.R.C.P. diploma and the D.Sc. degree of the University of London. He had been house-physician at the West London Hospital, and was for a time assistant physician at the Belgrave Hospital for Children and physician to out-patients at the City of London Hospital for Diseases of the Chest. For some years before election to the visiting medical staff of the London Hospital he worked as clinical pathologist at King's College Hospital. In 1909 he became a Fellow of the Royal College of Physicians. At the London Hospital Medical College he was lecturer on therapeutics, and he had examined in pharmacology for the University of London. He was honorary secretary of the Section of Pathology at the Annual Meeting of the British Medical Association in Belfast in 1909, and vice-president of the Section of Pharmacology and Therapeutics and Dietetics at the Aberdeen Meeting just before the outbreak of war in August, 1914. Two years later he published a paper on the examination of the soldier's heart, and a book embodying three lectures on the treatment of diabetes mellitus by alimentary rest, expounding the method known as the "Allen" treatment, of which a full abstract had appeared in the *British Medical Journal*; he also contributed chapters on the internal secreting glands to the fourth and fifth editions of Price's *Textbook of Medicine*.

Dr. Leyton leaves a widow, and one son and one daughter. The funeral took place at Medmenham, near Marlow, on January 25, and a memorial service was held in the chapel of the London Hospital at the same time.

Many members of the medical profession, particularly those interested in tropical hygiene, will have heard with regret of the death of Major ERNEST EDWARD AUSTEN, D.S.O., late Keeper of Entomology at the British Museum (Natural History). Austen joined the staff of the Museum in 1889 as an assistant in the Department of Zoology, from which the Department of Entomology was separated in 1913. He took part in the first expedition of the Liverpool School of Tropical Medicine to Sierra Leone and served on many committees investigating trypanosomiasis and the tsetse fly. He was a member of the committee of management of the Imperial Institute of Entomology and wrote valuable books and pamphlets on blood-sucking flies. Major Austen served at first during the war as a combatant officer, but was transferred later to the Egyptian Expeditionary Force for special duty on malaria and other insect-borne diseases.

Dr. ROBERT ENWRIGHT LAUDER, formerly medical officer of health for Southampton, died at his home in Millbrook Road on January 19, at the age of 73. He took the qualifying diplomas of the Edinburgh Royal Colleges in 1886, the D.P.H. in 1890, the F.R.C.S. Ed. in 1893, and the M.D. of Durham University in 1906. After serving as a medical officer for the South African Field Force in the early part of the South African War Dr. Lauder was appointed in 1901 medical officer of health under the county borough of Southampton and the Port Sanitary Authority; he was also medical superintendent of the borough and port fever hospitals, medical officer to the Education Authority, and medical inspector under the Aliens Act. During the great war he was medical officer in charge of the University War Hospital at Southampton, and officer commanding the 7th Sanitary Company, R.A.M.C.(T.). Dr. Lauder joined the British Medical Association in 1903, was chairman of the Southampton Division in 1922, and again from 1928 to 1930, in which year he resigned his appointments in the Public Health Service. He was responsible for twenty-nine consecutive annual reports on the health of the borough and port of Southampton.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on January 20 the following medical degrees were conferred:

D.M.—A. M. G. Campbell.
B.M.—T. Gadian, C. W. Rayne-Davis, I. B. Pirie, C. M. F. Walters

UNIVERSITY OF CAMBRIDGE

At a congregation held on January 22 the following medical degrees were conferred:

M.B., B.Ch.—S. R. F. Whitaker, *J. B. Bunting, *D. O. Wharton, *B. D. Whitworth, J. K. Denham, E. H. L. Wigram, J. Sutcliffe, A. S. Bookless, K. S. Mullan, D. A. P. Anderson, J. L. Griffith, C. F. Barwell, S. C. Trudove, A. L. Fawdry, A. P. Kitchin, J. L. W. Ball, G. A. Burfield, W. D. Dooy, S. W. G. Hargrove, G. J. G. King, L. B. Pelling, L. C. de R. Epps, H. S. Kellett, P. H. Lenton, G. E. Adkins, R. T. Johnson, S. A. H. Lesser, G. H. Wooler.
M.B.—F. B. Turner.

* By proxy.

UNIVERSITY OF LONDON

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN PUBLIC HEALTH—Part I: S. Amarasinghe, P. H. R. Anderson, S. N. Chelliah, F. C. L. B. B. Crawford, P. A. Crowley, L. D. P. Dharmaratne, C. W. Dixon, R. Y. Dunlop, A. C. Gee, F. W. Gilbert, M. G. Hyder, O. G. Lloyd, A. L. St. A. McCloskey, G. A. Macgregor, I. M. Macgregor, M. Markowe, J. S. Minnett, F. Norenha, P. X. O'Dwyer, S. S. Pillai, A. I. Ross, A. F. H. Stewart, Emily S. O. Thomson, S. C. Thurai-Rajah, M. Watkins, Helen E. Wight.

Medico-Legal

A GAP IN THE POISONS ACT

By the Pharmacy and Poisons Act, 1933, the poisons in Part I of the Poisons List can only be sold by an authorized seller of poisons—that is, a member of the Pharmaceutical Society. The society constantly prosecutes unauthorized retailers for selling drugs containing Part I poisons, which are numerous. Recently the society prosecuted a "drug-store keeper" for selling asthma tablets containing ephedrine, which is a Part I poison.¹ The solicitor appearing for the society said that the packet was not marked "poison," but bore a warning that it was dangerous to exceed the stated dose. The retailer said that he stocked many thousand varieties of drugs, and that this medicine had been ordered by an assistant without his knowledge. The solicitor pointed out that the Pharmacy and Poisons Act, 1933, imposed no restrictions on wholesalers, and that anyone could order any quantity of poison he wished from a wholesaler. The magistrates imposed a small fine.

The class of persons exempted from the working of the Act is very large, and to throw on the wholesaler the responsibility of selling poisons only to certain persons would be to impose a severe and perhaps unfair burden. On the other hand, the Act is doubtless evaded or ignored by a number of retailers, and the Pharmaceutical Society's inspectors may be unable to prosecute in more than a small proportion of cases of infraction of the Act. It ought to be possible to devise some measure of control which, while not unduly hard on the wholesalers, would prevent Part I poisons coming into the hands of persons who are not authorized to sell them.

PROBATION AT MENTAL HOSPITAL

A Legal Experiment

Sexual offenders are apparently becoming more numerous, and give great trouble to magistrates' courts. The offenders are usually not criminals at all, but victims of some psychological disorder which may be amenable to treatment. Facilities for treatment are slowly becoming available in large centres, and magistrates are recognizing its value. One of the best-known agencies in London is the Institute for the Scientific Treatment of Delinquency. In the provinces, however, where out-patient clinics for psychological disorders are few, patients of this kind are sometimes best treated as in-patients at a mental hospital, where the staff are willing and able to look after them. The Wakefield magistrates recently² made a probation order in the case of a young man charged with a sexual offence, containing a condition that he should enter a certain mental hospital for six months as a voluntary patient. The court was satisfied that the offence was the result of a mental abnormality, and the man was eager to be helped to overcome it and willingly consented to the condition. The magistrates, in imposing this condition, expressly took the risk that they were acting beyond their legal powers, and hoped that, if they were, the law would soon be amended to enable magistrates to impose residence at a mental hospital as a condition of probation.

The Probation of Offenders Act, 1907, Section 1, which introduced probation for the first time, as amended by the Criminal Justice Administration Act, 1914, s. 8 (2), provides that when a court thinks that the charge is proved but that it is expedient to release the offender on probation it may, without proceeding to conviction, make an order discharging the offender conditionally on his entering into a recognisance to be of good behaviour and to appear for conviction and sentence when called on at any time

during the period of the order. The order may contain several conditions, including supervision by a named person and of a particular kind, and such additional conditions with respect to residence and any other matters as the court may, having regard to the circumstances, consider necessary to prevent the repetition of the offence. Obviously, a court could not impose a condition that the offender should become a voluntary patient at a mental hospital if he did not wish to do so or the hospital superintendent did not wish to accept him. Indeed, no good purpose would be served by making this condition. If, however, the offender consents to be a voluntary patient and the hospital will take him, the language of the Act appears amply wide enough to allow the court to make his residence at the hospital as a voluntary patient a condition of the probation order. As a matter of everyday fact, every condition for a probation order is really imposed with the consent of the offender, and the value of the method depends on his co-operation. The legal validity of this probation order can only be called in question on appeal to quarter sessions. In the circumstances no one is likely to lodge an appeal, and as no court is likely to be imprudent enough to impose such a condition against the desire of the offender, the Wakefield example may be followed for some time before its legal merits are investigated by a higher authority.

Obituary

W. G. SYM, M.D., F.R.C.S.ED.

Consulting Ophthalmic Surgeon, Edinburgh Royal Infirmary

The death occurred on January 19 of Dr. William George Sym, emeritus lecturer on diseases of the eye in the University of Edinburgh. Dr. Sym was born at Edinburgh in 1864, and after a medical course at Edinburgh University graduated M.B., C.M. in 1886. He had already begun to take a special interest in ophthalmology, and decided to devote his professional life to this specialty. In 1889 he took the degree of M.D., and in the same year became a Fellow of the Royal College of Surgeons of Edinburgh. He held numerous appointments; such as ophthalmic surgeon to Leith Hospital, to the Eye, Ear, and Throat Hospital at Cambridge Street, Edinburgh; and in 1890 was appointed assistant ophthalmic surgeon to the Royal Infirmary of Edinburgh, becoming ophthalmic surgeon-in-ordinary in 1905. He relinquished this post in 1920 after the usual period of fifteen years, when he was appointed consulting ophthalmic surgeon to the institution. He was also for some fifteen years consulting ophthalmologist to the Scottish Command of the Army. He was a Fellow of the Ophthalmological Society, and for some years acted as editor of the *Ophthalmic Review*. He was the author of a well-known textbook on *Diseases and Injuries of the Eye*, published in 1913, and translator of the English edition of Adams's *Handbook of Treatment for Diseases of the Eye*. He also contributed many papers to periodical literature on subjects dealing with his specialty, such as "Simple Rules for Determining the Ocular Muscle Paralyzed," *Edinburgh Medical Journal*, 1898. As a clinician and teacher he was specially distinguished as a careful observer, a skilful operator, and a lucid lecturer and demonstrator. He enjoyed great popularity as a consultant and had a large ophthalmic practice. For three years he was a member of the Ophthalmic Committee of the British Medical Association.

In addition to professional activities Dr. Sym took a wide interest in public work, and was a member of many boards and public bodies. Among others he was a governor of Donaldson's Hospital, John Watson's Institu-

¹ *Manchester Guardian*, January 16.

² *Leeds Mercury*, January 13.

EPIDEMIOLOGICAL NOTES

Typhoid Fever

Croydon Outbreak.—There have been no fresh cases of typhoid fever since January 1, and the total notifications are 290. This number is exclusive of 5 nurses who have contracted the disease from contact with patients, three of them since January 1. The death on January 25 of a patient who contracted the disease eleven weeks ago brings the total number of deaths to 41.

Dysentery

The dysentery notifications for England and Wales have shown an appreciable increase over last week—280 cases against 256—while a proportionate increase has been encountered in London—65 notifications against 58 in the previous week. There have been 30 additional cases of Sonne dysentery notified in Bedford since last week, when 70 cases were notified in one day. As the milk supply is being either pasteurized or boiled it is probable that the majority of the notifications are contact cases.

Measles

Measles continues to spread in the principal large cities of the British Isles, particularly in Glasgow, in which the number of cases rose to 1,409, an increase of 608 on the previous week, while in Edinburgh the number notified was 327, as against 135 for the previous week. In Belfast, while the number of cases notified decreased from 592 to 567, the number of patients with measles in the Belfast Union Hospital rose from 154 to 176. The increase of admissions has severely taxed the accommodation at the Belfast Union Hospital. In London the expected measles epidemic is appearing more slowly than was anticipated. The number of cases admitted daily to the hospitals of the London County Council has risen during the week from some 20 to 30 admissions per day. While the Council has ample hospital accommodation at its disposal, it has found difficulty in securing a sufficient number of experienced nurses to staff its fever hospitals; as a result it has decided to place a restriction on the admission of infectious diseases, with the exception of diphtheria, to severe or complicated cases, or cases in which domiciliary treatment is for any reason deemed unsuitable.

Medical News

The Princess Royal will open the new extension to the Institute of Ray Therapy, Camden Road, N.W., on Saturday, February 5, at 3 p.m. Lord Horder will preside.

The following lectures will be given at the Royal Institution, 21, Albemarle Street, London, W., at 5.15 p.m., Tuesdays. February 1, 8, and 15, Professor J. D. Bernal, F.R.S., "Molecular Architecture of Biological Systems"; Thursday, February 3, Dr. E. J. Salisbury, F.R.S., "The Film in Biology: Plant Life"; Thursday, February 10, Mr. H. R. Hewer, "The Film in Biology: Embryology"; Friday, February 18, Professor E. N. da C. Andrade, D.Sc., F.R.S., "Science in the Seventeenth Century"; Thursdays, March 10, 17, 24, and 31, Sir Frederick Keeble, F.R.S., "The Fertility of the Earth."

A debate on the motion "That the Law on Abortion Requires Reform" has been arranged by the Fellowship of Medicine to take place at 1, Wimpole Street, W., on Wednesday, February 9, at 8.30 p.m. Sir Beckwith Whitehouse will propose the motion, and Dr. W. H. F. Oxley will oppose it. A discussion will follow. The chair will be taken by Mr. Justice Humphreys. The meeting is open only to members of the medical profession and the Medico-Legal Society, and admission will be by ticket obtainable from the Fellowship, 1, Wimpole Street, W.1.

A discussion on "The Ministry of Health New Model Building By-laws" will take place at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Tuesday, February 8, at 5.30 p.m.

The annual general meeting of the Institute of Hospital Almoners will be held at 6 p.m. on Friday, February 4, at the Westminster Palace Rooms, 44, Victoria Street, S.W., when Dr. Henry Yellowlees will give an address entitled "Voluntary Social Service."

The next Réunion Médico-Chirurgicale de Morphologie will take place in Paris at the Maison de Santé Velpeau, 7, Rue de la Chaise, on February 9 at 9 p.m. The programme will include the presentation of a revue entitled "Physical Re-education" by Dr. Houdre of Paris. Dr. Marceron will speak on a morphopathological study of the motorist: M. Laville will discuss heredity in relation to morphology (with special reference to the laws of Lapouge); Drs. Chwatt of Lodz and Claoué, keloids and hypertrophic scars; Dr. Rochu-Méry, the morphology and morphogenesis of the abdomen; and Dr. Nepveu will make a communication on paraffin injections. These meetings are held at monthly intervals, and are open to all specialists in various branches of medicine and surgery who are interested in morphology. Further information may be obtained from Dr. Claoué, 39, Rue Scheffer, Paris XVIe.

With the object of encouraging original medical research, the Court of the Grocers' Company offers one scholarship each year tenable for two years of the value of £300 for the first year and of £450 for the second year. Candidates must be British subjects under 35 years of age. Applications must be made by the middle of April. Forms of application may be obtained from the Clerk of the Company, Grocers' Hall, Princes Street, London, E.C.2.

The address of the Westminster Hospital Medical School is now Horseferry Road, Westminster, S.W.1 (telephone number Victoria 6041). The change took effect on January 1.

The King has granted Professor R. S. Dobbin, of the Medical Faculty of the Egyptian University, authority to wear the Insignia of Grand Officer of the Order of the Nile, conferred upon him by the King of Egypt.

A quarterly periodical with the title *Zeitschrift für Altersforschung* is to be published by Theodor Steinkopff of Dresden and Leipzig. Edited by Professors Aberhalden and Burger, it will be concerned with the physiology and pathology of old age, and will correlate the many original articles on various aspects, including the zoological, veterinary, and biochemical, which are published throughout the world.

An illustrated pamphlet of twenty-four pages, *Medical Aid for Spain*, is published at 3d. by the Spanish Medical Aid Committee, 24, New Oxford Street, London, W.C.1. It gives a brief account of the arduous work carried out by units organized by this body, whose president is Lord Addison, chairman Dr. H. B. Morgan, and vice-chairman Mr. Somerville Hastings.

In the November number of the *Industrial Bulletin*, published by the State of New York Department of Labor, L. J. Goldwater discusses the pharmacology and toxicology of diethylene glycol, recently used with such tragic results as a vehicle for sulphanilamide in an American commercial preparation. Reference to poisoning by "elixir sulfanilamide" was made in the *British Medical Journal* of December 4, 1937, p. 1129. A series of articles on the subject has appeared in the *Journal of the American Medical Association* during recent months.

Professor C. G. Jung of Zurich will visit London early in April and will give four seminars at the Tavistock Clinic, Malet Place, W.C., which will be open only to medical practitioners. The titles of the seminars (subject to confirmation by Professor Jung) are: (1) Personal Factors in the Production of the Psychoneuroses; (2) Racial Factors in the Production of the Psychoneuroses; (3) Symbolism in Organic Disorders; and (4) Prophylaxis (Personal and Social) of the Psychoneuroses. In addition Professor Jung will give one lecture open to the general public, the title of which will be "Intuition and its Place in Science and Life."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 15, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	41	8	7	—	3	42	7	21	1	1		
Deaths		2	—	—	—		4	4	—	—		
Diphtheria	1,659	179	210	75	55	1,186	158	216	49	35	1,256	184
Deaths	44	3	9	7	—	42	3	3	6	1		
Dysentery	288	65	122	—	—	25	19	4	—	—		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	4	—	—	—	—	9	1	2	—	—		
Deaths		1	—	—	—		2	—	—	—		
Enteric (typhoid and paratyphoid) fever	29	3	1	5	—	57	3	2	1	1	23	—
Deaths	1	—	3	—	—	—	—	—	—	1		
Erysipelas			75	15	2			86	6	10		
Deaths		1	—	—	—		—	—	—	—		
Infective enteritis or diarrhoea under 2 years												
Deaths	45	13	6	2	3	41	9	7	8	3		
Measles			1,786		582*			56		1		
Deaths	44	9	13	1	11	11	—	—	4	—		
Ophthalmia neonatorum	92	7	25	—	—	76	4	28	—	1		
Deaths												
Pneumonia, influenzal§	1,647	159	21	2	11	2,823	451	441	40	23	1,875	224
Deaths (from Influenza)	91	15	11	1	4	1,110	344	220	21	64		
Pneumonia, primary			344	12				490	8			
Deaths		31	20	3			48	19	39			
Polio-encephalitis, acute	1	—	—	—	—	1	—	—	—	—		
Deaths		—	—	—	—		—	—	—	—		
Poliomyelitis, acute	8	2	—	—	—	5	—	—	—	—		
Deaths		—	—	—	—		1	—	—	—		
Puerperal fever	1†	1	19	3	—	40	6	14	2	—		
Deaths		—	—	—	—		3†	—	—	—		
Puerperal pyrexia	186	25	17	—	—	149	21	28	—	3		
Deaths												
Relapsing fever	—	—	—	—	—	1	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Scarlet fever	2,289	136	509	83	72	1,513	166	337	96	35	1,949	238
Deaths	6	2	2	—	2	7	2	1	2	1		
Small-pox	—	—	—	—	—	2	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Whooping-cough			90		5			661		17		
Deaths	23	6	—	1	—	29	7	21	3	1		
Deaths (0-1 year)	529	106	86	29	32	411	95	95	40	33		
Infant mortality rate (per 1,000 live births)	89	88				76	79					
Deaths (excluding stillbirths)	6,147	1,213	860	249	210	7,700	1,996	1,161	283	340		
Annual death rate (per 1,000 persons living)	15.2	15.3	17.6	16.8	18.6	19.2	24.9	23.8	19.3	32.5		
Live births	6,665	1,326	918	307	252	6,099	1,131	893	337	264		
Annual rate per 1,000 persons living	16.4	16.7	18.7	20.7	22.3	15.2	14.1	18.3	23.0	25.3		
Stillbirths	259	30				267	46					
Rate per 1,000 total births (including stillborn)	37	22				42	39					

(i) 122 great towns in 1937

(ii) 12 " " " "

(iii) 9 " " " "

* 567 cases in Belfast alone and 15 cases in Lisburn Urban District.

† All cases notified as puerperal pyrexia after October 1, 1937.

‡ Deaths from puerperal sepsis. § Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

82 Hereditary Factor in Essential Hypertension

E. A. HINES (*Ann. int. Med.*, October, 1937, p. 593) considers that the hereditary factor plays an important part in the aetiology of essential hypertension. In his investigations he used a "cold pressor test," which consisted in taking the blood pressure before, during, and after the immersion of the hand in water at 4° C. This test divides all persons into two groups: (1) those who have minimal or normal reactions; and (2) those who have excessive or abnormal reactions. Almost all persons with essential hypertension have abnormal reactions. One group of persons who do not show hypertension give excessive reactions to the cold pressor test as regards both diastolic and systolic pressure. They are called "hyper-reacting normals," and it is believed that they are in a pre-hypertensive stage and that many of them will eventually develop essential hypertension. A study has also been made of 608 individuals who had a normal blood pressure, and of 267 who had essential hypertension. A positive family history of hypertensive vascular disease is five times as frequent among individuals who have hypertension or who are hyper-reactors to a standard stimulus test as it is among individuals who react normally to the test. As no hyper-reactor was found who did not have one parent who was either hypertensive or a hyper-reactor it is probable that the trait is inherited as a dominant characteristic. The excessive or hypertensive type of reaction occurred predominantly among members of families in which there was a hypertensive diathesis. The inherited quality may affect the vasomotor system, which reacts excessively to certain external and internal stimuli to such an extent as to lead eventually to the development of essential hypertension in many cases.

83 Early Diagnosis of Renal Tuberculosis

G. PERKOVSKY (*Scalpel*, Liège, November 27, 1937, p. 1639) points out the difficulty of diagnosis in the early stages of renal tuberculosis. There may be no definite symptoms, and radiography is often of little assistance. It is suggested that the examination of the urinary deposit may provide the necessary proof of the disease. In this sediment, in cases of renal tuberculosis, two elements are found in association—pus and blood. Pus is usually present, and may be visible to the naked eye in cloudy urine; it is found in varying quantities in different cases. Red blood corpuscles are also present in the deposit; their number is usually less than that of the white cells, but the proportion does not vary greatly. When pyuria is accompanied by a small number of red cells, confirmed by repeated examination, a microscopical picture is given which is characteristic of renal tuberculosis. In all the cases submitted for examination this test has not failed in a single instance, and may serve as a useful base on which to establish an early diagnosis. It is suggested that this test should be carried out systematically on all urine submitted for investigation.

84 Prognosis of Peptic Ulcer

H. VENNDT (*Acta med. scand.*, 1937, 93, 3, 308) has investigated the after-histories of 421 patients who were admitted to the Bispebjerg Hospital in Copenhagen between 1923 and 1935, inclusive, for haematemesis or melaena due to gastric or duodenal ulceration. The strict dieting formerly enforced for the first two or three days has been relaxed since 1931 in favour of milk and oatmeal gruel from the first day, followed shortly by eggs, biscuits, toast, etc. Blood transfusion was performed in only sixteen severe cases, five of which terminated fatally.

There were approximately twice as many male as female cases, although there were twice as many beds available for men as for women. Of the twenty-five deaths in hospital, four were not due to the haemorrhage. In eighteen of the twenty-one cases coming to necropsy typical ulcers were found. In three cases gastritis was demonstrable. The seat of the ulceration was the stomach in twelve cases. Of the 396 patients leaving hospital alive, 327 were traced at the end of 1936. In the interval forty-six of the 396 had died, and the cause of death was recorded in forty-two cases, among which were eleven deaths notified as due to haematemesis, melaena, or gastric or duodenal ulcer. Six of the deaths were due to cancer of the digestive tract, and three to peritonitis which may or may not have been due to perforation of an ulcer. In one of the author's tables the frequency of the recurrence of haemorrhages from ulcers is calculated for each year after discharge from hospital, and he comes to the conclusion that in this respect 43 per cent. of his patients relapsed at some time or other within six years of discharge.

Surgery

85 Paraffinoplasty and Paraffinomata

C. CLAOUÉ and L. CHWATT (*Réun. méd.-chir. Morphologie*, March, 1937, p. 273) describe the technique of paraffinoplasty and point out the complications that may follow. This method of treatment is used to replace bone, cartilage, or fat where there has been loss of tissue. The paraffin is injected subcutaneously in a semi-fluid form, which later solidifies and remains at body heat. After sterilization of the operative field the syringe is inserted into the cellular tissue. A small quantity of warm sterile water is first injected to prevent the premature solidification of the paraffin, which should be about 60° C. at the time of injection. The important points of technique are that the paraffin should not be fluid but semi-fluid; that no more than 2 c.cm. should be injected at a time; that large vessels should be avoided; and that after injection has taken place the patient should stay in bed for twenty-four hours and in one room for a further one or two days, with applications of wet boracic compresses to the part injected. There are several variations of this method, some of them more complicated than that described. Although paraffinoplasty is attractive because of its simplicity it may be attended by either immediate or late complications. The most serious immediate complications may be an arterial embolus or phlebitis. Late complications may occur one, two, four, or even twelve years after treatment and take the form of tumours, which develop slowly but progressively and are called paraffinomata. These are usually subcutaneous, and may be either solitary or multiple. These nodules are hard and painless on palpation in the first stage, but later become fixed, lose their outline, and invade the deeper tissues. Functional disorders and pain develop later. Metastases may occur through the lymphatics, and may be found at some distance from the primary lesions.

86 Anal Fissure

P. C. BLAISDELL (*Surg. Gynec. Obstet.*, November, 1937, p. 672) points out that although anal fissure is a lesion of minor pathological import yet its frequency and the great discomfort it causes render it one of the most important of anal lesions. These fissures, which cause intense pain, are usually found placed directly posteriorly in the anal canal, and only occasionally directly anteriorly. This is perhaps due to the Y-shaped divergence of certain of the external sphincter fibres which are attached to the coccyx. The relatively weak and unsupported subcu-

Letters, Notes, and Answers

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QUERIES AND ANSWERS

"Cracking Skin"

Dr. A. E. MOORE (Histon, Cambs) writes: A patient of mine suffers from cracking of the skin of the hands and feet. As a girl she suffered from a cracked heel, and for the past twenty years both hands and feet have been affected. I should be glad of any help in diagnosis and treatment.

After-treatment of Circumcision

"A.B.C." writes: An elderly patient of mine had a circumcision performed some months ago. The glans is still tender and sensitive, especially about the corona. I should like suggestions for treatment.

A Case for Diagnosis

"PERPLEXED" writes: A patient of mine, a lady of 74, who has always been active and healthy, has for the last two months been subject to peculiar "attacks" recurring every day, sometimes after meals and sometimes when in bed. They vary in intensity, but only last for a minute or so. The pulse rate is slightly raised during the attack, which starts with the feeling of "a wave passing from the feet to the head." The skin of the cheeks is somewhat flushed and actually raised in patches for a few seconds, but it quickly fades. The patient feels quite well after the attacks. The blood pressure is 130 mm. Hg; the urine is normal, and so are the heart sounds.

The Squatting Position in Defaecation

Dr. J. H. BADCOCK (Bury St. Edmunds) writes: No one who has adopted the squatting position can have any doubt of its usefulness. To adapt the ordinary closet all that is needed is a light movable footstool about 18 inches by 6 inches, and of the required height. An upturned box, with a hole cut in the bottom for easy handling, answers perfectly. This is better for the aged or infirm than a low seat.

Dr. J. R. WHITWELL (London, W.1) writes: Many years ago I installed in my house one of Messrs. Doulton's "health closets." The result was so satisfactory that I felt compelled to say *Ruraliter in (com)modo sed fortiter in re.*

Hair Dye

Dr. HENRY J. KINGSLEY (London), in reply to "G.P.'s" question asking for a reliable dye for grey hair (*Journal*, January 22, p. 213), writes: I should recommend a bismuth preparation such as "entrupal" or "restorene," which both may be obtained from John Bell and Croyden Ltd. in

London. The effect of these bismuth preparations on the hair is due to the interaction of the bismuth with the complex sulphur molecule of the hair keratin.

LETTERS, NOTES, ETC.

Rehabilitation Centres for Injured Workmen

Mr. GILBERT G. PANTER (secretary, Royal Northern Hospital) writes: Dr. Eastwood, in his letter published in the *Journal* of January 22 (p. 202), with reference to the good work which is being done by fracture clinics, asks where can existing fracture clinics be found. I should like to say that the Royal Northern Hospital, which is one of the hospitals dealing with a very large number of fracture cases, has established at Holloway a whole-time fracture clinic and follow-up system for the benefit of fracture cases, particularly those involved in road traffic and industrial accidents.

Conservative Treatment in Oral Infection

Mr. J. H. OLVER, L.D.S. (London, W.1) writes: Oral sepsis is so often associated with rheumatic conditions that the mouth and throat are probably the first to be suspected. It is recognized now, however, that the most drastic methods may not be attended always with success; and also that, when this happens, the patient is apt to forget the pains-taking nature of the attempts to relieve him and regret the loss of teeth which were more practical in use than the artificial substitutes. Deepening of the gingival trough and "pocketing" can, of course, produce a considerable amount of septic absorption. Extraction will cure it, but less drastic methods will produce the same result unless the teeth are loosened. Gingivectomy is almost as unwarranted as extraction. A dressing which destroys the unhealthy epithelium and stimulates renewal of the lost tissue under conditions which are more favourable to a normal state is available, and has been used successfully for years. The dressing which I have found most effective for this purpose is liquor cresol. sap. It is, of course, necessary to apply it with great care, using cotton or bibulous paper dressings of an appropriate size saturated with the drug. The dressings are inserted into the pockets, etc., all other and surrounding parts being carefully isolated and a saliva ejector used. The length of time the dressing is allowed to remain in contact with the part varies, but from one to five minutes is generally sufficient. When the affected surfaces are definitely whitened the dressing is removed, some sedative, such as phenol-camphor, applied, and the whole of the treated surfaces thoroughly irrigated with an atomizer. No massage must be attempted immediately after this treatment has been started, and the dressing should not be renewed until from six to ten days have elapsed. It is generally necessary to repeat the dressing three times, except in obstinate cases, which may require more extended treatment. When the gums no longer bleed readily and the surface is free from the glazed appearance one often sees in these cases, massage (lightly at first) with a rubber bristle brush, using an alcoholic mouth-wash, will help to keep the parts in a normal condition. It should, of course, be pointed out that very thorough removal of all exciting causes, such as calcific deposits, overhanging fillings, crown hands, etc., should be carried out either before, or a week following, the first dressing.

The Medical Directory—A Warning

MESSRS. J. and A. CHURCHILL, Ltd., write: We wish to warn medical practitioners, particularly in the neighbourhood of Edinburgh, against a man who is visiting doctors' houses and who asks for the revision of a slip giving details of name, address, etc. He states that this information is required for the *Medical Directory*, and at the same time asks for some payment to be made to him. No charge is made for the insertion of name, address, qualifications, etc., in our directory, and therefore no person has our authority for making such a request. We shall be grateful for any information that will enable us to put an end to the activities of this individual.

Disclaimer

Dr. DONALD H. ISAAC writes to disclaim any responsibility for paragraphs in daily papers, and a placard in the town of Port Talbot, giving objectionable publicity to an operation performed by him.

It has not been found in any other condition or in normal persons. The excretion of this acid is the essential biochemical feature of the disease, and from experiments conducted by Jervis phenylalanine appears to be the main, if not the only, source of the phenylpyruvic acid. It is not yet known whether phenylpyruvic acid is a normal or abnormal stage in the oxidation of phenylalanine, nor whether the metabolic error is simply associated with the mental defect or is causal. These questions are discussed.

92 Neurological Effects of Vitamin Deficiency

H. M. ZIMMERMAN (*Schweiz. Arch. Neurol. Psychiat.*, 1937; 39, 7, 195) describes the nervous symptoms and histological changes produced by experimental deficiency of vitamins A, B₁, and B₂. White rats after forty to ninety days on a diet deficient in vitamin A developed general muscular weakness, disturbances of co-ordination, and paralysis of the hind limbs. Histologically, myelin degeneration in the sciatic nerves and the posterior roots, and Marchi degeneration in the posterior columns and around the periphery of the cord, were found. The administration of vitamin A may prevent death, but does not lead to cure of the nervous condition. In dogs with vitamin B₁ deficiency, after sixty to ninety days there occurred dragging and ataxia of the hind limbs. Later there were clonic spasms of the general musculature, which alternated with periods of flaccidity; death took place one to eight days after the onset of such spasms. Extensive myelin degeneration was seen in the peripheral nerves, but no definite changes were found in the cerebral nervous system. Administration of vitamin B₁ produced a quick recovery even in moribund animals. In growing dogs on an artificial diet containing all the necessary food factors except vitamin B₂, there gradually developed loss of weight, vomiting and diarrhoea, and pronounced muscle weakness, with death in 200 to 300 days. Marked myelin degeneration of the peripheral nerves, nerve roots, and the posterior column of the spinal cord with glial increase was noted. It is not stated definitely but seems to be inferred that the administration of vitamin B₂ leads to recovery of the animals. The changes are considered very similar to the nervous lesions of pellagra. Some questions in reference to this disease and Goldberger's "black-tongue" in dogs are discussed.

93 Carotid Sinus Syncope

A. S. FREEDBERG and H. SLOAN LEROY (*Arch. Neurol. Psychiat.*, Chicago, October, 1937, p. 761) describe four cases in which spontaneous attacks of syncope and convulsions were associated with an abnormal response to mechanical stimulation of the carotid sinus. A male, aged 56, suffered for six weeks from spells of weakness, fainting, and occasional loss of consciousness with convulsions, all occurring in the erect posture. Momentary pressure on the right carotid sinus, or more strenuous pressure on the left, constantly produced pallor of the face, a slight increase in the respiration rate, and loss of consciousness, followed in eight seconds by convulsions and incontinence of urine and faeces. The blood pressure dropped to a low level, and the heart showed a slowing of twelve beats a minute during the seizure. A tight bandage placed on the legs and abdomen raised the blood pressure but caused symptoms of weakness which soon passed off, however. Atropine and ephedrine had no effect on the attacks, but 1 c.cm. of 1 in 1,000 adrenaline injected subcutaneously prevented their induction. The injection of procaine around the sinus had a similar effect, and after denervation of the right carotid sinus there were no spontaneous attacks over a period of five months' observation. The second case, a male aged 65, was very similar. In the third case, again a male aged 65, pressure on the right carotid sinus produced loss of consciousness without convulsions, but always associated with a rise

of blood pressure of from 10 to 15 mm. Hg. The fourth patient, a female aged 63, suffered for fourteen months from attacks of faintness and unconsciousness occurring in the erect posture. A lymphosarcoma was removed from the right side of the neck, and following this the patient had a series of generalized epileptiform convulsions. Pressure on the right carotid sinus produced no symptoms or change in blood pressure and pulse, but pressure on the left sinus produced weakness and faintness with slowing of the heart and a fall of blood pressure. Weiss and others have divided syncope arising from disturbances of the carotid sinus into three groups: cerebral, cardiac, and vasomotor. The third case obviously falls into the cerebral group, but the mechanism of the production of the attacks is not known. In the cardiac and vasomotor types also it is not by any means certain that the alteration in cardiac action is the sole cause of the attacks. The differentiation of the cases from epilepsy is easy because the attacks generally occur in the erect posture, and mechanical pressure on the carotid sinuses always produces in some degree symptoms similar to those described by the patient. Treatment consists in dealing with any local pathological conditions together with denervation of the sinus.

94 Berner's Haemorrhages into the Fourth Ventricle

B. DAHL (*Norsk. Mag. Laegevidensk.*, November, 1937, p. 1347) has conducted post-mortem examinations and animal experiments with special reference to the observations of O. Berner, whose systematic studies of the floor of the fourth ventricle in fatal cases of head injuries and certain other non-traumatic cases have revealed haemorrhages in this part of the brain. Berner identified these haemorrhages with those evoked many years ago in experimental animals by Duret. Dahl's post-mortem material consists of some fifty cases in which the cause of death was not trauma. After describing the technique of his examination of the brain, he notes that haemorrhages were the rule rather than the exception in the fourth ventricle. Similar haemorrhages were also demonstrable on the surface of the brain in many cases. Discussing these findings and those of his animal experiments, he draws attention to the great medico-legal interest attaching to the mechanism of these haemorrhages. He comes to the conclusion that, whether death is due to an injury to the head or not, agonal haemorrhages can almost invariably be demonstrated on and in the brain if carefully sought. The demonstration of haemorrhages in the fourth ventricle (Berner's haemorrhages) do not therefore justify any conclusion which associates death with some alleged injury to the head. Dahl also believes that Berner's and Duret's haemorrhages differ from each other in their position, their appearance, and their origin.

95 Fatal Herniation of Cerebral Tumours

PAUL VAN GEHUCHTEN (*L'Encéphale*, September-October, 1937, p. 113) discusses the cause of death in some cases of cerebral tumour which result in herniation of the medial part of the temporal lobe into the posterior fossa. This herniation presses on the cerebral peduncle and the upper part of the pons, and it is this pressure which causes death. In six cases, five of temporal lobe tumours and one of an occipital lobe tumour, in which such herniation was present, death occurred suddenly—once after lumbar puncture, twice after ventriculography, twice after decompression, and in one case three months after decompression. In all these cases there were found in the peduncle and pons haemorrhages of various sizes around the arteries and arterioles. These haemorrhages do not arise by rupture of the vessels but by the fusion of foci of erythrodiapedesis around the vessels. If such lesions are extensive enough death follows rapidly. The mechanism of the production of the haemorrhagic foci, which are secondary to local alterations in pressure, is discussed.

taneous external sphincter with its overlying mucous membrane constitutes the point most vulnerable to injury during defaecation of the whole anal canal. Fissures usually occur so near the outlet that they may often be seen with very slight parting of the anal folds or outward sliding of the skin. Treatment should be directed to the severance of the muscle bar to conform with the Y-shape of the more superficial portion of the external sphincter, a light pack of vaseline gauze being laid in the wound in the direction of the anal canal for several days to prevent bridging instead of healing from below. In many hundreds of cases a wedge-shaped resection of the ulcer has been carried out with the broad base on the outside of the canal, including healthy tissue. The muscle bar is severed to prevent recurrence. The base of the wound must be prevented from healing before the apex, scar tissue must be removed and the edges of the wound carefully trimmed.

87 Traumatic Stricture of the Urethra

K. H. WANG and C. Y. CHAN (*Chin. med. J.*, November, 1937, p. 623) state that this condition is commoner in China than elsewhere owing to neglect and improper management of the ruptured urethra. They review the cases of thirty-eight patients suffering from this form of stricture treated in the Peiping Union Medical College Hospital within the past fifteen years; 19.5 per cent. of all urethral strictures seen during this period were traumatic in origin. The type of injury determines the site of the rupture and subsequent stricture. Falling astride a plank usually causes an injury of the bulbous urethra by driving it against the pubic arch. When the pelvis is fractured it is the membranous portion of the urethra which is invariably damaged. Traumatic stricture is characterized by its rapid development and its resistance to dilatation; 97.4 per cent. of the patients developed stricture within three months of injury, and in no instance could the stricture be dilated. Operative treatment consisted of resection of the stricture, end-to-end anastomosis, and external urethrostomy proximal to the anastomosis. If the stricture involves the posterior part of the membranous urethra or the prostatic urethra, this technique is not possible. In those cases a suprapubic cystostomy is necessary for retrograde sounding and location of the stricture or for diversion of the urinary stream post-operatively. Complete resection may not be possible, only the central portion of the stricture being rimmed out and the newly formed tunnel maintained by an indwelling catheter until epithelization has taken place. Of the seventeen patients who were followed up 75 per cent. showed excellent results, 18.8 per cent. fair results, and 7.2 per cent. unsatisfactory results.

Therapeutics

88 Pneumonia

R. HABERKORN (*Münch. med. Wschr.*, December 3, 1937, p. 1934) analyses 621 cases of pneumonia treated at Ludwigshafen; the mortality was 21.4 per cent. Cases of bronchopneumonia were excluded, with the exception of a few cases affecting at least one lobe in children and having similar clinical and radiological signs to those of croupous pneumonia. Among general therapeutic measures rest, narcotics for pain, and fresh-air treatment are regarded as most important, the last chiefly in children. Special treatment consisted in the administration of quinine or quinine and calcium. A group of 341 cases receiving quinine (usually quinine-urethane) in doses of about 0.5 gramme daily had 19.4 per cent. of deaths as compared with 11.5 per cent. in seventy-eight patients receiving combined treatment by quinine and calcium injected intramuscularly; small doses at frequent intervals

were preferred. The fall of temperature is by lysis rather than crisis, but the mean duration of the illness is not curtailed. Quinine treatment is not suitable for children; in adults its effectiveness depends on the earliness with which it can be instituted. In treatment of the associated circulatory embarrassment digitalis was found ineffective, as were salines injected intravenously. Importance is attached to injections of strophanthin on the appearance of early signs of circulatory failure—it is combined with calcium and its administration is preceded, in the presence of dyspnoea and cyanosis, by venesection.

89 Treatment of Threadworms

A. CASTELLANOS, A. V. PAUSSA, and J. P. TRUJILLO (*Bol. Soc. cubana Pediatr.*, October, 1937, p. 425), who record twenty-four illustrative cases, maintain that the citrate of iron and ammonia in large doses—amounting to 6 to 8 grammes in all—two or three times a day is well borne by children, and in such amounts has a destructive action on threadworms. Some cases, however, prove refractory, and it is impossible to say if they can be sterilized by larger doses, such as 5 to 12 grammes, for example. The drug is also very effective when given in enema which enable it to reach the caecum.

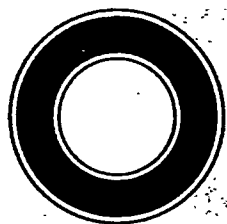
90 Erysipelas

É. SZEP (*Wien. klin. Wschr.*, November 26, 1937, p. 1617) assumes that in the majority of cases erysipelas is caused by streptococci, and only exceptionally by other micro-organisms, such as staphylococci and pneumococci. Up till recently he relied mainly on convalescent serum in the treatment of erysipelas, but lately he tried prontosil in a series of seventy-four cases with good results. In a number of cases the therapeutic results were improved by giving prontosil and quinine on alternate days (0.3 gramme of quinine three times a day). In severe cases the author found the combination of prontosil and convalescent serum beneficial. The mechanism of the action of prontosil is uncertain, it being still undecided whether prontosil acts by virtue of its particular affinity to the streptococcus (parasitotropic action) or through the reticulo-endothelial system in the same way as salvarsan.

Neurology

91 Excretion of Phenylpyruvic Acid

G. A. JERVIS (*Arch. Neurol. Psychiat.*, Chicago, November, 1937, p. 944) describes the results of an introductory study of fifty-six cases of mental deficiency (thirty male and twenty-six female) associated with the excretion of phenylpyruvic acid. Forty-two cases were found among 8,043 inmates of an institution for mental defectives, and its possible incidence among the general population is 0.004 per cent., which approximates fairly closely to that for other inborn errors of metabolism. The condition appears to be congenital, and no other aetiological factors were found. None of the patients were Jews; the ages of the patients varied from 2 to 58 with an average age of 21. The genetic data seemed to indicate that the condition is determined by a single recessive gene substitution. Clinically the patients were normally developed and often attractive, but they tended to be slightly microcephalic. Diffuse patches of eczema were found in half the cases. Neurological signs consisting of increase of muscle tone, extrapyramidal in type, tremor of the outstretched arms, and exaggeration of the deep reflexes were present in the majority of the cases. Phenylpyruvic acid was not found in the cerebrospinal fluid. Encephalograms made in eleven cases seemed to indicate a slight degree of diffuse cortical atrophy; 71 per cent. of the cases were idiots and 29 per cent. imbeciles. Phenylpyruvic acid was found in the urine of all the cases.



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PROC. ROY. SOC. MED., JANUARY, 1937, p.276.

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Obstetrics and Gynaecology

96

Cervical Pregnancy

A. SCHÜRGER (*Zbl. Gynäk.*, November 6, 1937, p. 2584) describes a rare form of extra-uterine pregnancy—namely, cervical pregnancy, of which not more than thirty instances have been recorded in the literature. Implantation of the ovum in the uterus depends on transmission of the ovum from the ovary to the uterus, a certain degree of maturation of the impregnated ovum taking place during the process. Cervical implantation is due to an increased rate of transmission or to slowing up of the maturation process in the ovum. In cervical pregnancy the ovum lies in the cervix, and the placenta is partly in the cervix, partly in the uterus. It occurs most often in multipara, a wide internal os being the predisposing factor. The cervix hypertrophies as pregnancy advances and the internal and external os disappear. The cervix is ballooned out and the external os can only be recognized as a small notch. The uterus can be felt like a cap over the soft ballooned-out tissue and feels like a haematometra. On inspection the os is livid and the vaginal veins greatly enlarged. The course of cervical pregnancy varies. The patient usually aborts during the first month. Frequently the ovum ruptures into the vagina, pouch of Douglas, or abdomen. A cervical pregnancy reaching the seventh month has been recorded. The prognosis is always grave; intractable haemorrhage, rupture, and sepsis account for 45 per cent. of fatal cases. Haemorrhage is always serious, and the more so when pregnancy is advanced. Compression of the aorta or clamping of the uterine blood vessels may save life temporarily. Total hysterectomy is indicated in advanced cases. In early cases resection of the cervical sac and mass ligation may be of value.

97

Bone-marrow in Pregnancy

F. RUSSO (*Ann. Ostet. Ginec.*, October 31, 1937, p. 1169) has made a special study of the bone-marrow in pregnant women. He used the sternal puncture method, and gives differential counts of the cells obtained in this way in twenty cases. An outstanding feature is the marked increase in immature red cells; in his series of cases these amounted to from 31 to 50 per cent. There was also some degree of eosinophilia; no true leucocytosis was observed. The total number of white cells was increased, but this would appear to be relative to the often large increase in the number of red cells. This erythroblastic reaction in the bone-marrow in pregnancy is quite definite, though not absolutely characteristic. Various theories have been put forward to explain it, and Russo inclines to the view that it is due to the influence of the maternal and foetal hormones on blood formation.

98

Hysteropexy for Genital Prolapse

R. LEBOVICI and B. Y. YOVANOVITCH (*Rev. Chir.*, Paris, October, 1937, p. 582) enumerate the various methods of treatment in use in cases of genital prolapse: colpoperineorrhaphy for young women when the prolapse is partial or complete, perhaps followed by ligamentopexy when retroversion is present; colpoperineorrhaphy alone or associated with direct hysteropexy in women nearing the menopause; and colpoperineorrhaphy or colpohysterectomy in old women. It is urged, however, that direct hysteropexy alone is a more satisfactory procedure. It is a safe and effective operation which has no adverse effect on conception, pregnancy, or delivery. A case is fully described in which hysteropexy was carried out in a woman of 34 for sterility and uterine retroversion. Three months after the operation pain had disappeared, the patient had gained considerably in weight, and the uterus was in a satisfactory position. Two years later the patient became pregnant, and gave birth to a child after a somewhat difficult labour. Three further cases are fully described in which retroversion of the uterus was treated by high fixation during pregnancy. In the first instance

appendicectomy was also carried out, and the patient went to term and was delivered normally, as were also the other cases. Hysteropexy is advocated in cases of genital prolapse in young women and in those who have passed the menopause. In every case so treated the mechanical result has been good and the uterus has been fixed permanently in the correct position, giving a sensation of pelvic security. Through a median abdominal incision the uterus is suspended by means of linen or silk threads, and fixed to the abdominal wall as high as possible. The fundus should reach the umbilicus. Nineteen cases of prolapse are reported, in all of which the result after operation was good.

Pathology

99 Morphology of Duodenal Perforation

H. TAMMANN and H.-H. LUDEWIG (*Zbl. Chir.*, December 4, 1937, p. 2769) have investigated histologically eight cases of perforated duodenal ulcer. All the cases but one had a history of ulcer of some duration; all the ulcers were situated in the anterior wall of the duodenal cap near the pylorus. The anatomical specimens were obtained immediately after the operation and fixed and treated in the usual way. A typical finding in all the cases was the pronounced inflammatory reaction in the wall of the perforation with numerous polymorphonuclear cells, few eosinophils, and exudation and hyperaemia. The presence of micro-organisms in the base of the ulcer seemed to favour the polymorphonuclear infiltration round the ulcer. Of the four layers typical of chronic ulcer described by Askanazy one—namely, the layer of granulation tissue—was never present. On the other hand, the authors were able to confirm the presence of a zone of oedematous connective tissue at the site of the perforation, as described by Puhl and Schmidt. Together with these authors they consider this zone of tumefaction of the connective tissue as a necrobiotic lesion of the tissues caused by the peptic action of the gastric contents.

100 Inhibitory Action of Iron on Tubercle Bacilli

R. DAVIES (*J. Path. Bact.*, 1937, 45, 3, 773) has studied the action of iron on the growth of the human tubercle bacillus. It was found by Henley that in a glycerinated broth medium the optimal concentration of iron was 0.003 to 0.008 per cent.; greater concentrations led to inhibition of growth. It was also stated by Loewenstein that haemoglobin was detrimental to the growth of the tubercle bacillus on an egg-containing medium. The present author used the simple medium described by Schwabacher, made up with two parts of egg yolk and one part of saline with sufficient glycerin to give a final concentration of about 5 per cent. This was the control medium. Similar batches of medium were prepared to which a known amount of ferrous ammonium sulphate or of rabbit haemoglobin was added. All tubes were inoculated with the same volume of a suspension of tubercle bacilli and incubated for twenty-eight days; the number of colonies developing was then counted. The control egg medium contained about 0.006 per cent. of iron; the ferrous ammonium sulphate medium had a total iron content of 0.017 per cent., and the haemoglobin medium a total iron content of 0.014 per cent. On both the experimental media there was considerable inhibition of growth, amounting to about 70 per cent. on the ferrous ammonium sulphate medium and to 100 per cent. on the haemoglobin medium, on which no growth occurred at all. It is possible that the inhibitory action of the haemoglobin may have been due in some measure to its method of preparation with xylol, since a control xylol medium had a 35 per cent. inhibitory effect on growth. The results, on the whole, seem to show that the addition of iron to an egg yolk medium interferes with its value for the growth of tubercle bacilli, and suggest that the inhibitory action of haemoglobin may be determined in whole or in part by its iron content.

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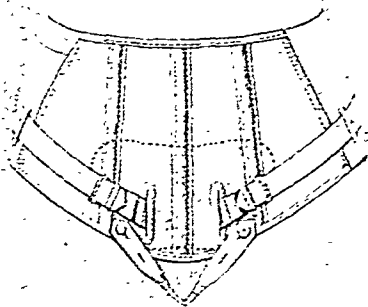
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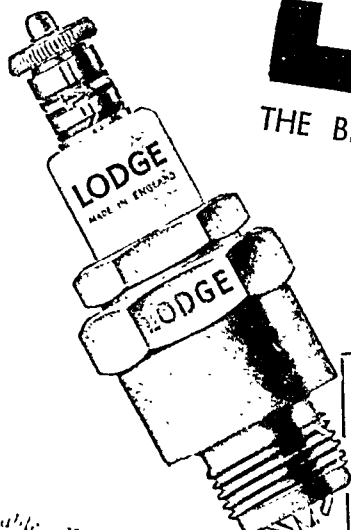
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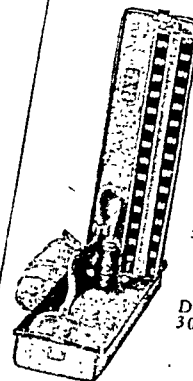
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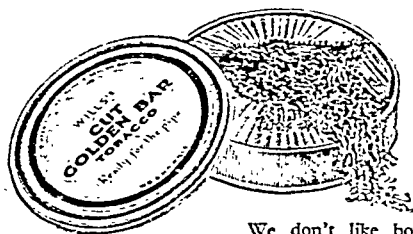
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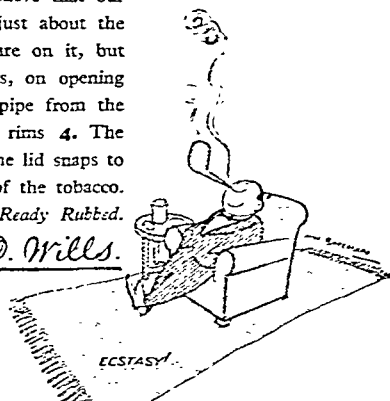
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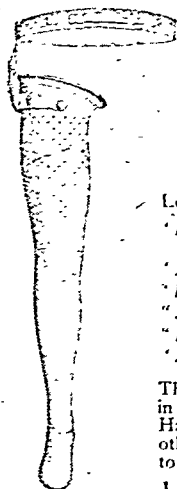
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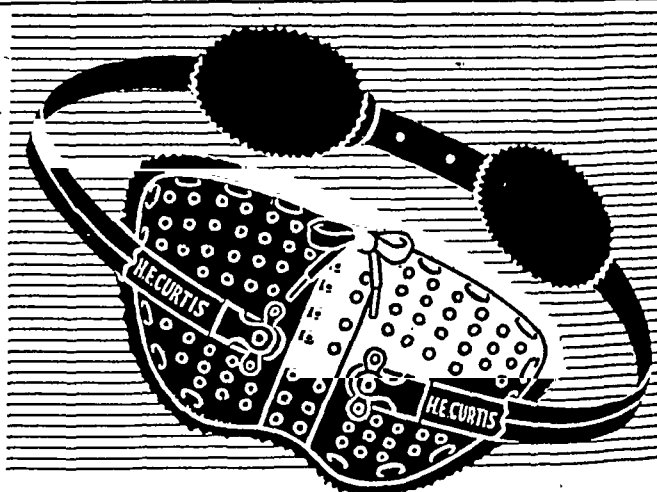
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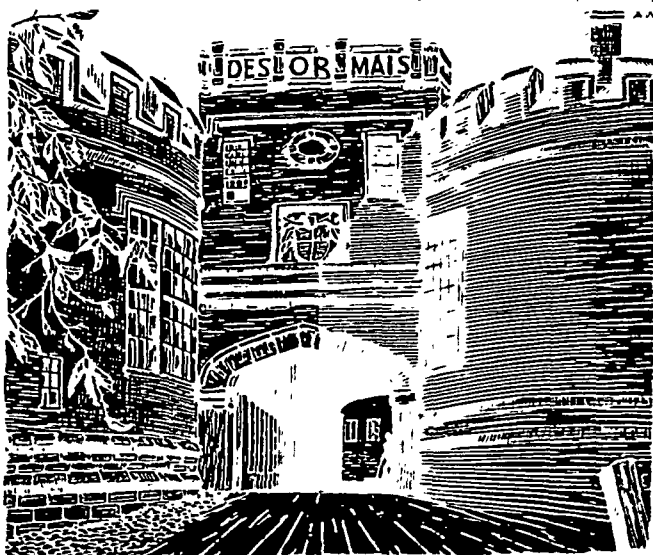
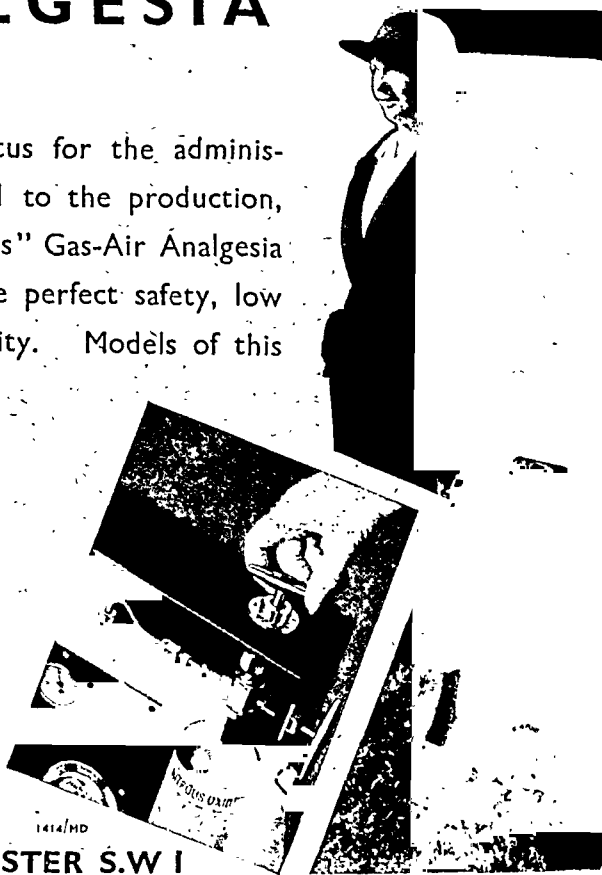
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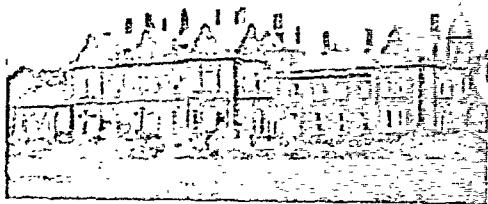
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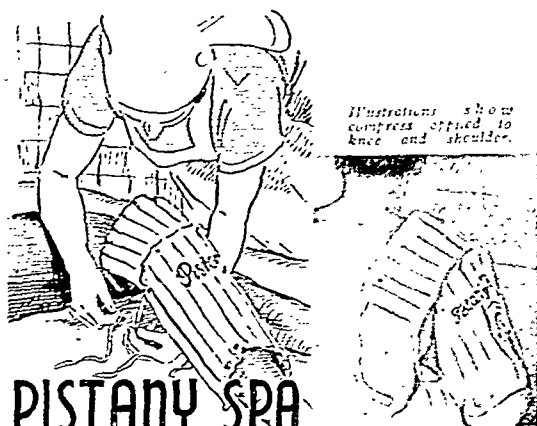
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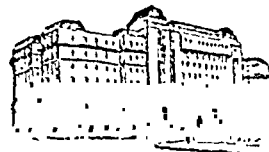
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M.D.	Various. By Thesis. Many successes	

Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.C.H., D.A., D.M.R.E., M.M.S.A., L.M.S.S.A., D.C.O.G., and some exams. of Dominions Universities.

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MEDICAL PROSPECTUS (48 pp.)

CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis, along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6312.)

THE UNIVERSITY OF LIVERPOOL

By invitation of the Council, Senate and Faculty of Medicine.

Sir DAVID WILKIE, O.B.E., M.D., ChM., F.R.C.S., F.R.S. (Edin.) (Professor of Surgery, The University of Edinburgh), will deliver the

WILLIAM MITCHELL BANKS MEMORIAL LECTURE.

on THURSDAY, FEBRUARY 3rd, 1938, at 4 p.m. in the SURGERY THEATRE MEDICAL SCHOOL.

Subject:

CHRONIC DUODENAL ILLUS

The Lecture, which will be illustrated with lantern slides, is open only to Members of the Medical Profession.

STANLEY DUMBELL, Registrar.

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

GRESHAM COLLEGE

FOUR LECTURES on Physic will be delivered at the College, Barnhill St., E.C.2, by V. S. H. C. Esq., M.V.O., M.D., F.R.C.P., on "DIAGNOSIS AND THEIR DEVELOPMENT" on Tuesday 1st Friday, February 1st, 2nd, 3rd and 4th, at 6 p.m. ADMISSION FREE.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Courses at H.C. Green, F.R.C.S., Surgeon's Hall, Edinburgh.

ROYAL AIR FORCE MEDICAL SERVICE.

Applications are invited from medical men for appointment to commissions in the Medical Branch of the Royal Air Force for entry in May, 1938.

Candidates must be of pure European descent. They must be British Subjects, the sons of British Subjects and registered under the Medical Acts.

Candidates must normally be under 28 years of age but as a temporary measure consideration will be given to candidates up to 31 years of age and will be selected after interview by a selection board without competitive examination.

Hospital appointments held since qualifying will, under certain conditions, qualify candidates for antedate of commission up to a maximum of one year: the age on entry may, if necessary, be increased by a period equal to the "antedate."

Selected candidates will be appointed to short service commissions (for three years extendible to five years) followed by four years' service in the Reserve, and will be eligible to be considered for Permanent Commissions after having completed their first year of service and during the whole period of their service on the active list. Officers selected for Permanent Commissions will be allowed to count their service on a short service commission towards retired pay or gratuity to permanent officers. Officers not selected for Permanent Commissions receive gratuity as follows on transferring to the Reserve:—

On completion of three years, £400. On completion of five years, £1,000.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, also form of application, may be obtained on application from:—The Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, W.C. 2.

Completed applications from intending candidates for the vacancies in May, 1938, must be received in the Air Ministry not later than March 15th, 1938.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

IRAQ GOVERNMENT.

APPOINTMENT OF BRITISH SURGICAL SPECIALISTS.

The Iraq Government invite applications from British Medical and Surgical Specialists (male) for the following vacant appointments.

1. OBSTETRICIAN AND GYNAECOLOGIST.

Duties: To be Professor of Obstetrics and Gynaecology in the Royal College of Medicine, Bagdad, and Chief of the Unit of Obstetrics and Gynaecology in the Royal Hospital, Bagdad.
Salary: Iraq Dinars 150 per mensem.

2. EAR, NOSE, AND THROAT SPECIALIST.

Duties: To be Lecturer on Ear, Nose, and Throat diseases in the Royal College of Medicine, Bagdad, and Chief of one of the Units for these diseases at the Royal Hospital, Bagdad.

Salary: Iraq Dinars 120 per mensem. In special circumstances if it is considered that the candidate's qualifications and experience justify it a salary in excess of this amount, but not exceeding 150 Dinars per mensem, may be granted.

3. GENERAL SURGICAL SPECIALIST.

Duties: To act as Surgical Specialist in any hospital of the Iraq Health Service as required and to assist in the teaching of Surgery in the Royal College of Medicine, Bagdad, if required.

Salary: Iraq Dinars. 120 per mensem.

Candidates must be experienced in operative work and must hold a Specialist's diploma in their branch of work, such as F.R.C.S., M.C.O.G., or D.L.O.

Age must not exceed 45 years. Successful candidates will be required to enter into contracts for a period of five years. Consultant practice is allowed provided that it does not interfere with the performance of official duties. The teaching at the Medical College is in the English language.

One Iraq Dinar is equivalent to one Pound Sterling. Salaries will be subject to Iraq Income Tax which is:—150 dinars exempt, the next 150 dinars subject to 6% tax, and the remainder of the income 9%.

Forms of application and copies of the Form of Contract can be obtained from the Iraq Minister, the Royal Iraq Legation, 22, Queen's Gate, London, S.W. 7. Particulars as to the Provident Fund, leave, and passage allowances are given in the Form of Contract.

No application can be considered unless received on the prescribed form not later than February 18th.

UNIVERSITY OF BIRMINGHAM

INGLEBY LECTURES, 1938.

The Dean and the Faculty of Medicine request the pleasure of the attendance of Members of the Medical Profession at THE INGLEBY LECTURES, on Thursdays, February 3rd and 10th, at 4 o'clock, in the Medical Lecture Theatre (Edmund Street Buildings) by LEONARD COLFURROCK, M.B., B.S. (London), (Director, Bernhard Baron Memorial Research Laboratories, Queen Charlotte's Hospital, London) Subject *The Control of Puerperal and other infections caused by Haemolytic Streptococci*. (The first Lecture will deal with preventive measures, the second with treatment by Sulphanilamide and allied drugs.)

UNIVERSITY OF ABERDEEN.

LECTURESHIP IN BACTERIOLOGY

The University Court will shortly proceed to the appointment of a Lecturer in Bacteriology in the University of Aberdeen.

The salary proposed is £500 to £600 according to qualifications and experience.

Persons desirous of being considered for the office are requested to lodge their names with the Secretary to the University on or before February 18th, 1938.

The conditions of appointment and form of application may be obtained from the undersigned.

H. J. BUTCHART.

Secretary to the University of Aberdeen
The University, Aberdeen

UNIVERSITY OF WALES

THE WELSH NATIONAL SCHOOL OF MEDICINE

Applications are invited for the DAVID DAVIES PROFESSORSHIP OF TUBERCULOSIS. The person appointed will also hold office as Director of Research and Honorary Consultant to the Welsh National Memorial Association. The appointment is a full-time one and the combined emoluments are at the rate of £1,500 per annum.

Further particulars of the appointment may be obtained from the Secretary, The Welsh National School of Medicine, The Parade, Cardiff.

S. C. EDWARDS
Secretary

THE ARMY DENTAL CORPS.

Applications are invited from dental surgeons for appointment to a limited number of commissions in The Army Dental Corps.

Candidates, who should not be over 28 years of age, will for the present be selected for commissions without competitive examination, but will be required to present themselves in London for interview and physical examination. They must hold the degree or diploma of a British University or College of Surgeons and be registered under the Dentists' Acts or Medical Acts.

Successful candidates will, in the first instance, be given short service commissions for six years, at the end of which period they will retire with a gratuity of £1,000, unless they have been granted permanent commissions. Permanent commissions will be given to officers selected from among those who wish to make the Army their permanent career.

Particulars, including Regulations for Admission, pay and allowances, and forms of application may be obtained on request either in writing or in person to the Director, Army Dental Service, The War Office, London, S.W.1.

ROYAL NAVAL DENTAL SERVICE

Vacancies exist for DENTAL OFFICERS in the ROYAL NAVY, and applications for entry are invited from Registered Dental Surgeons.

Candidates must be British subjects of pure European descent, below 28 years of age on the day of entry and physically fit for service in any part of the world. Unmarried candidates are preferred. Candidates will be required to attend at the Admiralty for physical examination and interview by a Selection Board.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of Dental Schools.

HARROGATE AND DISTRICT GENERAL HOSPITAL (132 Beds)

CASUALTY OFFICER AND HOUSE SURGEON TO SPECIAL DEPARTMENTS required at the above hospital for a period of six months from March 1st. Salary £150 p.a. plus full residential emoluments. Applications as soon as possible to the Secretary.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.5.

ADVANCED MEDICINE COURSE.

A COURSE in Clinical Medicine, Pathology, Morbid Histology and Bio-Chemistry, suitable for M.D. and M.R.C.P. EXAMINATIONS, will be given for seven weeks, commencing on FEBRUARY 16th.

The Class is limited in number. The next Course will be held from May to July.

UMTATA HOSPITAL BOARD.

SIR HENRY ELLIOT HOSPITAL

APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER

Applications are invited from qualified Registered Medical Practitioners for the above-mentioned post. The salary attached to this position, which is whole-time, is at the rate of £600 per annum, plus for house, water, light and sanitation. A detached storied dwelling-house is shortly to be erected in which the successful applicant will be required to reside, but pending its completion he will be allowed an amount of £10 per month in lieu of quarters and incidental costs.

The successful applicant is to assume duty on July 1st, 1938, and to enter into contract of office for three years (which may be renewed), the first year to be on probation.

The Hospital has 154 beds (22 European, 132 Native), but this accommodation will be increased by approximately 60 beds in the near future. Duties include assisting at operations, anaesthetics, pathology, the general ward work of a resident medical officer, lecturing to nurses, and the general medical and surgical supervision of the whole Hospital.

Applicants to state full particulars of (1) Their Medical and, in particular, Postgraduate and Surgical experience.

(2) Nationality, age, and whether married or single.

(3) Whether fully conversant with both English and Afrikaans.

Applications, with copies of three recent medical and health certificates, must be lodged with the undersigned not later than 1st March 1938.

UMTATA C. F. REYAN
Cape Province, South Africa

BOROUGH OF EALING. **RESIDENT ASSISTANT MEDICAL OFFICER.**

Applications are invited from duly qualified medical men (male) with a Public Health qualification for the position of Resident Assistant Medical Officer. A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school children at whom the health centres in the Borough of Ealing. The person appointed will reside at the Isolation Hospital, where furnished rooms and board will be provided. He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £150 per annum, rising by £25 per annum to a maximum of £250, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.S., to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than February 10th.

Town Hall, R. H. WANKLYN, Town Clerk, Ealing, W.S.

BOROUGH OF EALING. **ASSISTANT MEDICAL OFFICER OF HEALTH.**

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health. A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work, and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.S., to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than February 10th.

Town Hall, R. H. WANKLYN, Town Clerk, Ealing, W.S.

ADMINISTRATIVE COUNTY OF CAMBRIDGE. **DEPUTY MEDICAL OFFICER OF HEALTH.**

The Cambridgeshire County Council invite applications for the post of Deputy Medical Officer of Health for the County from duly qualified practitioners registered in the Medical Register as holders of a diploma in sanitary science, public health or State medicine.

The officer appointed will act under the direction of the Medical Officer of Health for the County (who is also School Medical Officer) in the general administration of public health and in other medical work of the Council, including that of the Education Authority. The duties will be mainly in connection with school medical inspection, and experience in refraction and diseases of the eye is essential. The officer appointed must not engage in private practice or hold any other appointment.

The salary attached to the post is £600 per annum, rising by increments of £50 to £750 per annum. A car will be provided or an allowance made for travelling, but there will be no subsistence allowance within the County.

The post is subject to superannuation, and the selected candidate will be required to undergo a medical examination. The appointment will be terminable by three months' notice in writing on either side.

A form of application (with any further information desired) can be obtained from the Clerk of the County Council by sending a stamped addressed footcap envelope. Applications must be received not later than February 25th, 1938.

Shire Hall, ASHLEY TABBRUM, Clerk of the Council, Castle Hill, Cambridge, January 25th, 1938.

GLOUCESTERSHIRE COUNTY COUNCIL. **DEPUTY COUNTY MEDICAL OFFICER OF HEALTH.**

Applications are invited for the appointment of Deputy County Medical Officer of Health (male) at a salary of £750 per annum. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The appointment will be a designated post for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and will be subject to a satisfactory report by the Council's medical adviser.

Applicants must be registered Medical Practitioners, should hold a Diploma in Public Health, and have experience in general public health duties and in the administrative work of a Public Health Department.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than February 14th, 1938.

Canvassing directly or indirectly will be a disqualification.

RICHARD L. MOON, Clerk of the County Council, Shire Hall, Gloucester.

GLOUCESTERSHIRE COUNTY COUNCIL. **ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.**

Applications are invited for the appointment of Assistant County Medical Officer of Health (male) at a salary of £500 per annum, rising by £25 per annum to £700 per annum. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The appointment will be a designated post for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and will be subject to a satisfactory report by the Council's medical adviser.

Applicants must be registered Medical Practitioners, and should hold a Diploma in Public Health. Previous experience in various branches of public health and school medical work is desirable.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than February 14th, 1938.

Canvassing directly or indirectly, will be a disqualification.

RICHARD L. MOON, Clerk of the County Council, Shire Hall, Gloucester.

BOROUGH OF FINCHLEY. **MATERNITY AND CHILD WELFARE.**

LADY ASSISTANT MEDICAL OFFICER (Part Time).

Applications are invited from duly registered women practitioners for the above appointment. Candidates must have at least three years' experience in the practice of their profession, and previous experience in the conduct of an Infant Welfare Centre is essential.

The duties will entail attendance at an Infant Welfare Centre during two weekly sessions of 2 hours each, for which a fee of 11 guineas per session will be paid.

The successful candidate will be required to take up her duties on April 1st, 1938.

Applications, together with copies of three recent testimonials, should be received by the Medical Officer of Health, 305, Regent's Park Road, N.3, not later than first post on Saturday, February 12th, 1938.

Principal Offices H. WOOD BARTER, Finchley, N.3, Town Clerk, January 25th, 1938.

COUNTY BOROUGH OF OLDHAM. **PUBLIC HEALTH DEPARTMENT.**

TEMPORARY ASSISTANT MEDICAL OFFICER.

Applications are invited from registered medical practitioners for the post of Temporary Assistant Medical Officer of Health for the County Borough of Oldham. The duties are mainly in connection with Diphtheria Immunisation, but the officer appointed will be required to undertake such other duties in the Department as the Medical Officer of Health may direct. He will be required to reside in the Borough.

The salary will be at the rate of £500 per annum.

Applications, stating age, and giving full particulars regarding training and qualifications, and appointment desired, should be forwarded to the Medical Officer of Health, Town Hall, Oldham, together with copies of three recent testimonials, so as to reach him not later than Tuesday, February 8th, 1938.

Town Hall, THOMAS ALKER, Town Clerk, Oldham, January 24th, 1938.

RURAL DISTRICT OF PONTARDAWE. **APPOINTMENT OF MEDICAL OFFICER OF HEALTH (Male).**

Applications are invited from duly qualified and registered Medical Practitioners who are also registered in the Medical Register as the holder of a Diploma in Sanitary Science, Public Health or State Medicine, for the post of Medical Officer of Health of the Rural District of Pontardawe. The appointment is subject to the provisions of the Local Government Act, 1933, the Sanitary Officers' (Outside London) Regulations, 1935, and the Local Government and Other Officers' Superannuation Act, 1922.

The person appointed will be required to perform all the duties imposed on a Medical Officer of Health under relevant Acts and Orders to undertake administration of the Maternity and Child Welfare Service, to act as Chief Medical Adviser to the Local Authority, and will also be required to carry out such other duties as the Council may, with the consent of the Ministry of Health (where necessary) from time to time direct.

The person appointed must reside within the Rural District, must not engage in private practice and must devote his whole time to the duties of the office.

The successful candidate will be required to furnish a satisfactory medical certificate in the form prescribed by the Council.

The salary will be at the rate of £500 per annum, plus £100 per annum as travelling allowance.

Clinical assistance and office accommodation will be provided by the Council.

Applications of the prescribed form, accompanied by not more than three recent testimonials, and endorsed "Appointment of Medical Officer of Health," must be delivered to the undersigned on or before February 15th, 1938.

COUNCIL OFFICES, PONTARDAWE, NEVILLE S. DAVIES, Clerk, January 25th, 1938.

METROPOLITAN BOROUGH OF GREENWICH. **APPOINTMENT OF A PUBLIC VACCINATOR.**

The Council of the above-named Borough is prepared to receive applications from properly qualified and experienced medical practitioners for the position of Public Vaccinator for that portion of the Borough of Greenwich which, immediately prior to March 31st, 1930, comprised and was known as the Parish of Charlton and Kidbrooke.

The appointment will be subject to the approval of the Ministry of Health and to the provisions of the Vaccination Order, 1920.

The successful applicant will be required to enter into a Contract for the due performance of the work, as provided by such Order, and to supply the name of a suitably qualified deputy to act as occasion may require in the absence of the candidate appointed.

Particulars of the Contract and of the fees payable may be inspected upon application to the undersigned during ordinary office hours.

Applications for the position, giving particulars of experience in the work of vaccination, must be sealed up and delivered to the office of the undersigned not later than 12 o'clock noon on Monday, February 14th, 1938.

Canvassing Members of the Council, either directly or indirectly, will be a disqualification.

Town Hall, D. J. REASON, Town Clerk, Greenwich, S.E.10, January 25th, 1938.

SURREY COUNTY COUNCIL. **MENTAL HOSPITALS COMMITTEE.**

APPOINTMENT OF JUNIOR ASSISTANT MEDICAL OFFICER (MALE).

Applications are invited for the post of male Junior Assistant Medical Officer (unmarried) in the Surrey County Council Mental Hospital Service.

Commencing salary, which will be subject to statutory deductions under the provisions of the Asylum Officers' Superannuation Act, 1909, will be £350, rising by annual increments of £25 to a maximum of £450 per annum, together with gratuities, board, laundry and attendance valued for superannuation purposes at £150 per annum. The person appointed will also be paid, in addition to his salary, the sum of £50 per annum if he holds the Diploma in Psychological Medicine.

The appointment will be subject to termination by one calendar month's notice on either side, and the person appointed will be required to undergo a medical examination.

Applications, stating age, accompanied by copies of three recent testimonials, and enclosed in an envelope endorsed "Mental Hospitals Junior Medical Officer," must reach me not later than Saturday, February 12th, 1938.

DUDLEY ARKLAND, Clerk of the Council, Mental Hospitals Department, County Hall, Kingston-upon-Thames, January 24th, 1938.

GLAMORGAN COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

LLWYNPIA HOSPITAL (Rhondda). APPOINTMENT OF RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners (male), under 35 years of age, for the appointment of Resident Assistant Medical Officer at Llwynpia Hospital (182 beds). The person appointed will be required to assist under the direction of the Medical Superintendent in the general work of the hospital, and should have had resident experience at a General Hospital. Post-graduate experience in ear, nose and throat surgery will be an additional advantage.

Salary £350 per annum, rising by £25 annually to £450 per annum, with residential emoluments valued for superannuation purposes at £75 per annum.

The appointment, which will be terminable by two months' notice on either side, is a designated post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass an examination as to physical fitness.

Applications, stating age and qualifications, and accompanied by copies of not more than three recent testimonials, must be received by the County Medical Officer, Glamorgan County Hall, Cardiff, not later than the first post on Thursday, February 10th, 1938.

Glamorgan County Hall, HENRY ROWLAND,
Cardiff, Clerk of the County Council.
January 22nd, 1938.

COUNTY BOROUGH OF CROYDON. PUBLIC HEALTH DEPARTMENT.

APPOINTMENT OF ASSISTANT MEDICAL OFFICER FOR OBSTETRICS.

Applications are invited from qualified medical men and women for the post of Assistant Medical Officer for Obstetrics. Candidates must have had practical hospital experience in Gynaecology and Obstetrics, and of ante-natal and post-natal clinics.

The appointment will be for twelve months, and the salary will be £350 per annum, with board, residence and laundry valued at £140 per annum. The successful candidate will have quarters at St. Mary's Hospital, St. James Road, Croydon.

Opportunities will be given for the successful candidate to study for the Membership of the College of Obstetricians and Gynaecologists.

The officer appointed will be on the staff of the Medical Officer of Health, and work under his administrative supervision.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Croydon, on receipt of a stamped addressed foolscap envelope, and should be returned to him not later than 11 a.m. on Monday, February 7th, 1938, together with copies of three testimonials of recent date. Canvassing in any form is prohibited.

Town Hall, L. TABERNER,
Croydon, Town Clerk.
January 24th, 1938.

BOROUGH OF EDMONTON EDUCATION COMMITTEE.

ASSISTANT SCHOOL DENTAL SURGEON.

The Education Committee invite applications for the post of Assistant School Dental Surgeon. Applicants, who may be of either sex, should be fully qualified for the practice of dental surgery, and should be duly registered. Experience in school dentistry a recommendation.

Salary £450 per annum, rising by annual increments of £25 to a maximum of £600 per annum. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922, and the salary will be subject to a deduction of 5 per cent in accordance with the provisions of that Act.

Application forms and further particulars may be obtained from the undersigned on receipt of a stamped addressed foolscap envelope. Applications should be returned not later than Saturday, February 12th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.

Education Offices, W. L. BROWN,
Brettenham Road, Director and Secretary,
Edmonton N.15.
January 21st, 1938.

BOROUGH OF BARKING. PUBLIC HEALTH DEPARTMENT.

Applications are invited from Registered Dental Surgeons for the designated appointment of ASSISTANT DENTAL SURGEON.

Salary Scale £450-£600.
Particulars of duties and application form can be obtained from the undersigned, to whom all forms must be returned not later than first post on Saturday, February 12th, 1938.

Town Hall, S. A. HAWES,
Barking, Town Clerk.

COUNTY BOROUGH OF BLACKBURN.

LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER to act under the direction and supervision of the Medical Officer of Health, who is also, School Medical Officer. The salary is at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The person appointed must have had at least three years' post-graduate experience in the practice of her profession and special experience of midwifery and ante-natal work. Special post-graduate experience in the treatment of venereal diseases of children, and the possession of a registrable degree or diploma in Public Health, will be deemed additional qualifications.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than Saturday, February 12th, 1938, endorsed "Assistant Medical Officer of Health."

Canvassing directly or indirectly will be a disqualification. CHAS. S. ROBINSON,

Town Hall, Blackburn. Town Clerk.
January 25th, 1938.

COUNTY BOROUGH OF ROCHDALE.

PUBLIC HEALTH DEPARTMENT.

The Health Committee invite applications from fully qualified registered Medical Practitioners (unmarried) for the appointment of JUNIOR RESIDENT MEDICAL OFFICER (male) at the BIRCH HILL HOSPITAL, (475 Beds. Medical, Surgical, Children and Maternity).

The appointment includes certain services at the adjoining Public Assistance Institution, and will be for a period of six months in the first instance, and for a further period of six months at the option of the Town Council, but will not be renewable thereafter.

Salary at the rate of £225 per annum, together with board, residence and laundry.

Applications must be made on the prescribed form, which may be obtained on application to the Medical Officer of Health, and returned addressed to him at the Public Health Offices, Bailie Street, Rochdale not later than Monday, February 7th, 1938.

Town Hall, Rochdale. HARRY BANN,
January 15th, 1938. Town Clerk.

LANCASHIRE COUNTY COUNCIL.

JUNIOR ASSISTANT MEDICAL OFFICER. Wrightington Hospital, Appley Bridge.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the Wrightington Hospital, which contains 206 beds for non-pulmonary tuberculosis (adults and children) and 20 beds for "combined" pulmonary and non-pulmonary cases. Salary £300 per annum, together with board, residence, and laundry.

The appointment will be for six months or for twelve months, as may be agreed upon.

The medical staff consists of medical superintendent, two assistants, two consultant orthopaedic surgeons and other visiting surgeons. There are excellent facilities for reading for M.D.

Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Offices, Preston. Letters to be marked "Wrightington M.O."

Closing date February 17th, 1938.

GEORGE ETHERTON,
Clerk of the County Council,
County Offices, Preston.

COUNTY BOROUGH OF WOLVERHAMPTON.

NEW CROSS HOSPITAL (350 Beds)

ASSISTANT MEDICAL OFFICER (RESIDENT).

Applications are invited from single gentlemen, duly qualified, for appointment as Assistant Medical Officer at the above Hospital, which contains Medical, Surgical, Maternity, Children's and Isolation Departments, and is modern and equipped. Experience in anaesthetics, a knowledge of Clinical Pathology, and previous Hospital experience will be deemed additional assets.

Salary will be at the rate of £250 per annum, with apartments, board, attendance, etc. The appointment will be limited to a term not exceeding one year.

Further information as to the duties, etc., may be obtained from the Medical Officer of the Hospital.

Applications, stating age, qualifications and nationality, together with copies of recent testimonials, should be addressed to A. G. ARDRAUGH, Public Assistance Officer, Stafford Street, Wolverhampton.

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICER (Grade D).—Salary £350-£25-£425, with board, lodging and washing.

(a) LAMBETH HOSPITAL, Brook Drive, Kensington Road, S.E.11.—Surgical experience, to work in radio-therapeutic department.

ASSISTANT MEDICAL OFFICERS (Grade D).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(b) HAMMERSMITH HOSPITAL, Duane Road, Shepherd's Bush, W.12.—General medical duties, experience in children's diseases desirable.

(c) MILE END HOSPITAL, Bancroft Road, Mile End, E.1.—Experience in obstetrics and anaesthetics essential.

(d) NEW END HOSPITAL, Hampstead N.W.3.—Duties mainly medical, experience in anaesthetics essential, and in obstetrics desirable.

(e) PADDINGTON HOSPITAL, Harrow Road W.9.—Medical duties, experience in anaesthetics desirable.

*No accommodation for a woman.

(f) ST. ANDREW'S HOSPITAL, Devons Road, Bow, E.3.—(Two positions): (1) Surgical duties; (2) Anaesthetics, experience in children's diseases desirable.

(g) ST. GILES' HOSPITAL, St. Giles' Road, Camberwell, S.E.5.—Duties mainly medical, experience in anaesthetics desirable.

(h) ST. JAMES' HOSPITAL, Ouseley Road, Balham, S.W.12.—Surgical duties.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 24, County Hall, S.E.1, returnable by February 16th.

Canvassing disqualifies.

LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

ASSISTANT MEDICAL OFFICER (Grade D).—Salary £350-£25-£425, with board, lodging and washing.

(a) GROVE PARK HOSPITAL, Lee, S.E.12.

ASSISTANT MEDICAL OFFICER (Grade D).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(b) KING GEORGE V SANATORIUM, Godalming, Surrey.

Experience in the treatment of pulmonary tuberculosis essential for (a) and desirable for (b).

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 24, County Hall, S.E.1, returnable by February 7th. Canvassing disqualifies.

LONDON COUNTY COUNCIL

PUBLIC HEALTH DEPARTMENT

Applications are invited for a full-time post of ASSISTANT MEDICAL OFFICER (permanent and pensionable). The duties will be chiefly concerned with slum clearance and school medical work. Applicants must hold a diploma or degree in Public Health. Salary £750 a year.

Forms of application (stamped addressed foolscap envelope necessary) from the Medical Officer of Health (S.D.5), The County Hall, Westminster Bridge, London, S.E.1, returnable by February 12th. Canvassing disqualifies.

LONDON COUNTY COUNCIL

Applications invited from registered medical practitioners of at least one year's standing, residing in the neighbourhood, for appointment as TEMPORARY VISITING MEDICAL OFFICER (PART TIME) at Dutton Farm, near London, Essex, for able-bodied men. Salary £150 a year.

Applications forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 24, County Hall, S.E.1, returnable by February 16th. Canvassing disqualifies.

FIFE AND KINROSS JOINT SANATORIUM BOARD

RESIDENT MEDICAL OFFICER wanted for GLENLOMOND SANATORIUM by Kinross, for period of one year, 1st Feb. Previous hospital experience desirable. Salary £150, with room, board, etc.

Applications, stating age, etc., along with copies of testimonials, to be lodged with and undersigned by January 31st, 1938.

J. M. MITCHELL,
Clerk and Treasurer.

Kinross Joint Sanatorium Board,
County Buildings, Cupar.
January 14th, 1938.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(conoid)	CONTRACT PRACTICE—(conoid)
ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer.)	MID RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE MON (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.)	NEATH AND DISTRICT (Medical Aid Association.)	PUBLIC HEALTH
LWYNSYPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN (Workmen's Medical Aid Society.) (Workmen's Medical Scheme.)	SALOP MENTAL HOSPITAL, SHREWSBURY. (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1.

Town or District	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practitioner.)	The Hon. Sec., Western Australian Branch, British Medical Association, "Steel House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

January 26, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds.)

Applications are invited for the following Resident (male) posts for the six months commencing April 1st, 1938.

SENIOR HOUSE SURGEON. Salary £150 per annum.

(The above post is recognized by the Royal College of Surgeons of England for the six consecutive months' appointment in charge of general surgical patients required of candidates before admission to the final examination for the Fellowship.)

SECOND HOUSE SURGEON. Salary £100 per annum.

HOUSE PHYSICIAN. Salary £100 per annum.

CASUALTY OFFICER. Salary £100 per annum.

All with board, residence and laundry. Applications, stating age, nationality and qualifications, together with three recent testimonials, to reach the undersigned by February 2nd, 1938.

W. H. DANIELS, F.C.I.S.,
Secretary-Superintendent.

BIRMINGHAM AND MIDLAND SKIN HOSPITAL.

APPOINTMENT OF HONORARY ASSISTANT PHYSICIAN.

Applications for this appointment, under the terms and conditions previously announced, should be in the hands of the undersigned not later than Saturday, February 5th, 1938.

T. E. MURTAGH,
House Governor and Secretary.
John Bright Street, Birmingham, 1.

LORD MAYOR TRELOAR CRIPPLES' HOSPITAL, Alton, Hants. (410 Beds.)

A THIRD RESIDENT MEDICAL OFFICER is required on February 1st. Male, unmarried. Previous resident appointment an advantage. Salary at the rate of £150 for the first six months £200 if reappointed after the first six months, with board, lodging and laundry.

Apply, with copies of three testimonials, to the Medical Superintendent, Lord Mayor Treloar Cripples' Hospital, Alton, Hants.

HULL ROYAL INFIRMARY (252 Beds.)

Applications are invited from registered Medical Practitioners for the post of HOUSE SURGEON (male) to the Ophthalmic and Ear, Nose and Throat Departments, vacant February 12th.

Salary at the rate of £150 per annum, plus residence, board and laundry. The post is recognized for the clinical work required in the regulations for the D.O.M.S. and D.L.O. The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of recent testimonials, should be addressed to the undersigned.

R. J. CARLESS,
January 17th, 1938. House Governor.

LEICESTER ROYAL INFIRMARY.

PART-TIME VENEREAL DISEASES OFFICER (Female).

Applications are invited for the position of Senior Medical Officer (woman) in charge of Women's V.D. Clinics under general administrative control of the Director of Venereal Diseases Service. Salary £350 per annum.

The appointment is for a Part-time Medical Officer, who will be allowed to engage in private, but not panel, practice. It is understood that an additional part-time appointment valued at £150 per annum will be offered to the successful candidate. Applicants must be qualified in accordance with the new regulations of the Ministry of Health. Full details on application to the Secretary January 17th, 1938.

MIDLAND HOSPITAL, EASY ROW, Birmingham (150 Beds.)

Applications are invited for the post of HOUSE SURGEON. Duties to commence immediately. Salary £200 per annum, with board, residence, and laundry. Applications, stating age, nationality, and qualifications, together with copies of recent testimonials, to be addressed to the undersigned.

OLIVE FURNEAUX,
Secretary

CARDIFF CITY MENTAL HOSPITAL Whitchurch, Glam.

HOUSE PHYSICIAN (male), age not exceeding 30 years, required for above hospital (750 beds). Salary £200 per annum with apartments, board, attendance and laundry. Six-monthly appointment, renewable for a further six months. The Hospital provides facilities for all modern psychiatric treatment, is equipped with Research Laboratories (biochemical and pathological) under a whole-time Director of Research, conducts out-patient clinics and is associated with the Welsh National School of Medicine for the teaching of Psychosomatic Medicine.

Applications, together with copies of three recent testimonials, to be forwarded to the Medical Superintendent.

KNOWLE MENTAL HOSPITAL FAREHAM, HANTS.

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER.

Applicants should be male and single and under 35. The salary is £250, rising by yearly increments of £25 to £450, with board, lodging, washing and attendance, valued at £150.

The possession of a Diploma in Psychological Medicine entitles the holder to an extra £50 p.a.

The salary is subject to deduction under the Asylums Officers Superannuation Act, 1959.

Applications, stating age and all particulars, accompanied by copies of three recent testimonials, should be sent to the Medical Superintendent not later than February 9th, 1938.

NORTH ORMSBY HOSPITAL MIDDLEBROUGH (192 Beds.)

RESIDENT SURGICAL OFFICER (male, and unmarried) required. Salary £175 per annum, with board, residence and laundry. Applications, stating age, qualifications, experience (if any), with copies of three recent testimonials, should be sent to the undersigned.

GEORGE WATTS,
Secretary-Superintendent

(Appointments continued on p. 59.)

ANCOATS HOSPITAL, MANCHESTER.

CASUALTY OFFICER (lady or gentleman), twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. Salary £150 per annum, with board, apartments, washing, etc. The successful applicant will do duty for the Resident Surgical Officer at alternate weekends and other scheduled times.

HOUSE SURGEON required (lady or gentleman), for the Ear, Nose and Throat Department, and to act as House Physician to one of the Honorary Physicians. Appointment for six months from March 1st. Salary £100 per annum, with board, apartments, washing, etc.

HOUSE SURGEON required (lady or gentleman), for the Orthopaedic Department. Appointment for six months from March 1st. Salary £100 per annum, with board, apartments, washing, etc.

Applications for the above posts, stating age, qualifications, experience, if any, and full particulars, to be forwarded to the undersigned on or before Wednesday, February 9th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFORNE,
Gen. Supt. and Secretary.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL, (220 Surgical and Medical Beds.)**CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.**

Applications are invited from fully qualified men for the above post, to commence March 1st, 1938.

The appointment is for six months, salary at the rate of £200 per annum, with board, apartments and laundry.

The duties include the post of House Surgeon to the Director of the Fracture Clinic, under whose care the whole of the fractures, both in- and out-patients, are treated.

Candidates for this post should have had special fracture experience.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

M. BOONE,
Superintendent and Secretary.

January 20th, 1938

GRIMSBY AND DISTRICT HOSPITAL, (164 Beds.)**HOUSE PHYSICIAN (MALE).**

Applications are invited for the post of House Physician. Remuneration £150 per annum, with board, residence, etc. Candidates must be fully qualified and registered, and previous Hospital appointment experience is desirable. Duties to commence February 1st, 1938. The successful candidate will be appointed for six months, and may apply for re-election.

Applications, stating age, qualifications, experience, and not more than three recent testimonials, to be forwarded to the undersigned at once.

H. B. COATES,

January 20th, 1938. Secretary-Superintendent.

AYR COUNTY HOSPITAL, Voluntary General Hospital.

The Directors invite applications for the position of **HOUSE SURGEON** (Male, one required). Salary £125 per annum, with board and residence. Candidates please state age.

Appointments to be for six months, from March 1st.

Applications to be lodged with the subscriber not later than Saturday, February 12th, 1938, along with copy testimonials.

AYR COUNTY HOSPITAL, JOHN J. GOUDIE,
Hospital Secretary and Treasurer
January 21st, 1938

ROYAL SURREY COUNTY HOSPITAL, Guildford (216 Beds.)

Applications are invited for the posts of
(a) **ONE HONORARY SURGEON AND GYNACOLOGIST**

(b) **ONE HONORARY SURGEON**

Applicants must hold the degree of Master of Surgery or the Fellowship of one of the Royal Colleges of Surgeons, and they should state whether they are in consultant or general practice.

Duties to commence on April 1st, if possible.

Applications, with copies of not more than three recent testimonials, should reach the Secretary-Superintendent not later than February 25th, 1938.

CAMERON HOSPITAL, WEST HARTLEPOOL (76 Beds.)

HOUSE SURGEON (male or female) required to commence duties on February 14th, 1938. Salary £120 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience, together with copies of testimonials, should be sent to the Secretary as soon as possible.

BURY INFIRMARY (127 Beds.) (LANCS)**APPOINTMENT OF TWO HOUSE SURGEONS.**

Vacancies as above arise on the Resident Medical Staff, and applications are invited for the posts.

The Resident Staff consists of an R.S.O., a House Physician, and two House Surgeons.

The appointments are for a term of six months, and salaries payable are at the rate of £150 per annum, with board, residence and laundry, the salary being increased to £175 per annum in the event of a reappointment to the same, or some other office for a period of six months.

The services of one House Surgeon are required as soon as possible, whilst the services of the other House Surgeon are required about the middle of February.

Applications, stating age, qualifications and nationality, together with copies of three recent testimonials, are to be forwarded to the undersigned as soon as possible, endorsed "House Surgeon."

Full particulars of duties may be had on application.

H. WILKINSON,
Superintendent.

DEWSBURY AND DISTRICT GENERAL INFIRMARY, DEWSBURY.

The Senior Post is recognized by the Royal College of Surgeons (England).

Applications are invited for the post of **SENIOR HOUSE SURGEON** (male). Salary £200 per annum, with board, residence and laundry.

Also for the post of **SECOND HOUSE SURGEON** (male). Salary £150 per annum with similar emoluments. The duties are principally those of a House Physician and Casualty Officer. The Infirmary is a new Voluntary Hospital of 100 beds and has the usual Special Departments, with Visiting Consulting Specialists in attendance.

Applications, stating for which post, age, and hospital experience, together with copies of recent testimonials, to be sent as immediately as possible to my Office.

FRED SMITH,
Secretary-Superintendent.

THE LEEDS VOLUNTARY HOSPITALS COUNCIL.**THE GENERAL INFIRMARY AT LEEDS, (673 Beds.)**

The Council invites applications for the post of **HONORARY NEUROLOGICAL SURGEON** to the above Institution.

Candidates must be Fellows of the Royal College of Surgeons of England.

Information relating to the post will be supplied on reference to the House Governor and Secretary of the General Infirmary at Leeds. Twenty-five copies of application, accompanied by a similar number of copies of not less than three recent testimonials, to be addressed to and received by the undersigned not later than February 25th, 1938. Envelopes to be endorsed "Private-Honorary Staff."

(Signed) **S. CLAYTON FRYERS,**
Secretary to the Council.

HUDDERSFIELD ROYAL INFIRMARY, (321 Beds.)

Male **CASUALTY OFFICER** required to commence duty on March 4th, 1938.

Salary £200 per annum, with board, residence and laundry. Appointment for six months. Prospects according to qualifications, experience and satisfactory service.

The Hospital is officially recognized for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England. The post of Casualty Officer is next in seniority to that of Resident Surgical Officer.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. J. JOHNSON,
General Superintendent and Secretary.

ROYAL LIVERPOOL BABIES' HOSPITAL, Woolton.

Required, **RESIDENT MEDICAL OFFICER** for the above Hospital, appointment commencing April 1st. Salary at the rate of £125 per annum for the first six months, £150 per annum for the second six months.

Applications, with copies of testimonials, to be sent to the Honorary Secretary of the Medical Board, 9, Corporation Hill, Liverpool, 3, on or before February 14th.

BEDFORD COUNTY HOSPITAL.

Wanted, an **HONORARY PATHOLOGIST** for Bedford County Hospital. Facilities given for private work. Applications to be sent to the Secretary.

LEICESTERSHIRE AND RUTLAND MENTAL HOSPITAL, Narborough, near Leicester**DEPUTY MEDICAL SUPERINTENDENT.**

Applications for this appointment are requested from married gentlemen fully qualified, whose age does not exceed 35 years, who have had previous mental hospital experience, and are in possession of the Diploma in Psychological Medicine.

The salary will be £750 per annum, rising by annual increments of £25 to a maximum of £850 per annum. There are no emoluments.

An unfurnished house on the estate is provided at an annual rental of £50 a year, which includes rates and taxes.

Applications (forms for which may be obtained from the Hospital on request), together with copies of three recent testimonials, should be sent to the Medical Superintendent forthwith.

JENNY LIND HOSPITAL FOR CHILDREN, NORWICH.

The Committee of Management invites applications for the appointment of **HONORARY ASSISTANT PHYSICIAN**, which will be filled on Wednesday, February 16th, 1938, at 5 p.m.

Candidates must produce evidence of being Graduates in Medicine of one of the Universities of the British Empire, or Members of the Royal College of Physicians of London, and of being registered according to the provisions of the Medical Act.

Applications, with copies of testimonials, must be sent not later than seven days before the date of the Election, to the undersigned.

By Order of the Committee of Management,
FRANK INCH,
January 22nd, 1938. Secretary.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL (85 Beds)

Applications are invited from registered Medical Practitioners for the following appointment:

SENIOR HOUSE SURGEON (male and unmarried). Salary £150 per annum, with board, apartments, and laundry. Appointment to commence immediately, for a term of six months, renewable. Previous experience is essential, and applicants must have had practical experience in the administration of anaesthetics.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, to be sent to me.

FRANK H. TOONE,

9, Leicester Road, Secretary.
Loughborough.

LIVERPOOL STANLEY HOSPITAL, Stanley Road, Liverpool, 5.

There will be vacancies on April 1st next for one **HOUSE SURGEON** (male) and one **GYNACOLOGICAL HOUSE SURGEON** (female). The appointment will be for a period of six months.

Salary at the rate of £100 per annum with board, laundry, etc.

Candidates must be on the Medical Register and send their applications, with copies of three recent testimonials, addressed to the undersigned by February 12th.

L. RICHMOND,
Superintendent.

THE RADIUM INSTITUTE, Riding House Street, London, W.1.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**. Candidates must be unmarried. The salary will be at the rate of £250 per annum, board, residence and laundry being provided, and the appointment is for six months, commencing immediately.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, must be received at the Institute as soon as possible.

Canvassing, either directly or indirectly, is not permitted.

THOS. A. GARNER,
Secretary.

THE LIVERPOOL L.Y.F. EAR AND THROAT INFIRMARY, Mistle Street, Liverpool, 7.

Applications are invited for the post of **OPHTHALMIC HOUSE SURGEON**.

The appointment is for six months, subject to renewal. Applicants must be fully qualified and registered.

Salary £120 per annum. The Hospital is recognized by the Examining Board for the Diploma in Ophthalmology.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, should be sent to the undersigned not later than February 14th, 1938, to the undersigned.

Wm. LEA,
Secretary.

MEDICAL ASSISTANT WANTED WITH view to succession in good practice in south of Scotland. Please state age, experience and salary required, and furnish testimonials.—Address, No. 3224, B.M.A. House, Tavistock Square, W.C.1.

MONMOUTHSHIRE.—OUTDOOR ASSISTANT required, married or single. Salary £450, to include car allowance; furnished rooms provided. Apply stating age, nationality and latest particulars. Usual bond.—Address, No. 3223, B.M.A. House, Tavistock Square, W.C.1.

SOUTH WALES.—TWO YOUNG UN- married male ASSISTANTS, English, Scotch, or Welsh. Mixed practice, comprising road Hospital. Salary £350, rooms, light and attendance, and car allowance. One must be anaesthetist.—Address, No. 3228, B.M.A. House, Tavistock Square, W.C.1.

TEMPORARY INDOOR ASSISTANT (British) wanted from now until March 15th. Suit recently qualified man. Pleasant Cornish village. Salary 5 gu. weekly; car, petrol and chauffeur provided.—Address, No. 3215, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR REQUIRES EXPERI- enced woman as ASSISTANT at beginning of March for 3-6 months. Manchester district.—Address, No. 3211, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS

MEDICAL WOMAN REQUIRES LONG LOCUM or TEMPORARY ASSISTANTSHIP in or near London. Experienced; can car if necessary.—Address, No. 3214, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS

WANTED, ASSISTANT RESIDENT MEDICAL OFFICER for private Mental Home near London. Commensal salary £350 per annum, excellent prospects.—Address, No. 3226, B.M.A. House, Tavistock Square, W.C.1.

AVAILABLE SHORTLY OWING TO AMAL- gamation of two Practices. DISPENSER-BOOKKEEPER, male, 35, single, 15 years' experience, 3 years' present post.—BLACKBURN, 305, Cauldwell Hall Road, Ipswich.

A Course of Training in Dispensing and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: Euston 3939.

A LADY DISPENSER BOOKKEEPER SUP- plied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or phone (Bayswater 0969) Secretary, 7, Westbourne Park Road, W.2.

CONJOINT MAN, IRISH, AGE 27, SINGLE, slightly disabled, ex-H.P., H.S., requires LIGHT WORK, either permanent or temporary, keen, conscientious; excellent testimonials.—Address, No. 3207, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, RETIRING, HIGHLY RECOM- mends his HOUSEKEEPER-RECEPTIONIST, with daughter, 16, business all day and small well-trained house dog. Domesticated, drive car, efficient, cheerful, used to maids.—Address, No. 3236, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers, are invited to write, wire, or phone Temple Bar 5558, THE DISPENSER'S BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

LABORATORY TECHNICIAN, BACTERIO- logy. Biochemical Analysis of Specimens. Expert in Haematology, Photomicrography. Qualified X-ray operator. Can bring full laboratory equipment if necessary.—Address, No. 3206, B.M.A. House, Tavistock Square, W.C.1.

LADY DOCTOR WANTS PART-TIME WORK, Highgate or Golders Green, own car.—Address, No. 3234, B.M.A. House, Tavistock Square, W.C.1.

LADY SECRETARY RECEPTIONIST 324 requires post, doctor or dentist, Public School education. Four years' secretarial experience. Able to deal with correspondence, appointments, book-keeping, filing, etc.—J. M. C. 29, Wymering Mansions, W.9.

OPPORTUNITY OF GOOD BILLET AND OF rapid advancement to a house and £1,000 a year in private mental home. Age about 25, good health. Preliminary interview essential. No replies will be sent unless fullest details, references and testimonials are sent with application.—Address, No. 3202, B.M.A. House, Tavistock Square, W.C.1.

SECRETARY SHORTHAND TYPIST—LADY available. Full responsibility for correspondence, filing, financial records, appointments. Exceptional testimonials. St. John Ambulance Certificate.—Address, No. 3117, B.M.A. House, Tavistock Square, W.C.1.

Readers frequently desire to refer to advertisements concerning Appliances, Preparations, etc., which have appeared in earlier issues of the Journal.

The Advertisement Manager can supply particulars at any time.

In dealing with written enquiries, especially from Overseas, correspondents are, whenever possible, put in direct contact with advertisers in whose products they are interested.

WRITE:

Advertisement Manager,
British Medical Journal,
B.M.A. House,
Tavistock Square,
London, W.C.1.

Phone: EUSTON 2111.

SECRETARY.—FREE NOW FOR DAILY work London. Excellent references. Three years' secretarial General Practitioner, seven years' Specialist. Shorthand, typewriting, telephoning, accounts, filing, receptionist.—Apply HEATH, 35, Cambridge Terrace, W.2.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 25, Eccleston Square, S.W.1 (Telephone: Victoria 3222), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

VACANCY.—RESIDENT PHYSICIAN AT Ruthin Castle, North Wales. Must have held House Officer. Salary £200 per annum, with board and lodging. Quarters provided in or near the Castle. Appointment may be renewed at the end of six months.—Apply, stating age, experience and giving personal references, to Secretary, Ruthin Castle, North Wales.

YOUNG LADY LABORATORY ASSISTANT for medical research work, trained in Vienna, seeks position.—Address, No. 3225, B.M.A. House, Tavistock Square, W.C.1.

YOUNG LADY WANTED BY DOCTOR IN S.W.1. LONDON, to HELP in NON-PROFES- sional PART OF WORK of mixed general practice. Resident post. Some of duties: record, receptionist and be generally useful. Commensal salary 25s. per week, all found, except laundry. Suit expenses.—Address, No. 3245, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS

WANTED, A THIRD PARTNER, SCOTTISH or English, for old-established general practice, Midland town. Panel 3,000, P.M.S. £500. Income last year over £2,000. Thirtysixth share at 21 years' purchase. Preliminary interview p. 3 or 4 months.—Address, No. 3125, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY BY AN EXPERI- enced ophthalmologist, age 35, married, SHARE in an ophthalmic practice in L.-don suburbs or home counties.—Address, No. 3230, B.M.A. House, Tavistock Square, W.C.1.

NORTH LONDON RESIDENTIAL MIXED Practice. Panel 1,500. Average receipts nearly £2,000 (last year £2,150). SHARE offered up to one half at 2 years' premium on share of average receipts. Detached house, with nice garden and garage to rent. Preliminary interview 3 to 6 months. Married Englishman, age under 40, with general practice experience preferred. Certified accounts.—Write HUBBY and HUBBY, Accountants, 49, Chancery Lane, London, W.C.2.

NEAR HARLESDEAN, N.W.—HALF SHARE of well-established PRACTICE. Receipts average £1,000 p.a. Panel 2,700. Nice home available. Premium £1,000.—Apply, PEACOCK and HUCKLEY, Ltd., 67-69, Chancery Street, Strand, W.C.2.

PARTNER REQUIRED, GOOD WORKING- class practice in South-East District averaging £2,000. Halfshare £1,000 to enable man. House available.—Address, No. 3193, B.M.A. House, Tavistock Square, W.C.1.

SHARE WANTED.—MENTAL OR PSYCHO- therapeutic Establishment, any distance London.—Address, No. 3217, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR, AGED 46, DESIRES PARTNERSHIP in Practice or Home London or Eastern area preferred.—Address, No. 3212, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP—HALF SHARE IN WELL- established Practice. Suitable town in S. Wales. Freehold house.—Address, No. 3231, B.M.A. House, Tavistock Square, W.C.1.

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WANTED.—PRACTICE RETURNING OVER £1,500 with Panel of 2,000 or more. L.-don or within 15 miles. Nice home, not too large, to rent or purchase. Ready cash available.—Address, 3762, PERSHALL TURNER, Ltd., 4, Adam Street, London, W.C.2.

A MIXED GENERAL PRACTICE REQUIRED in London. Substantial Panel essential. Income about £1,500 per annum. Preferably with scope.—Address, No. 3015, B.M.A. House, Tavistock Square, W.C.1.

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A NUMBER OF SMALL PRACTICES AT low premiums. Excellent opportunities for practitioners wishing to set a practice with scope.—Apply, PEACOCK and HUCKLEY, Ltd., 67-69, Chancery Street, Strand, W.C.2.

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ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL.
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1

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THESE luxurious, deliciously satisfying smokes. 50's or 100's at 6/3 per 100; 58/6 per 1,000, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90 Piccadilly, London, W.1. (GRO. 1529.)

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THE finest combination ever discovered of Choice Natural Tobaccos. Every pipeful an indescribable pleasure. 12/6 per 4 lb. tin, post free.—Sole Manufacturers: J. J. FREEMAN & Co., LTD., 90, Piccadilly, London, W.1. (GRO. 1529.)

ALPINE HOME FOR CHILDREN, MURREN, Switzerland. 5,800 ft. Tel. 4547. Very favourable climatic conditions. Intense sunshine. Winter sports. Open-air school. No contagious cases taken. Special indications: Asthma, bronchitis, glands, convalescence. Fees: 4 gns. weekly.—Prospectus and refs., FRAU CHARLOTTE ROSENFELD-FREDERKING.

DIPLOMA IN CHILD HEALTH. COACHING for March examination by Registrar London children's hospital. Classes. Individual tuition. Demonstrations of ward cases. Many successes recent examinations.—Address, 3184, B.M.A. House, Tavistock Square, W.C.1.

CAREER FOR DAUGHTERS OF MEDICAL MEN. DISPENSING. Full training for APOTHECARIES HALL CERTIFICATE. New Session commencing November.—The Principal, CENTRAL SCHOOL OF PHARMACY for LADY DISPENSERS, 28, Moreton Street, London, S.W.1.

WHEN YOU COME TO LONDON STAY AT THE HAMPDEN RESIDENTIAL CLUB FOR GENTLEMEN, Hampden Street, N.W.1. Close King's Cross and Euston. 300 bedrooms 15/- to 22 6 p.w., includ. baths, attend., and boot cleaning. All meals à la carte in dining room. Mod tariff. Large club rms., reading rm., study for students. Illus. pros., Sec. Euston 2244/5.

NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1. Telephone, Welbeck 7211. OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman, THE LADY GWENETH CAVENDISH.

TYPEWRITING, DUPLICATING, TRANSLATIONS.—Experts in Medical work. TESTIMONIALS, THESES, etc., accurately copied in style that commands attention.—WOBURN BUREAU, Drayton House, Gordon Street, London, W.C.1 (close B.M.A. House). EUSTON 1775.

TYPEWRITING.—SPECIALISTS IN TYPING Medical and scientific papers, Lectures, theses and books. Shorthand-typists always available. Proof-reading, indexing.—MARGARET WATSON, LTD., 16, Palace Chambers, Bridge Street, S.W.1. WHITEHALL 3838.

ASSISTANCIES

WANTED IMMEDIATELY, INDOOR ASSISTANT; large industrial practice within easy reach of London. Salary £250, all found; car provided.—Address, No. 3208, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND OUTDOOR ASSISTANTS for town and country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED IMMEDIATELY, A SECOND ASSISTANT, outdoor, for busy general practice, Newcastle-on-Tyne. Ex-H.P., ex-H.S., under 30 preferred. Write stating age, experience, nationality, religion, salary required.—Address, No. 3250, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT; COMMENCE March 1st. Live at Branch Surgery; all found. Salary £400, plus £50 car allowance.—Address, No. 3205, B.M.A. House, Tavistock Square, W.C.1.

WANTED, YOUNG SINGLE ASSISTANT, outdoor. British general practice. Seaside and Rural, West Wales. £400 and £50 car allowance.—Address, No. 2609, B.M.A. House, Tavistock Square, W.C.1.

WANTED. MARRIED ASSISTANT FOR South Lancashire town for March 1st, 1938. Salary £400 and house. State age, experience and nationality.—Address, No. 3242, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, OUTDOOR. British, own car, for Practice near Cardiff. Salary £350 per annum and £50 car allowance, with good, partly furnished house. Send testimonials and photograph.—Address, No. 3035, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—SCOTCH GRADUATE PRE-ferred, ASSISTANT in General Practice, 30 miles from London. Salary £300 per annum, all found. Partnership later.—Address, No. 3203, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, MIDLAND TOWN, m. or f., recently qualified, out (rooms or house), cycle short distances, little night work. Partnership possibility. Irish principal.—Address, No. 3240, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—ASSISTANT, HELP SENIOR partner two months general practice, South Midlands. British, live in, own car; work not hard; suit a semi-retired man.—Particulars, salary required, Address, No. 3209, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR, MALE ASSISTANT, practice near Cardiff. Must be energetic and reliable. Salary £348 p.a. Car allowance £52 p.a. Usual bond. Apply with full particulars.—Address, No. 3249, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT FOR FOUR months or longer in Monmouthshire. Salary £300; car allowance £50.—Address, No. 3239, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, VIEW TO early partnership. Midland town; large panel and private practice, £350 p.a., all found, including car.—Address, No. 3218, B.M.A. House, Tavistock Square, W.C.1.

WANTED, WELL-QUALIFIED ASSISTANT, Out-door, Hospital and G.P. experience, for two-man Practice, Kent, 15 miles London. Partnership later, suitable man. Good local Hospital. £350 to £400, £50 car allowance.—Address, No. 3235, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT FOR Glamorgan Colliery Practice. Salary £350 p.a. indoor, or £400 p.a. outdoor with rooms. Car essential, allowance £50 p.a. Cottage Hospital. Dispenser kept.—Address, No. 3227, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN a mining practice in South Wales. A Dispenser kept. Salary £350 per annum. Apply, giving age, references, etc., to—Address, No. 3213, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT WITH VIEW TO partnership for practice in a Lancashire residential seaside town.—Address, No. 3248, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANTSHIP, TEMPORARY or permanent, or locum, by medical woman Experienced in private and panel practice; accustomed to sole charge; car if necessary.—Address, No. 3216, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT, MALE, OUTDOOR, REQUIRED early February. Large increasing Practice Channel Islands. Public School and Oxford or Cambridge Graduate preferred. Experienced Anaesthetist essential. Car provided. Salary £400 per annum. Enclose photo and recent testimonials.—Address, No. 3101, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP REQUIRED BY M.R.C.S. L.R.C.P. (Bart's). Good hospital and private experience and references. Town or country. Own car.—Address, No. 3243, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED G.P., AGED 63, ENGLISH, active, good appearance, experienced panel and private practice, driving licence, seeks ASSISTANTSHIP (or SOLE CHARGE). Full particulars.—Address, No. 3246, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL WOMAN REQUIRES ASSISTANT-SHIP, car supplied. Would prefer South, West, South Midlands or Nottingham. Liverpool or Derby considered. Qualified three years; experience includes G.P.—Address, No. 3221, B.M.A. House, Tavistock Square, W.C.1.

CITY AND COUNTY OF BRISTOL. ASSISTANT MEDICAL OFFICER OF HEALTH.

The Council invite applications for a whole-time Assistant Medical Officer of Health. Age not exceeding 40 years. Salary £500 per annum, rising by annual increments of £50 to £700. The appointment will be subject to the approval of the Local Government and Other Officers' Superannuation Act, 1928.

The duties will consist mainly of giving anaesthetics for Dental Surgeons, but he may also be required to work in any of the Corporation's Institutions, or to carry out any other work under the direction of the Medical Officer of Health.

Applications, which must be on the form provided for this purpose, should be accompanied by not more than three recent testimonials, and must be received by the undersigned not later than Wednesday, February 9th, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Candidates will be interviewed.

Council House, JOSIAH GREEN,
Bristol, 1. Town Clerk.
January 21st, 1938.

CITY OF SHEFFIELD. LODGE MOOR INFECTIOUS DISEASES HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER (Male).

Applications are invited from duly qualified registered Medical Practitioners for the above appointment, for a period of one year, at a salary of £300 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and previous experience, with copies of recent testimonials, to be sent to office, stating when at liberty to accept, to the undersigned, not later than Saturday, February 13th, 1938. Envelopes should be endorsed "Junior Assistant Medical Officer of Health, Lodge Moor Hospital, Sheffield, 10."

WEST KENT GENERAL HOSPITAL (Incorporated). Maidstone. (125 Beds)

Applications are invited for the post of HOUSE PHYSICIAN, who must be a male of British nationality and unmarried. He will have charge of 30 Medical beds and 16 Maternity beds. Experience in midwifery is essential.

Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess requisite qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before February 3rd, 1938. The successful candidate will be required to take up residence on February 15th, 1938.

EDWARD J. GREGG,
House Governor and Secretary.

DERBYSHIRE ROYAL INFIRMARY, DERBY. (General Hospital, 262 Beds)

Applications are invited for the following posts:—HOUSE SURGEON FOR GYNAECOLOGICAL DEPARTMENT.

HOUSE SURGEON FOR EAR, THROAT AND NOSE DEPARTMENT.
HOUSE SURGEON FOR CASUALTY DEPARTMENT.
(Male, Single).

Candidates must be qualified and registered under the Medical Act. Salary will be £150 per annum, with apartments, board, and laundry.

Applications, with copies of testimonials, to be sent to the undersigned.

ARTHUR TAYLOR,
Superintendent and Secretary.

THE ROYAL VICTORIA HOSPITAL, FOLKESTONE (extending to 155 Beds)

The Committee of Management invite applications for the appointment of HONORARY ASSISTANT SURGEON. Candidates must be:

(1) Fellows of the Royal College of Surgeons of England, Edinburgh or Ireland, or
(2) Masters of Surgery in one of the Universities of England, Edinburgh, Ireland, or one of His Majesty's Dominions.

Applications, stating age, qualifications and experience, and enclosing copies of three recent testimonials, to be forwarded to the undersigned, arriving not later than the first post on February 8th, 1938.

F. T. WILTON,
Secretary-Superintendent.

THE QUEEN'S HOSPITAL, BIRMINGHAM 15.

The following posts are vacant as from February 15th, 1938:—

SENIOR RESIDENT ANAESTHETIST (Salary £700 p.a. according to experience).
ORTHOPATHIC HOUSE SURGEON
AND JUNIOR RESIDENT ANAESTHETIST (Salary £70 p.a.).

together with board, apartments and laundry.

Applications should be sent in as soon as possible to the House Governor, Queen's Hospital, Birmingham.

ROYAL NORTHERN HOSPITAL, Holloway, N.7.

Applications are invited for the following appointments:

HOUSE PHYSICIAN, vacant March 1st. The appointment is for nine months (three months as Out-Patient Medical Officer and Anaesthetist and six months as House Physician). Salary at the rate of £70 per annum, with board, residence and laundry.

OBSTETRIC HOUSE SURGEON, vacant March 15th. The appointment is for nine months (six months as Obstetric House Surgeon and three months as Casualty Officer). Salary at the rate of £70 per annum, with board, residence and laundry.

Applications, with copies of testimonials, should be sent by February 4th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER,
Secretary.

ROYAL EYE HOSPITAL, Petersley Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith. Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications and Ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before acceptance, candidates have to be interviewed by appointment by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE,
Secretary.

ST. BARTHOLOMEW'S HOSPITAL

WHOLE-TIME CHIEF ASSISTANT IN THE X-RAY DIAGNOSTIC DEPARTMENT

Applications are invited for the post of Whole-time Chief Assistant in the X-ray Diagnostic Department of the above Hospital.

The salary will be at the rate of from £450 to £500 per annum, and appointment will be made as from March 1st, 1938.

Candidates, who must possess a Diploma in Medical Radiology, should send in their applications to the undersigned not later than Saturday, February 19th, 1938.

C. C. CARUS-WILSON,
January 22nd, 1938. Acting Clerk to the Governors.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE SURGEON required March 1st, 1938.

CASUALTY OFFICER required March 1st, 1938. Some Ophthalmic work additional.

Six months' appointments. Salary at the rate of £100 per year, with board, lodging and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before February 4th, 1938.

CHARLES H. BESSELL,
January 1st, 1938. Secretary.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

Applications are invited from fully qualified medical women for the post of MEDICAL REGISTRAR (non-resident). Honorarium £100 per annum. Duties to commence April 1st, 1938.

Particulars of the post can be obtained from the undersigned, to whom applications, with testimonials (copies of three), should be sent before February 25th, 1938.

JEAN R. MURRAY, Secretary.

EAST HAM MEMORIAL HOSPITAL, Strawberry Road, E.7. (100 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN (male). The appointment is for six months, commencing March 1st. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, nationality and experience and full particulars, together with copies of three testimonials, should be received by February 10th.

THE STOCKPORT INFIRMARY. (140 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN.

Applicants must be male and unmarried. Salary £150 per annum with board, residence and laundry. The resident staff consists of a Resident Surgical Officer, two House Surgeons and a House Physician.

Applications, with copies of three recent testimonials, stating age, nationality and qualifications, to be sent to the undersigned not later than February 1st, 1938.

Duties to commence February 15th, 1938.

H. G. PRICE,
Secretary-Superintendent.

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth.

(Formerly South Devon and East Cornwall Hospital) (264 Beds)

Applications are invited for the post of HOUSE SURGEON. Salary £120 per annum, with board, residence and laundry. Appointment is tenable for seven months, and is subject to renewal. Duties to commence February 19th.

The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Act.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by February 4th.

ARTHUR R. CASH,
Gen. Supt. and Secretary.

THE PRINCE OF WALES'S HOSPITAL, Lockyer Street, Plymouth.

(Formerly Central Hospital, Lockyer Street Plymouth.) (60 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, residence and laundry. Duties to commence February 19th. Appointment is tenable for seven months, and is subject to renewal.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by February 4th.

ARTHUR R. CASH,
Gen. Supt. and Secretary.

Prince of Wales's Hospital,
Greenbank Road, Plymouth.

THE DUCHESS OF YORK HOSPITAL FOR BABIES, MANCHESTER, 19 (50 Beds)

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. Appointment is for 6 months from April 1st, 1938. Salary £125 per annum, with board, residence and laundry. Previous experience essential.

Also, JUNIOR RESIDENT MEDICAL OFFICER for 6 months from April 1st, 1938. Salary £75 per annum, with board, residence and laundry.

Applications, with copies of testimonials, to be sent to the Secretary by February 14th, 1938.

LOUISE BAILEY,
Secretary.

ST ALBANS AND MID HERTS HOSPITAL.

Applications are invited for the posts of CONSULTING PHYSICIAN AND CONSULTING SURGEON at the above hospital. Those appointed would be expected to attend at regular intervals and on special request.

Applications are also invited for the posts of NEUROLOGIST AND ORTHOPAEDIC SURGEON to the hospital. Those appointed would be expected to attend on special request only.

Applications should be received by January 31st. For further details, apply to the Secretary of the Hospital.

THE VICTORIA INFIRMARY OF GLASGOW

The Governors invite applications for the post of JUNIOR ASSISTANT PHYSICIAN whose duties include those of Clinical Tutor. There are two such vacancies, and further particulars may be obtained from the Medical Superintendent at the Infirmary. Honorarium £150 per annum. Full particulars of application and testimonials to be sent to the undersigned not later than Wednesday, February 9th.

40, St. Vincent Place, JOHN W. ROBSON,
Glasgow. Secretary and Treasurer.

KING EDWARD VII HOSPITAL, WINDSOR (200 Beds.)

RESIDENT SURGICAL OFFICER required, senior of six residents, must be a Fellow of a Royal College of Surgeons or hold a higher degree in surgery. Salary £200 p.a.

Applications, with copies of testimonials, to be sent to the undersigned not later than Thursday, February 5th, 1938.

A. E. CHURCHER,
Secretary.

DUNDEE ROYAL INFIRMARY

Applications are invited for the post of RESIDENT MEDICAL OFFICER in the Casualty and Surgical Out-Patient Departments from February 1st. The appointment is for 6 months.

Salary at the rate of £90 per annum with board, quarters and laundry.

Applications, with testimonials, should be forwarded to the Medical Superintendent.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART, Oxford Street.

HOUSE PHYSICIAN required April 1st for six months. Salary at rate of £100 per annum, with board, residence, laundry. Applicants to Secretary.

CROYDON.—CASH PRACTICE, £1,500 TO £1,700 p.a. Panel 750, rapidly increasing. Corner house, with garage, for sale or rent. Premium £2,250 to include furniture.—Address, No. 3222, B.M.A. House, Tavistock Square, W.C.1.

D.M.R.E., (CAMB.) REQUIRES PRACTICE OR PARTNERSHIP with another radiologist. Replies in strictest confidence.—Address, No. 2832, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, OWING TO ILL-HEALTH OF vendor, a select middle-class PRACTICE established in Harrow district two years. Receipts £500 first year, £700 (over) second year. Branch surgery in main shopping centre opened November, 1937: small panel. Receipts rising. Attractive corner house, modern detached, for sale, or would rent. Separate professional rooms and entrance. Four bedrooms, two recep., nice garden. Premium £1,250.—Address, No. 3185, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE ABOUT JUNE, MIDDLE AND working class PRACTICE in pleasant suburb of Midland city. Receipts 1937, £3,300; Panel about 1,700. Suitable for two partners. Specially built modern detached corner residence with five bedrooms. Surgery premises with separate entrance, large garage. Also branch surgery. Both houses for sale, £3,000. Prem. 2½ years' purchase.—Address, No. 3229, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, PRACTICE, LANCS. PANEL 2,100, increasing. Gross income £2,100, excluding appointments worth approximately £400; possibly transferable. Good detached house, garage and small garden. Premium for Practice 13 years. House £1,200, or might be rented.—Address, No. 3238, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, WOMAN'S PRACTICE, 10 MILES south of London, on growing estate. Receipts from cash and small panel £750: rapidly increasing. Premium 1½ years' purchase.—Address, No. 3204, B.M.A. House, Tavistock Square, W.C.1.

GOOD-CLASS PRACTICE WITH EXCELLENT modern house for sale, garage, large garden, hard court, ideal surgery, Surrey, within one hour London. Receipts last year over £850.—Address, No. 3201, B.M.A. House, Tavistock Square, W.C.1.

LANCS. TOWN.—OLD-ESTABLISHED PANEL and PRIVATE PRACTICE. Audited receipts, increasing. Last year £2,632. Panel over 1,700. Good house (freehold), 2 reception, 4 bedrooms. Good surgery accom. Garage. Premium Practice 1½ years' purchase. Partnership up to a ¼ share at 2 years' purchase considered.—Address, No. 3231, B.M.A. House, Tavistock Square, W.C.1.

LANCS TOWN.—OLD-ESTB. MIXED PRACTICE. Panel 2,370. Gross receipts £2,200. Good introduction premium two years' purchase, including book debts, drugs, fittings, etc. Two good houses available.—Address, No. 3161, B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.W.—OWING TO VENDOR'S ILL- health, Panel and Private PRACTICE in well-populated district. Last year's receipts over £800, capable of considerable increase. Very comfortable house, low rental.—Address, No. 3237, B.M.A. House, Tavistock Square, W.C.1.

NORTH LANCASHIRE. ADVERTISER desiring to retire wishes to sell old-established PRACTICE in country town in pleasant district with every social amenity. Suitable house available. Receipts approximately £2,000 p.a. 1,500 panel patients. Deferred payments considered.—Address, No. 3108, B.M.A. House, Tavistock Square, W.C.1.

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II.—Chemical changes in the blood in infantile diarrhoea and the effect of intravenous administration of fluid.

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Studies in anaemia of infancy and childhood. By Leonard G. Parsons, M.D., F.R.C.P., Evelyn M. Hickmans, Ph.D., M.Sc., and Ethel Finch, M.Sc.

Part XI.—The effect of iron deficient diets on the size of the red blood cells in rats and in the production of microcytic hypochromic anaemia in their offspring; a contribution to

the study of congenital iron-deficiency anaemia in the human infant.

Continuous intravenous drip in infants and children. By William C. Black, M.D.

Case reports.

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WEST LONDON HOSPITAL, Hammersmith, W.6. (239 Beds.)

Applications are invited for the post of **MEDICAL REGISTRAR** to the Children's Department for a period of one year, eligible for re-election annually for a total period of not more than three years. An honorarium at the rate of £100 a year is attached to the post.

The duties include attendance in the Out-Patient Department on four mornings a week, acting as deputy for the Physician to the Children's Department when required, and such teaching for the West London Hospital Medical School as the Board may approve.

Candidates, who may be male or female, must be registered under the Medical Act, and should have had wide experience in children's work.

Applications, with copies only of testimonials, should reach me not later than Thursday, February 17th. Candidates must attend the meeting of the Medical Council at 4.30 p.m. on Friday, February 18th, and prior to that date call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board, but nevertheless should send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, February 22nd, when the election will be made.

H. A. MADGE, Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

A **RESIDENT AURAL REGISTRAR** is required duties to commence not later than April 1st, 1938.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, February 21st, 1938, with copies of not more than three testimonials given specially for the purpose.

The appointment will be made for one year, but the holder may be re-elected for a further period of one year. Salary £150 per annum, laundry allowance £10, board and residence in the hospital. The duties will be those of a house officer to the Aural In-Patients, and of a registrar in assisting in the Aural Out-Patient Department. Opportunity will be afforded for acquiring operative experience.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, March 2nd, 1938, at 4.45 p.m. precisely.

Forms of application and copies of the Rules can be obtained from the undersigned.

HERBERT F. RUTHERFORD,
January, 1938. Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

Applications are invited for the post of **ASSISTANT PATHOLOGIST** (male).

Candidates, who must possess a legal qualification to practise, are required to send in their applications, addressed to the Secretary, accompanied by copies of not more than three testimonials, given specially for the purpose, before 12 o'clock on Monday, January 31st, 1938.

The appointment is made for one year, and is non-resident.

Salary £400 per annum, with facilities for Private Pathological Practice.

The selected Candidate will be required to take up his duties not later than February 16th, 1938, preferably earlier.

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Forms of application, copy of the rules, and details of the appointment will be supplied on application to the undersigned.

HERBERT F. RUTHERFORD,
December, 1937. Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.1.

There are vacancies for two **ANAESTHETISTS**. Candidates must be registered medical practitioners and be prepared to take up their duties at an early date.

The appointment is for one year, but is renewable and carries with it an honorarium of £15 15s per annum, and an allowance of £6 6s to provide a substitute during annual leave.

Candidates are invited to send in their applications, addressed to the Secretary, with copies of not more than three testimonials written specially for the purpose, before 12 o'clock, on Monday, January 31st, 1938, and must appear personally before the Joint Committee at their Meeting on Wednesday, February 2nd, 1938, at 4.45 p.m.

Forms of application and copies of the rules are obtainable from the undersigned.

HERBERT F. RUTHERFORD
January, 1938. Secretary

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H. B. STOKES,
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H. B. STOKES,
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LONDON HOSPITAL, E.1.

Applications are invited for the post of **MEDICAL FIRST ASSISTANT AND REGISTRAR**. The appointment is for one year, but is renewable annually on application for two further periods of one year. Salary £300 per annum, payable by the Hospital and Medical College jointly.

Candidates must be fully qualified medically. Applications should arrive at the Hospital not later than by the first post on Saturday, February 12th.

ARTHUR G. ELLIOTT,
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There is a vacancy for the post of **FIRST ASSISTANT** to the Department of Thoracic Surgery. Candidates must be Fellows of the Royal College of Surgeons (England).

The appointment is half-time and for one year. Salary £150 per annum.

Applications should be made to the House Governor, and should arrive not later than Saturday, February 12th.

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Applications are invited for the post of **SURGICAL FIRST ASSISTANT AND REGISTRAR**. Candidates must be Fellows of the Royal College of Surgeons. The appointment is for one year, but is renewable annually, on application, for two further periods of one year. Salary £300 per annum, payable by the Hospital and Medical College jointly. Applications should arrive at the Hospital not later than by the first post on Saturday, February 12th.

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Applications are invited for the post of **MEDICAL REGISTRAR** (male) to attend the Out-patient Department on two half-days a week, namely, Monday afternoon and Thursday morning. Honorarium fifty guineas p.a.

Applications with copies of testimonials should reach the undersigned, who will be pleased to give further information, by February 8th.

J. C. GILBERT,
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NEAR SALISBURY.—OLD-ESTD., unopposed. Average about £940 p.a. Panel 4/500, with mileage. Nice modern detached house, 2 recep., 4 bed., etc., rent £45. Premium 1½ years' purchase, including drugs and fittings.—3.

LONDON, W.1.—OLD-ESTD. AVERAGE £735 p.a.: No panel or dispensing. Some V.D. Fees from 21/-. Premium £750. Small flat on lease.—4.

EAST COAST.—AVERAGE £1,400 P.A. Panel 440. Good class. Visits 5/6 to 21/-. Premium £2,450. Large house (6 bed.), good garden and garage. Price £1,550.—5.

HANTS.—COUNTRY. £3/400 P.A. Panel 150. Visits 5/- up. Suit semi-retired man. Premium only £200. House, 5 bed., ½ acre garden, etc. Rent £75, or sell.—6.

LONDON, S.E.—AVERAGE £700 P.A. Panel 600. House, 2 recep., 5 bed., etc. (worth £850). Illness enforces sale. Vendor will accept £1,500 cash for house and practice.—7.

LONDON, S.E.6.—ABOUT £750 P.A. Steadily increasing, nice locality. Panel 650. Clubs £35 p.a. Ample accom. on rental. Premium £1,300, to include book-debts, drugs, furniture.—8.

SOMERSET.—DEATH VACANCY. Country. About £350 p.a. Panel 318. Visiting fees 5/-. Detached house, 4 bed., etc. ½ acre. Rent £75 p.a.—9.

CENTRAL WALES.—ALMOST UN-OPPOSED. £2,100 p.a. Panel and appis. over £700. Premium £3,500. Hospital available. Excellent fishing and shooting. Conv. modern house, 6 bed., garden, etc.—10.

BRITISH WEST INDIES.—ESTAB. English PRACTICE. Receipts £1,500 p.a. Premium 2 years' purchase. Scope for surgery and V.D. Modern house available, for rental or purchase, at £1,500.—11.

NOTTS.—COUNTRY PARTNER required, preferably woman. Share worth £500. Medium panel. Fees 3/6 to 21/-. Nice compest house to rent.—12.

ESSEX COAST RESORT.—ASSIST-ANCE. with view to SHARE of £800 p.a. 51. £350 indoor to suitable man with experience. Outdoor might be arranged.—13.

NEAR SWANSEA.—DEATH VACANCY. About £1,050 p.a. Panel 1,063. House in own grounds, with 5 bed., 2 recep., Surgery, etc. £2,500 freehold, or let at about £100 p.a.—14.

NEAR CARDIFF.—RESIDENTIAL AREA, with ample scope. £494 p.a. Visiting fees 5/- to 10/-. Premium one year's purchase. Comfortable house.—15.

MIDD. SUBURB.—HALF SHARE OF £1,600 p.a., increasing, with ample scope. Panel 2,200. Premium 2 years' pur. House (4 bed.) to rent.—16.

YORKSHIRE DALES.—UNOPPOSED. £1,000 p.a. Panel £340 p.a. Commodious house with large garden. Price for house and goodall £3,000, or would let.—17.

SUSSEX RESORT.—ABOUT £650 P.A. Panel 200. Visits 4/- to 10/6. Premium £1,200. Freehold house, 6 bed., etc., £2,300.—18.

MIDLAND CATHEDRAL CITY.—Half-share of £2,470. Panel 1,200. Prem 2 years' purchase. Corner house (4 bed.) to rent at £68.—19.

DERBYSHIRE.—COUNTRY. UN-OPPOSED. Nearly £1,100 p.a. Panel 960. Appis £200 p.a. Premium only 1½ years' purchase. 6 bed. house, 6 bed., etc. £1,500 freehold.—20.

SUSSEX.—COUNTRY PRACTICE. About £700 p.a. Panel over 500, increasing. Appis £20 p.a. Visits 5/- up. Small house, nice garden, garage, etc., to rent.—21.

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Practices and Partnerships for Disposal (continued).

25 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,500. Panel 450 (approx.). Appointments £40. Fees 2/6 to 1/1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, 465 p.a. Premium two years' purchase.

26 S. WALES.—Old-established PRACTICE. £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Prem. one and a-half years' purchase.

27 INDUSTRIAL TOWN in the WEST OF ENGLAND.—Old-established and steadily increasing PRACTICE, averaging over £1,500 p.a. Panel about 560. House to rent. Premium £1,600.

28 LONDON, S.E.—Medical Woman's PRACTICE doing about £200 p.a., in suburban district. No panel. Plenty of scope. Semi-detached corner house. Price £150 or might be let. Could be increased by one giving more time to practice. Premium one and a-half years' purchase.

29 S.W. OF ENGLAND.—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.). Large house (5 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting, golf, etc. Premium one and three-quarter years' purchase.

30 W. OF ENGLAND.—Old-established middle-class PRACTICE, about £1,400 p.a., in good town. Selected panel about 300. Visits 5/- to 1/1s., medicine extra. Very convenient and well-situated detached non-basement house (7 bedrooms), with nice garden and large garage, to rent. Premium one and a-half years' purchase.

31 WESTERN AUSTRALIA.—Non-dispensing PRACTICE in chiefly dairy farming district. Receipts average £1,515 p.a. House containing 6 main rooms, etc., and about four acres of grounds. Price £1,000 cash, or rent £100 p.a. Excellent climate. District rapidly progressing. Local hospital. Premium £1,250.

32 EASTERN COUNTIES.—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 24 acres) with 7 bedrooms, etc., garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.

33 LANCs.—Well-established non-panel PRACTICE, averaging over £4,000 p.a., in manufacturing town. House with 5 bedrooms and surgery premises with separate entrance, large garage and good garden, for sale. Price £2,500 freehold. Premium £6,000 or near offer.

34 S. COAST.—PARTNERSHIP in mixed PRACTICE, averaging £2,800 p.a., in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one half-share two years' purchase.

35 W. OF ENGLAND Inland Watling Place.—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.

36 LONDON, E.I.—Old-established PRACTICE of about £800 p.a., including appointments about £150 p.a. and

panel 1,530. Good house (6 bedrooms, etc.), to rent or purchase. Very good scope for increase. Premium £1,500, to include contents of surgery and waiting room, etc.

37 NORTHERN IRELAND.—Middle and working-class PRACTICE in suburb of important seaport. Receipts past year £965. Panel nearly 1,200. Well-situated house (5 bedrooms), garage, etc., to rent. Practice capable of expansion. Premium £1,250.

38 HOME COUNTY.—PARTNERSHIP in country town practice, averaging over £4,000 p.a. (increasing), within 25 miles of London. Good appointments and panel about 2,000. Suitable house obtainable. Incoming partner should be aged about 30. One-fourth share at first at 2 years' purchase.

39 MIDLANDS.—Unopposed country PRACTICE in very pleasant hunting district. Cash receipts last year, £1,097, including good appointments and panel about 500. Well-built house (5 bedrooms, etc.), with good garden and garage. Main electric light and water supply. Price £1,100 freehold. Golf, etc. Premium £1,600.

40 MIDLANDS.—Easily worked PRACTICE in very attractive village about 70 miles from London. Cash receipts, 1937 to November 25th, £466. Panel 500. Detached modern house (4 bed and dressing-rooms), gas, electricity and main drainage, garden over an acre. Price freehold, £1,500. Premium one and a-half years' purchase, to include stock of drugs.

41 AUSTRALIA.—PRACTICE in small township in Victoria. Receipts last year, £870. Specially built house to rent at £80 p.a. Good climate. All kinds of sport. Premium £500 English currency, including drugs and dispensary fittings.

42 SURREY.—PARTNERSHIP in sound old-established and steadily increasing practice, averaging £2,445 p.a., in outlying residential suburban district. Panel 2,000. Visits 3/6 to 2/1s. Suitable house obtainable. Premium for share of 11/39ths £2,500.

43 LONDON, E.—Middle-class PRACTICE over £2,400 p.a., in outlying district. Panel 2,570. House (4 bedrooms), in excellent repair, with garage and garden, for sale. Premium two and a-quarter years' purchase.

44 S. COAST.—PARTNERSHIP in Ophthalmic Practice, about £1,700 p.a. One-half share would be sold to suitable man (who must possess the D.O.M.S.) at two years' purchase. Good scope.

45 BRISTOL.—PARTNERSHIP in increasing Practice in growing suburb. Cash receipts past 12 months, £2,125. Panel 2,200. House, with 4 bedrooms and surgery accommodation, to rent at £60 p.a., also branch surgery. Scope. Premium one-half share £2,000, to include share of drugs, etc.

46 SEASIDE TOWN, under an hour from London.—PARTNERSHIP (one-half share) in chiefly middle-class Practice, over £2,000 p.a. Panel 650. Corner house (5 bed and dressing-rooms), on main road, for sale. Scope for increase. Premium two years' purchase.

47 E. MIDLANDS.—Country PRACTICE averaging nearly £650 p.a., in pleasant village. Panel 500. Charming stone-built house (6 bedrooms), central heating, electric light, power and main water, garage, and garden, about one and a-half acres, for sale. Scope. Premium two years' purchase.

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1 E. ANGLIA.—PARTNERSHIP in old-established Practice, over £5,500, in first-rate country town. Panel 1,540. Visits 3/6 to £2 2s., without medicine. House could be obtained. Incoming partner should preferably be graduate of Oxford or Cambridge, able to undertake surgical work and must have necessary capital. One-fifth share at two years' purchase.

2 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.

3 E. COAST.—PARTNERSHIP in middle-class Practice, doing nearly £4,000, in progressive, rapidly growing town, within 75 miles of London. Panel about 800. House (8 bedrooms), with garage and small garden. Price £2,500, or rent about £135 p.a. Scope for increase. Good hospital. Three-eighths share at first at two years' purchase.

4 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,800 p.a. Panel over 4,000. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.

5 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.

6 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' and one and a-half years' purchase respectively, or either would be sold separately.

7 SURREY.—PARTNERSHIP in Practice, averaging £5,000 p.a., in residential district, about ten miles from London. Panel 3,000. House could be obtained. One-fifth share at two years' purchase. Preliminary Assistantship.

8 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of London. Receipts last year just over £700. Panel 60/70. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.

9 N. WALES.—Country PRACTICE within easy distance of coast. Receipts average £2,000 p.a., including appointments and panel worth nearly £900 p.a. Exceptionally convenient house (6 bedrooms), electric light, etc. Price £1,500. Premium for practice, £3,500.

10 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, panel or midwifery. Premises to rent at £135 p.a. Premium £500.

12 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third share at two years' purchase.

13 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small

panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

14 DEATH VACANCY.—CUMBERLAND.—Old-established good-class non-dispensing PRACTICE, over £700 p.a., in rapidly growing town. No panel. Large house for sale or rent. Good scope.

15 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30/35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,000 p.a. at first at two years' purchase.

16 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,900. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

17 LANCASHIRE COAST.—NUCLEUS OF PRACTICE, averaging £245 p.a., offering excellent scope for increase. Not much panel. Good house (5 bedrooms), for sale. Suit either medical man or woman. Premium £500, to include drugs, instruments, etc., etc.

18 EALING.—PRACTICE in rapidly developing district. Cash receipts, 1937, £510. Panel 710, increasing. Small corner house (3 bedrooms), with garage and garden. Rent £78 p.a. Premium £750.

19 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

20 N. WALES.—Sound old-established PRACTICE, about £1,500 p.a., in industrial village with beautiful surrounding country. (Panel 1,000 p.a.), garage and garden. Price fr years' purchase.

21 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 300. House (5 bedrooms), with large garden and garage. Price freehold, £2,750, or rent £150 p.a. Scope. Premium £2,000.

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23 SEASIDE TOWN, within an hour of London.—Very old-established PRACTICE about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), with large garage and garden, for sale or rent. Good scope. Premium £1,000.

24 BRITISH WEST INDIES.—Increasing PRACTICE in first-rate town. Receipts last year, £1,750. Good house with ample accommodation, garage and good garden, for sale or rent. Ideal climate. Good society and sport. Scope for surgery or V.D. Premium £1,500, to include drugs, etc.

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9. NORTH WALES.—(Welsh not essential.)—Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £285 from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price for freehold, £1,500. Premium £3,600. Partnership introduction will be given.
10. LIVERPOOL.—Old-established PRACTICE producing about £1,500 p.a., including panel of 1,300 and appointments worth about £170 p.a. Good house in excellent position. Premium for Practice and house £3,500 (or house might be rented).
11. SURREY.—DEVELOPING TOWN.—Increasing PRACTICE producing for last year £655 and believed to offer considerable scope. Panel of about 450. Well-... with 6 bedrooms, etc., or smaller house available. Premium 2 years' purchase.
12. SOUTH-WEST.—COUNTRY TOWN.—A ONE-HALF SHARE is offered in old-established Practice producing over £1,400 p.a., but believed to be capable of considerable increase with the aid of an energetic partner. Panel of about 1,100 patients. Very good house with 2 reception, 4 bedrooms, etc., and all modern conveniences. Garden of about 1 acre. Premium for share and house, £2,500.
13. HAMPSHIRE.—NEAR COAST.—A SHARE worth about £700 p.a. with early increase is offered in rapidly expanding Practice, producing approximately £2,000 p.a. Ingoing partner must be experienced and not over 35. Suitable house can be obtained. Premium 2 years' purchase.
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PRINCIPAL CONTENTS

Physiology and Pathology of Mental States	p. 265	Leading Articles	p. 288
Healing of Empyema Cavities	272	Correspondence	305
Tuberculosis in Infants	275	Surgery in General Practice: Saline Infusions	294
Tuberculous Appendix	277	Reports of Societies	298
Pelvimetry and the True Conjugate	278	Reviews	284
Why "Post-Anaesthetic" Pulmonary Complications?.. .. .	279	Weekly Table of Infectious Diseases	318
Chloroma	280	Photogravure Plate at Middle Opening	

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FEBRUARY 5 1938

TABLE OF CONTENTS

ADDRESSES AND PAPERS

A New Outlook on the Physiology and Pathology of Mental and Emotional States. F. A. PICKWORTH, M.B., B.S. (With Plate)	265
The Healing of Empyema Cavities. P. R. ALLISON, F.R.C.S. (With Plate)	272
Tuberculosis in Infants. DOROTHY TRICE, M.D. (With Plate)	275
An Unusual Tuberculous Appendix. D. J. HARRIES, M.D., F.R.C.S., and EMRYS WILLIAMS, M.D., M.R.C.P. (With Plate)	277
Pelvimetry and the True Conjugate. JOHN HOWKINS, M.D., F.R.C.S.	278
Why "Post-Anæsthetic" Pulmonary Complications? G. R. OSBORN, M.B., B.S.	279
Chloroma. ROBERT E. HORSFALL, M.D.	280

SURGICAL SERIES

Saline Infusions. HAMILTON BAILEY, F.R.C.S. (Illustrated)	234
---	-----

CLINICAL MEMORANDA

Case of Chloroma. H. BARSOUM, F.R.C.P.ed. (With Plate)	282
Abnormality of Ribs. W. A. BELLAMY, M.R.C.S., L.R.C.P. (With Plate)	283
Hyperparathyroidism. A. W. FAWCETT, F.R.C.S. (With Plate)	283
Tumour of Vocal Cord following Nasal Endotracheal Anaesthesia. MICHAEL COHEN, M.B., B.Ch.	283
Rupture of Internal Semilunar Cartilage. HUGH G. WATSON, M.B., Ch.B.	284

REVIEWS

Haematology	284
A Handbook of Malaria	285
Pictorial Aids to Dissection	285
Elements of Pathology as Applied to Medicine	285
The Control of Noise	286
Bibliotheca Medica Americana	286
Notes on Books	286

GENERAL ARTICLES AND NEWS

Research in Lunacy and Mental Deficiency. Reports to the Board of Control	237
RESEARCH IN BLOOD DISEASES	298
MEDICAL NOTES IN PARLIAMENT—Population (Statistics) Bill	316
Deaths and Disablement from Silicosis	316
PREPARATIONS AND APPLIANCES	287
UNIVERSITIES AND COLLEGES	316
MEDICAL NEWS	319

LEADING ARTICLES

The Association's Milk Policy	238
Drug Allergy	289

ANNOTATIONS

Does the Shoe Fit?	270
Influenza Virus Vaccines	291
Bumper Fractures	291
Neutrons for Radiotherapy	292
Q" Fever	292
Yellow Blackboards	293

SUPPLEMENT

Programme for the Plymouth Annual Meeting

The Osteopath and State Registration

CORRESPONDENCE

POSTGRADUATE NEWS
DIARY OF SOCIETIES AND LECTURES
MEETINGS OF BRANCHES AND DIVISIONS
NAVAL, MILITARY, AND AIR FORCE APPOINTMENTS
Association Notices; Vacancies and Appointments; Diary

LOCAL NEWS

SCOTLAND—	
Hospitals for Civilian Casualties in Air Raids	302
Hospital for Paying Patients	302
Gifts to Scottish Universities	302
ENGLAND AND WALES—	
Pathological Research at Leeds	302
The New Westminster Hospital Medical School	303
Fees for Anaesthetists	303
Central Midwives Board	303
Birth Control Report	303
NEW ZEALAND—	
Maoris and Tuberculosis	304
Medical Research	304
The Pharmacy Industry	304
Hydatid Disease	304

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS	318
EPIDEMIOLOGICAL NOTES	319

CORRESPONDENCE

Schick Relapse after Diphtheria. ALEX. JOE, M.B.	305
Early Diagnosis of Diphtheria	305
Silicosis Inquiry in South Wales: A Disclaimer. Sir EDWARD MELLANBY, M.D., F.R.S.	305
Rehabilitation Centres for Injured Workmen. R. WATSON-JONES, F.R.C.S.; H. POSTON, M.Ch.	305
Safe Milk. ESTHER CARLING, M.D.	306
Pasteurization of Milk. JAMES KIRKLAND, M.B.	306
Recovery in the Spinal Cord. F. A. PICKWORTH, M.B., B.S.	307
Acute Appendicitis. H. W. S. WRIGHT, F.R.C.S.	307
Correct Footwear. ALISON N. MACBETH, M.B.; J. NEWMAN HEALES, M.B.; F. OLIVER WALKER, M.R.C.S.	307
Hydrotherapy for Rheumatoid Arthritis. F. E. BURNHAM, M.D.	308
The Problem of the Final M.B., B.S.Lond. C. S. STADDON, M.R.C.S.; Sir E. GRAHAM-LITTLE, M.D.	309
Time for Midwifery. JOHN ELAM, M.R.C.S.	310
The Radiologist's Range of Service. H. OSMOND CLARKE, F.R.C.S.	310

REPORTS OF SOCIETIES

MEDICAL SOCIETY OF LONDON: Surgery of Sympathetic Nervous System	298
ROYAL SOCIETY OF MEDICINE: Skin Manifestations in Rheumatism	300
LIVERPOOL MEDICAL INSTITUTION: Primitive Sight and Human Squint	301

OBITUARY

Sir James Crichton-Browne, M.D., F.R.S. (With Portrait)	311
Sir Thomas Stanton, K.C.M.G., M.D. (With Portrait)	312
E. J. TOYE, M.D., F.R.C.S.	313
W. B. MACKAY, C.M.G., M.D.	314
R. E. LAUDER, M.D., F.R.C.S.ed.	314
John Adams, F.R.C.S.	315
Arnold W. Williams, M.B., C.M.	315
David Fairweather, M.D.	315
W. Alexander Mair, F.R.C.S.ed.	315
G. G. GIDLEY, M.R.C.S., L.R.C.P.	315
C. H. Andrews, L.R.C.S.	315

LETTERS AND ANSWERS

The "Emergency Bag"	320
Incapacitating Diarrhoea	320
After-treatment of Circumcision	320
Nocturnal Twitching of Limbs	320
Income Tax	320
Uniovular Triplets	320
Treatment of Impetigo	320
Oxygen Want and Oxygen Therapy	320



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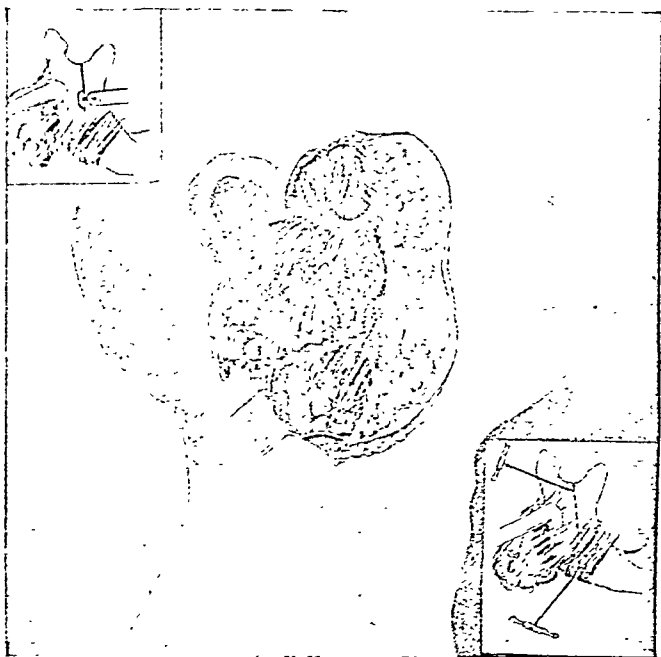
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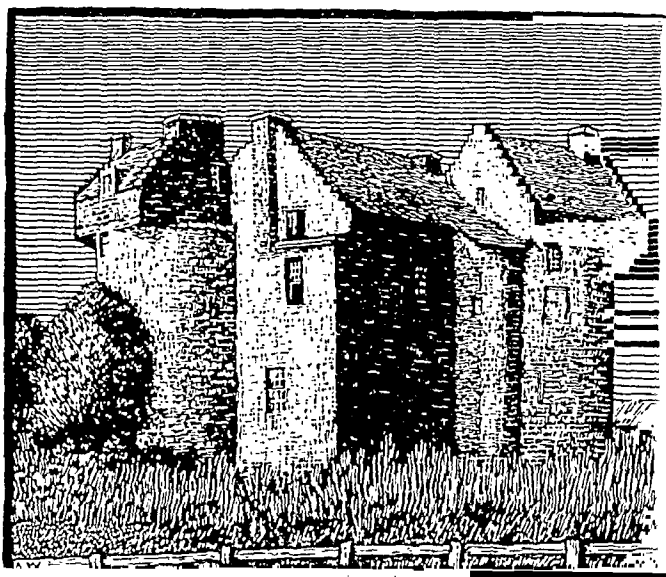
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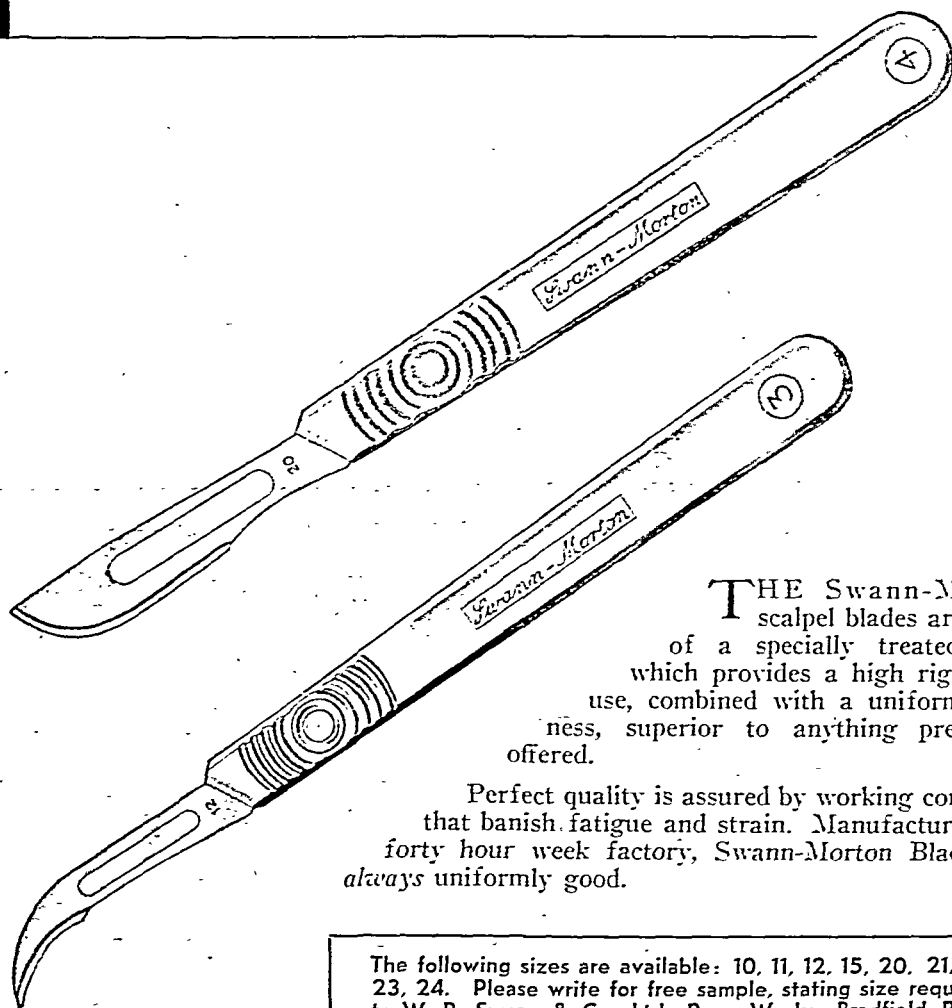
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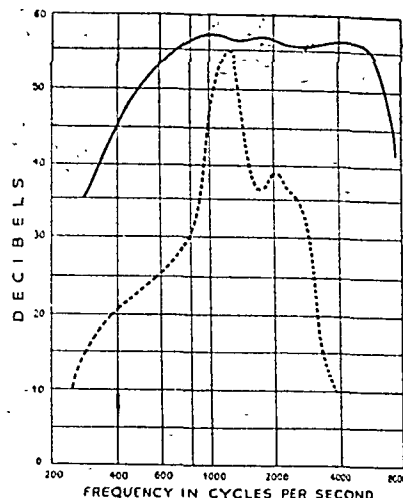
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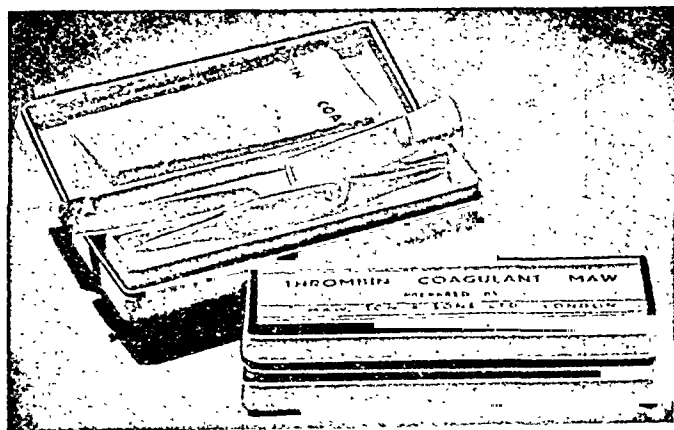
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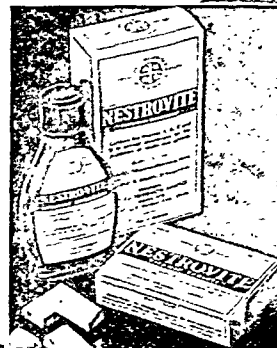
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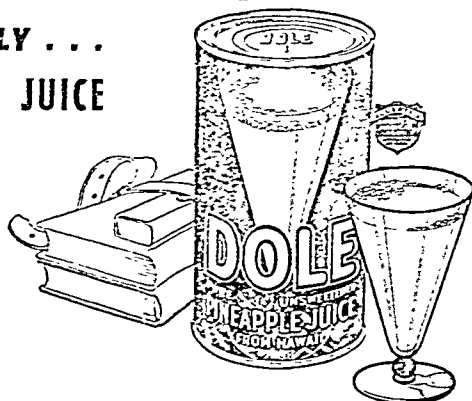
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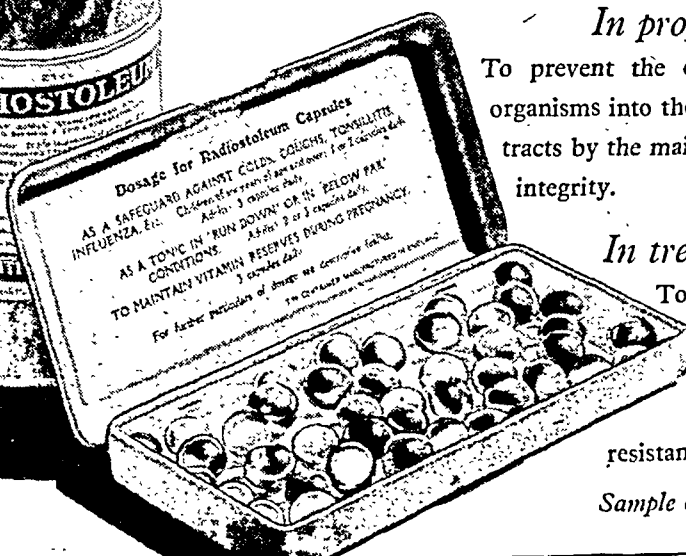
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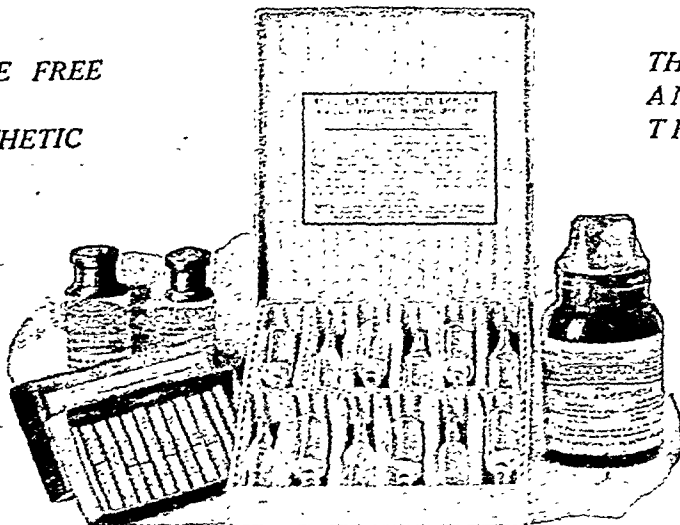
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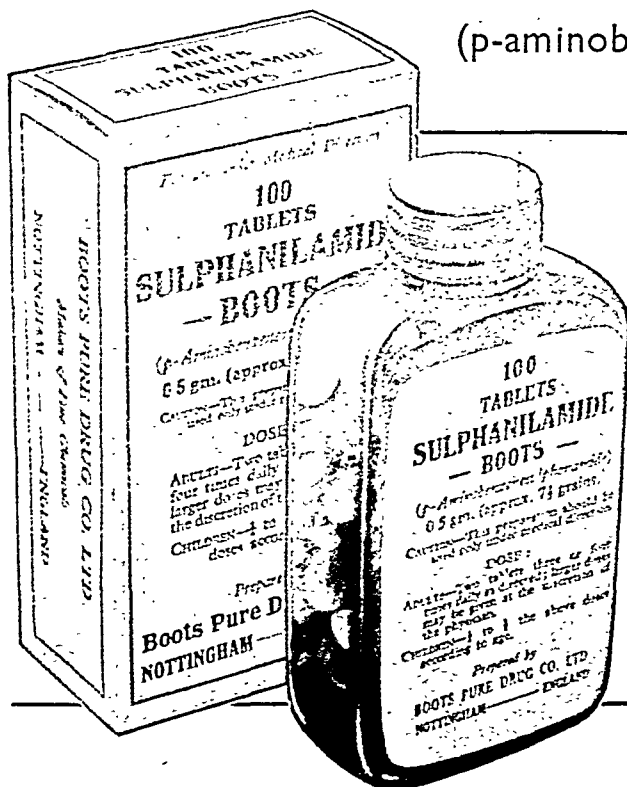


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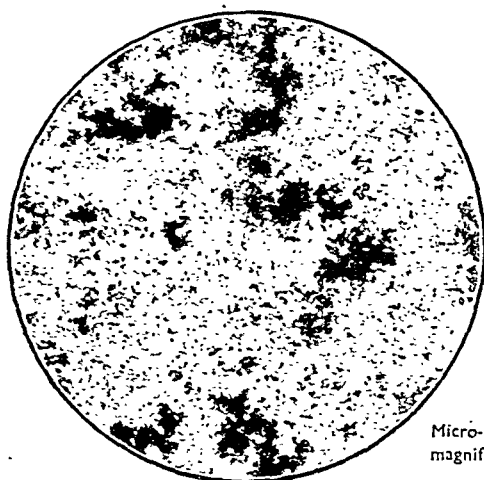
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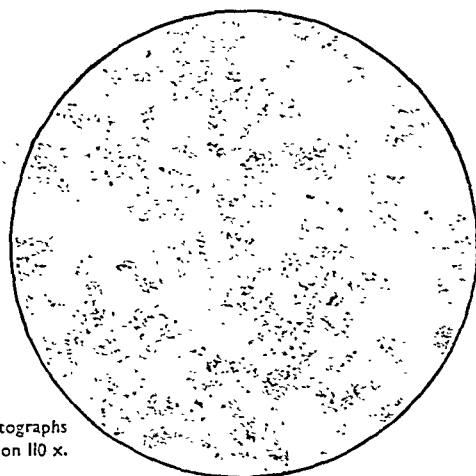
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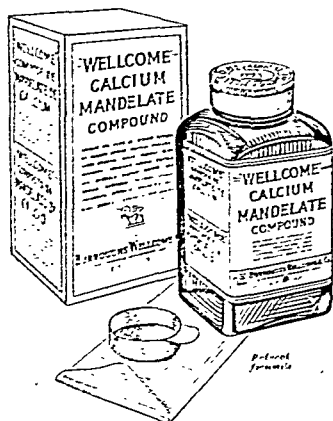
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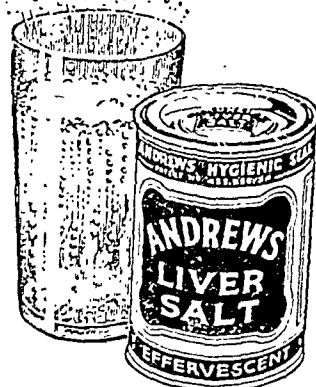
- 1 The dosage is easily adjusted according to age.
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- 4 Andrews has a soothing effect on the stomach and a physical cleansing action on the stomach walls which breaks up any unhealthy coating of mucous. It is also useful as a gastric sedative in the bilious attacks to which many children are prone.
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 5 1938

A NEW OUTLOOK ON THE PHYSIOLOGY AND PATHOLOGY OF MENTAL AND EMOTIONAL STATES*

BY

F. A. PICKWORTH, M.B., B.S., B.Sc.

Director, Joint Board of Research for Mental Disease, City and University of Birmingham

(WITH SPECIAL PLATE)

The Present Impasse in Mental Disorder Research

The central nervous system contains a large number of neurones each with cell body, dendrites, axon, collaterals, and synapses, connecting with one another in a manner similar to the communication lines of a number of automatic telephone exchanges; the physiology of the relation of this complicated system of neurones to mental function, emotional reaction, and conduct is, however, obscure. Eminent scientific men have spent their lives in this research, but their work has merely added to our already vast store of knowledge without solving the main problem. At the recent Royal Society of Medicine discussion of the relation of endocrines to mental disorder no agreement was come to regarding this, and for various reasons the discussion was not published; at the psychiatric section Dr. E. Goodall in his presidential address lamented the fact that in spite of enthusiastic work over the last half-century little real progress in either aetiology or treatment had been made. He said: "We have in my opinion made no advance in our knowledge of the pathogenesis of the psychoses." In America, Freeman (1937), after ten years' intensive research in psychiatry, says: "Little more is to be gained from the study of the anthropologic, nosologic, or pathologo-anatomic features of the body in persons suffering from mental disorders." Hoskins (1937), with reference to schizophrenia, states that "the morphologic pathologist has sought in vain for a basis of the disorder." Fulton says that although physiological functions have a cerebral localization few would venture to localize the higher intellectual functions: Lashley says, "I am coming to doubt the validity of the reflex arc hypothesis even as applied to spinal reflexes"; and Professor Golla in his 1937 Maudsley lecture said the physiological make-up of personality does not admit of description in purely scientific terms.

The biogenetic deteriorated-neurone theory of germ-plasm defect, with possibly a few rare exceptions, can no longer be upheld, since the evidence upon which hereditary theories have been based—apart from the conditioning of environment—has been shaken by Paterson, Penrose, and Findlay. The success of various shock treatments (malaria, hyperpyrexia, and insulin)—although this therapy is possibly on the right lines—is without approved explanation. The toxin-impaired-neurone theory, which we have

cherished so long and expended so much energy upon, is untenable for reasons which I shall give later; and the work of Pavlov's school on conditioned reflexes involves almost incredible precautions in the isolation of animals during experiment, in order to eliminate the hypothetical investigatory reflex—precautions totally out of proportion to what we know from our own observations and experience are necessary to establish conditioned reflexes in ourselves or animals, suggesting that the theoretical basis upon which they are working is incomplete. Sherrington (1933) says: "We have to regard the relation of mind to brain as still not merely unsolved but still devoid of a basis for its very beginning." The question naturally arises whether the physiological conception of mental and emotional states upon which research is based is lacking in some fundamental quality. Superstition demands an infinitely more complex control of the already complex nervous system, and thus hinders study of a humbler control by the vascular system.

Higher Reflex Action in Relation to Mental and Emotional States

Neurones transfer energy by electrical impulses† which cease at the next receptor organ or dendrite after having there effected an electro-chemical ionic change (liberation of potassium ions). In the higher animals this change results in a synthesis of a transmitter substance which, if quantitatively sufficient, effects a motor response or a discharge of the neurone with which it is in contact, the new electrical impulse thus set up having different characteristics from the original impulse. A sensory impulse is thus transmitted by alternate physical and chemical agencies, the latter (but not the former) often reinforced by other impulses, till eventually an end-organ is excited (motor response), or it becomes lost by reason of quantitative insufficiency of some synapse in its path. Stimuli reaching the central nervous system and the nerve potentials there built up are annihilated within a fraction of a second; even the central excitatory and central inhibitory states (Sherrington school) attain their maxima in 0.006 and 0.05 second respectively (traces only remaining as long as 0.015 and 0.2 second respectively); all such are instantaneous in comparison with the time duration of mental and emotional states (hereinafter referred to as m.e.s.). The brain itself is incapable of

* An amended lecture read to the Midland Mental and Pathological Society, October, 1937.

† Chemical diffusion along an elephant's motor nerve would take geological time to effect a response.

THE IMPORTANCE OF PRECISION POLISHING

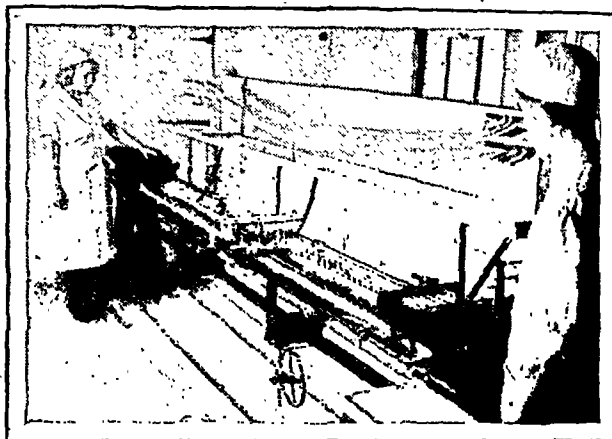
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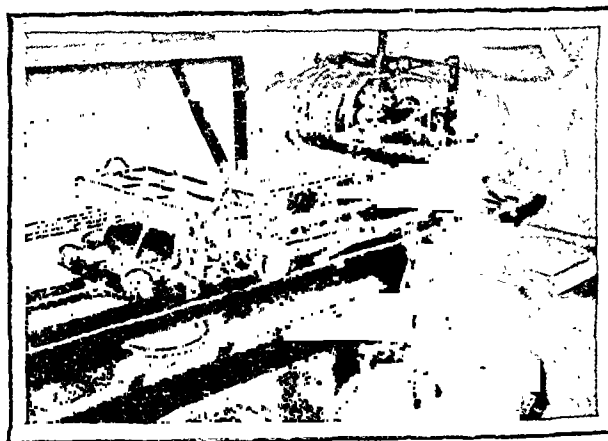
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Integrity of the Central Nervous System in Mental Disorder

In psychiatry none of the present theories of disordered mental states attempts to account satisfactorily for the clinical remissions and resuscitations which are universally recognized. A patient on admission to a mental hospital may temporarily so improve that certification is very hard during the first two or three days. Dr. D. McRae has remarked that mental hospitals would be extremely difficult to manage were it not for the fact that the majority of the patients are comparatively lucid for most of the day. Temporary mental improvement follows any new treatment, a fact which has given bias not only to individualistic conceptions of aetiology but also to the patient and his relatives in the use of patent medicines and palliative home treatments that are quite devoid of real therapeutic value. Dr. A. M. McCutcheon has told me that a patient in his care maintained a mute vegetative existence for sixteen years, during which he "couldn't have been more like a cabbage"; he then had a fatal attack of pneumonia, coincident with which his mental clarity returned and he asked for his friends, with whom he conversed in a perfectly rational and lucid manner. In 1929 Loevenhart discovered that by asphyxiating mute and apathetic cases of mental disorder almost to the point of death there followed a period during recovery when they became perfectly rational and apparently mentally normal: unfortunately, as the state of cerebral stimulation passed off the identical mute apathetic state always recurred. Other methods of cerebral stimulation are known, such as heavy poisoning with sodium amytal, and recently Hallay invented a method of so-called brain massage by which restoration of sanity in a mentally disordered case was possible by alternate rhythmical compression of the jugular veins. Even certain states formerly considered neurological (torticollis and Parkinsonism) are similarly temporarily relieved by such methods of cerebral stimulation, but they always recur to the identical original condition as the stimulation ceases.

The lucidity, which occurs naturally, or after shock treatments (primitive, surgical, protein, insulin, and others), after prolonged narcosis, and during infections or artificial cerebral stimulation, establishes the significant fact that the synaptic connexions of the central nervous system in the mentally disordered states may, in contrast to the permanent dementia that is due to destructive lesions of nerve parenchyma, remain for many years inert but intact and capable of functioning on the normal personality pattern. This anatomical integrity of the central nervous system is illustrated in its simplest form in stammering—where the nerve reflex pattern of speech is obviously intact, but where direct function is in some way inhibited, as by spasm and ischaemia of the cortex; and in the restoration of lost function seen with excitement in cases following epidemic encephalitis. A story relates how an ancient relative rushed into the road and saved a child from a runaway horse-and-cart; for years before and for ever afterwards he was quite unable to walk!

Neurological conditions are occasionally seen in mental hospital cases, but not to the extent generally supposed, and it is believed that application of the differential diagnostic test of cerebral stimulation would show that some of these conditions are not really neurological, in the sense of nerve pathology, but psychiatric (meaning a disorder of the mediator of alternate synaptic functions

—that is, the m.e.s.). When loss of nerve elements occurs the reflexes dependent upon such elements are lost for ever—and gross atrophy of the cortex has long been associated (quantitatively, according to Lashley) with dementia; nevertheless the occurrence of lucidity from natural or artificial means, even if only temporary, firmly establishes the integrity of that part of the central nervous system subserving the recoverable function in mentally disordered and neurological cases, including clinical dementia without gross brain atrophy.

Synaptic Patterns and their Control

Many speculations have in the past been advanced of the identity of m.e.s. with synaptic function. McDougall (1901) says the physical basis of memory is of the nature of a dielectric stimulation at the synapses; in other publications he introduces speculations of synapses as the seat of psychological processes, consciousness being a fusion of many such activities. Pavlov considered the mind as a mosaic of inhibitions and facilitations of synapses, but emphasized its dynamic character. Others have attempted to correlate mental disorder with the pathology of the cerebral vascular system: among these the work of Spielmeyer will always be remembered, even although his later opinion was that the areas of functional ischaemia and necrosis described by him could not usefully be correlated with a fundamental relation to mental disorder. To these workers the extreme vulnerability of the ganglion cells to oxygen lack has been a stumbling-block causing them to abandon some useful preliminary work. For example, a significant experiment was published by my predecessor, the late Sir Frederick W. Mott (1907), who applied a stimulus to the leg cortical area of the brain, at the same time firmly pressing upon the upper cord sufficiently to indent it, and noting that motor impulses were not affected by such pressure: he then applied light pressure upon the lumbar cord, just enough to cause ischaemia of the cellular (actually of the synaptic) area, upon which impulses promptly ceased, even considerable increase of the strength of the stimulus failing to effect any response of the leg muscles.

The transmission of impulse within a neurone follows an "all or none" law: its physical character admits no modification, and it does not suffer decrement, as was formerly supposed, when a portion of nerve fibre is narcotized. Decrement occurs at, and only at, the synapse where the original nerve impulse ceases and chemical transmission takes its place. The dendrites of a neurone have many synaptic connexions, and are influenced by numerous inhibitory states and excitatory stimuli, which, if in an exact time-identical phase, would leave an effective or insufficient physio-chemical resultant. Infinitesimal time differences in the reception of such stimuli, however, are important, since at any instant the resultant may excite the neurone, then briefly but quite refractory to other stimuli, which are then lost. Sherrington (1933) says that "if nerve activity has relation to mind one can hardly escape the inference that nerve inhibition must be a large factor in the working of the mind." Synaptic function can be inhibited by reduction of its blood supply, any such inhibitory delay preventing premature discharge of the neurone and allowing summation of more stimuli, with greatly enhanced value of the motor response. Reflexes which previous experience has shown to be advantageous can be facilitated by increased blood supply to the synapses, and disadvantageous responses inhibited by relative ischaemia of the respective synapses, this control being part of the capillary mosaic and therefore part of the m.e.s. existing at the time.

originating nerve excitation, and the widespread faulty appreciation of this fact in relation to the anatomical "centres" of physiological function in the brain has resulted in the appearance in the literature of erroneous statements of hormones "stimulating" brain centres.

Mental states, although physiologically associated with the central nervous system, possess a somewhat different function and characteristics; attempts to identify them have been and always must be failures. Sherrington (1933) says that "the history of the brain seems to suggest mind as at the outset a sort of adjunct to the nerve management of motor behaviour." Parker (1932) says the dawn of intelligence is seen in the capability of a primitive animal to refuse food when engorged. The word "mind" is best limited to such differential control of alternate nerve pathways (see Fig. B) influencing behaviour, and includes also subconscious function. The distinction between subconscious and conscious varies in the one direction with evolution, growth, and age; and in the other with learning, training, or physiological defect, although limited in the latter respect. The conscious attempt of the child in its first walk contrasts with the adult's conscious attempt at directing any part of the walking phenomena—which decreases rather than increases efficiency; and the brilliance of an artistic performance may be enhanced by a slight general mental inhibition (alcohol). Skilled movements, such as those of pianists and typists, are due to a finely detailed control of synapses; a really expert skilled worker can read, talk, and otherwise pay little conscious attention to his work whilst at the same time doing it quite efficiently.

Mental function is usually somewhat vaguely identified with dynamic activities incident to the characteristics of nerve impulse which have been established by the study of isolated muscle-nerve preparations, together with the principles of functional integration of neurones, conditioned reflexes, and supposed, but impossible, long delay paths in the central nervous system. A single nerve impulse is exceptional rather than the rule, what is generally regarded as an impulse being shown by electrical methods to be built up of a large number of successive impulses. The central reflex time is practically instantaneous, being in some instances less than half the total reflex time; motor effects of longer duration can only be due to repetition of the original or other stimulus. The time relations of higher reflex action of the central nervous system, assuming the stimulus is not continued or repeated, therefore cannot be conciliated with those of m.e.s. (which take time to develop and persist several minutes, remaining as traces hours, days, or even years afterwards); thus the latter must have a different physiological basis. Apparently no one has previously attached any importance to the fact that m.e.s. are static rather than dynamic phenomena, and that they are potentially independent of the higher reflexes of the central nervous system whose metabolism they control.

Conduct in Relation to Mental and Emotional States

Since motor behaviour (which is the dynamic end-result of higher reflex action) is constantly changing, even in the same individual, a consideration of the controlling influences of m.e.s. upon conduct is necessary. Certain facts are readily ascertainable from our own experiences; for example, the same stimulus may result in different motor effects under different circumstances—that is, with differing m.e.s. The reaction and behaviour to a plate of hot soup at the beginning or end of a heavy dinner typify the most primitive example of the same stimulus

resulting in a behaviour determined by the then existing mental and emotional state; the word "cats" to a dog nearly asleep may evoke partial opening of one eye, but if the dog is alert and there is a near-by rustling, immediate action ensues, involving the whole musculature of the animal. Conversely, widely different stimuli may produce similar motor responses: recognition—which is a mental state—can be observed in a dog receiving an olfactory, auditory, or visual stimulus from its master. Stimuli received during any particular m.e.s. have their characteristic limitation of motor response (conduct)—a fact exploited in political gatherings, and shown by the example that a well-meaning harmless intervener in a quarrel may get his nose broken; docile animals when frightened, or in other unaccustomed m.e.s., may scratch, bite, or otherwise harm their keepers.

Many stimuli received during a certain m.e.s. are lost or inhibited by training; all others automatically (robot-like) result in responses (conduct) in conformity with the particular mental and emotional state. A quiet demeanour in a sick-room is essential because the patient is consciously or unconsciously preoccupied with painful stimuli (an increased activity of those synapses which we know subserve the reflex paths of pain being necessarily paralleled by increased local capillary function), and therefore any uncompensated stimulus intensifies shock—the m.e.s. equivalent to subconscious pain. Unexpected loud sounds or strong stimuli cannot readily be compensated, and elaborate precautions are sometimes taken to prevent street noises reaching the sick-room. When an "irritable" mood prevails, the wireless, clock-tick, canary, door-bell, telephone, and animals' and children's noises are stimuli which may and do excite impulsive behaviour, whereas with a good mood such sounds are stimuli to appropriate motor responses.

Emotional states (anger, friendliness, hostility, approval) are clinically recognized by the facial appearance or attitude. A mother's estimation of her child's capabilities is often emotional rather than intellectual; but such distinctions are of little import, since both mental and emotional states are dependent upon the same mechanism (the only real difference being the fewer possible number of capillary patterns in the brain stem (emotional) as compared with those of the cortex (intellectual)). Mental states are best visualized by reference to commonplace expressions such as "remembering," "change of frame of mind," "conversion," "discipline," "bias," "opinion," and "temporarily insane." States alternating between normality and senility are illustrated by aged acquaintances; in whom when undisturbed there is lack of expression, with lustreless eyes and slow movements; but on mention of a favourite topic the eyes sparkle, the features show emotion, the facial furrows disappear, and an associated mental acuity develops which reverts to the original state on changing to another topic of little interest.

Conduct in relation to specific stimuli is therefore not due, as often supposed, to a more or less permanent integrated nervous path through the central nervous system, nor is it even due to a large mass-inhibition of unwanted motor responses; it is due rather to a capricious control of all the related delicately balanced synaptic paths by a mediator, known clinically as m.e.s., which enables each and every muscle of the body to take its share in the general attainment of some effect—as seen in cinematograph pictures and photographs of professional athletes and sportsmen. Fig. A shows diagrammatically how this happens when the mediator inhibits or facilitates synapses collected in groups.

control of the arterioles as Woollard has shown for the somatic capillaries. The carotid sinus merely determines the pressure distribution between the head and the rest of the body, electrical stimulation dilating the cerebral vessels: the importance of gross interference of function from contiguous sepsis in relation to disturbed mental states should not be minimized until first subjected to histological proofs. Section of the cervical sympathetic increases the number of patent brain capillaries, and mental improvement has followed some of these operations in selected cases (Royle, 1932).

Danders (quoted by Forbes, 1928) in 1850 obstructed the nose and mouth of animals for ten seconds and observed a dilatation of cerebral vessels through an air-tight window in the skull, using a magnification of $\times 45$. Constriction* of cerebral vessels occurs when the carbon dioxide is low, when the oxygen is high, when the blood becomes hypertonic, when the cervical sympathetic is stimulated, when the fear area in the hypothalamus is stimulated (Stavraky, 1936), and with adrenaline after sympathectomy or ergotamine. Dilatation occurs with increased carbon dioxide, trauma, acidosis, stimulation of the seventh nerve, fall in blood pressure, gaseous embolism, acetylcholine, histamine, adenylic acid, nitrites, and a number of other local elective substances, including, for example, that of pituitary secretion on the parietal region. Stimulation of the tuber or pressure with a small sponge, or stimulation of the ventral and medial parts of the thalamus, also dilates pial vessels. Himwich (1937) finds that, in contrast to other viscera, the arterial quality of the venous return from the brain in dogs increases parallel with hypoglycaemia, giving a biochemical explanation; another explanation is also possible, since this phenomenon under other conditions is accepted as proof of cerebral capillary dilatation. Experimental pharmacology shows the selectivity of capillary reaction to drugs. Both histamine and CO_2 contract the capillaries of the lungs but dilate those of the brain; urethane dilates capillaries but not arterioles. Strychnine has formerly been supposed to act directly upon the synapses, but Olkon (1930) observed by direct microscopical examination the contortions, kinking, and spasms resulting in brain capillaries from injection of strychnine into animals, a finding which, taken in relation to clinical symptoms, makes a significant contribution to the new outlook I have put forward in this paper.

A fall or rise in blood pressure is accompanied by distinct modification of feeling and thinking (Gordon, 1930). Mental effort causes an increase in the oxygen and decrease in the carbon dioxide of the jugular blood; that is, a general dilatation of cerebral capillaries (Lennox, 1931). The rapidity with which a "change of mind" or emotion can follow sensory stimuli shows that impulses of the central nervous system are of primary importance in adjusting the mosaic of capillary pattern to altered circumstances and behaviour requirements. Once "set" a capillary pattern tends to persist and even to re-form after diversions or sleep.

The controlling influence of the mosaic pattern of capillary activity upon the pattern of facilitation or inhibition of groups of synapses receives support from recent work on the relation of acetylcholine to synaptic function. A nerve impulse releases potassium ions at the synapse, which in cholinergic fibres effects a synthesis of acetylcholine and excites the second neurone. When

an excitator effect is thus transmitted through a synapse by acetylcholine the latter leaks out around the muscle or nerve: potassium ions similarly leak away during passage of a nerve impulse, and both these substances cause severe depression of further responses to subsequent nerve stimuli. The capillary circulation immediately and completely removes any free acetylcholine that is not limited to the synaptic membrane, also restoring altered salt concentrations: such action may be also said to effect a control of synaptic metabolism and function. Repeated stimuli of the cervical sympathetic cause a continuous output of acetylcholine from the sympathetic ganglia, which, however, soon decreases in amount (recognizable clinically by diminution of motor effects and chemically by the lesser amount of acetylcholine in the perfusate), but suddenly increases, as shown both by motor response and by its quantitative increase in amount in the perfusate, when a small quantity of blood plasma or serum is allowed to reach the synapse again. The vascular supply is therefore normally of primary importance in maintaining the local synthesis of transmitter substance (acetylcholine) and in removing such acetylcholine as has leaked away from the synapses into the surrounding tissue, where its effects are distinctly undesirable. The relatively enormous amounts of oxygen consumed at the synapses (amounting to one-tenth of the total body consumption of oxygen) also indicates the dependence of synaptic function upon the blood supply (for further correlations see Pickworth, 1937).

Neurones and the Action of Toxins

The inhibition of function which often characterizes cases of mental disorder, together with the well-known fact that brain tissue absorbs with avidity many kinds of toxins mixed with it *in vitro*, has directed many, including myself, to the attractive theory of direct action of toxins upon the ganglion cells of the brain: and some regions of the brain have been held to be specially vulnerable to the action of toxins (Vogt's pathoclisis).

Intestinal toxæmia has for a long time been associated with mental disorder, and especially with the katatonic states: my work on dysenteric infection prior to admission to mental hospitals and institutions for defectives has shown the importance of such infections as aetiological factors in both clinical conditions (Pickworth, 1927). It is known that bacteria can decarboxylate proteins, giving rise to most powerful pharmacological substances, whereas if previously deamidized by the liver the products are harmless. The action of such poisons has been studied by Ferraro and Kilman (1933) and the brain changes described. Usually toxic action upon nerve cells is histologically demonstrated by cloudy swelling, bulbous processes, alteration of staining reaction, shrinking, vacuolization, pyknosis, displacement and extrusion of nucleus, cell disappearance, and rings of phagocytic cells: special cells from the glia appear to take up the fat and debris, and may remain as scar tissue. Spielmeyer showed that there may be a purely glial response to noxious agents in bacterial infections (glial foci also occur in trichinosis).

It will, however, be evident from the preceding pages that degenerative changes in the brain parenchyma, although frequently present and contributing much to the clinical features, especially in institutions for defectives, have only a secondary relation to the actual phenomena of mental disorder, the lesions produced by destruction of nerve tissue being permanent dementia or neurological rather than psychiatric. Even a partial or reversible toxic action upon nerve cells cannot be admitted,

* Observations limited to the straight portions of pial arteries need revision following the demonstration, by Villaret, Cachera, and Fauvert, that spasmodic constrictions are localized to just beyond arterial bifurcations.

A slight ischaemia is known to increase decrement to extinction of impulse; emptying the retinal arteries by simple pressure on the eyeball causes total temporary blindness (Barnert); even electrical records of brain activity show the dependence of brain function upon an adequate capillary blood supply (Adrian, communicated privately). Penfield showed that conduction through a synapse is readily abolished by CO_2 .

In the skin and viscera, where the function of small areas is similar, a local rhythmical variation in capillarity normally occurs, controlled chiefly by metabolites. In the central nervous system, where the function of small adjacent areas is widely different, such rhythmical changes would result in confusion of conduct; and therefore this rhythmic characteristic has probably undergone in the brain certain necessary adaptations to the physiological requirements, by selective local control of the smaller vessels, not only by hormones but also by collateral impulses from higher reflexes of the central nervous system and by sympathetic stimuli; the metabolites and hormones sustaining the variations in the mosaic of capillary pattern induced by the more rapidly acting central nervous system (somewhat analogous to Creed's red tonic muscle supporting the rapidly acting pale muscle). Fig. A shows a theoretical diagram of how a mosaic of vascularized areas can determine the facilitation or inhibition of impulses from the various sensory stimuli of light, sound, etc., so that the type of motor response is conditioned by the mental or emotional state of the individual and not by the stimulus. Sherrington says that "a drug may in a second wholly reverse a reflex by tilting the inhibition-excitation balance," this phenomenon being presumably dependent upon the drug acting on the vascular supply of the synapses.

Physiological problems having an important bearing upon the mind are suggested by the anatomical distribution of fibres from a sensory organ to widely different regions of the brain. Fig. B shows the brain of a cyclostome (le Gros Clark, 1932); olfactory fibres pass from

the olfactory region both to the pineal-habenula and to the pituitary-hypothalamic regions, where function is as widely different as can be postulated. Hunger or disgust may represent an alternative choice of use of such possible reflex paths (primitive m.e.s.), and how far this choice is dependent upon the relative capillary blood supply to the respective alternate regions can be proved by direct observation, or by application of my capillary stain, in

crucial test experiments (in states of full and empty stomach, etc.). Potential m.e.s. exist without any concomitant action of the central nervous system—that is, motor behaviour—so long as no stimuli reach the controlled areas. The static quality of m.e.s. and their potential independence of the central nervous system constitute the new outlook, and are of primary importance in the correlation of the mind and its disorders with the medical sciences.

The mental and emotional states can be associated, and in my opinion identified, with the cortical (not only pia mater) capillary

mosaic pattern, which provides an efficient mechanism for the actual control of the patterns of synaptic junctions of the 12,000 millions of neurones of the central nervous system. This materially simplifies the bewildering numerical possibilities of interneuronal connexions, which we are told far exceed seconds in geological time or atoms in the universe, and reduces the number to that which experience leads us to expect by variation of sections of the cerebral capillary mosaic.

Physiology and Biochemistry of Synapses and Cerebral Vessels

Woollard has shown us that systemic vasoconstrictor nerves have two origins: (1) proximal from the sympathetic ganglia, and (2) distal by way of the somatic nerve trunks. Villaret, Cachera, and Fauvert (1937) have recorded photographically actual spasms of pial vessels. Stimulation of the sympathetic groups of fibres on the large vessels of the brain has a local or proximal effect upon arteries rather than a general distal effect on the ultimate distribution of the arterioles, and it is possible that the central nervous system contributes locally to the

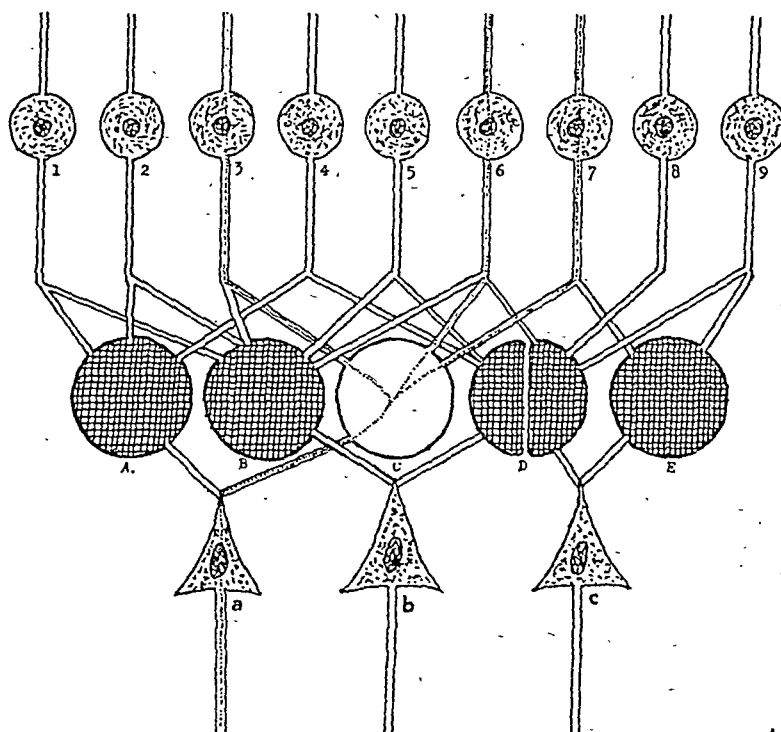


FIG. A.—1 to 9 are neurones in sensory path and a, b, and c motor neurones. The synapses are collected in areas A to E. Area C transmits (dotted lines). If area B instead of C transmitted, then the same impulses would either be lost or would excite a different motor cell; other impulses—1, 2, and 5—would also excite b.

Sensory impulses are related to conduct through mental and emotional states, here shown as a vascular control of synapses in areas A to E.

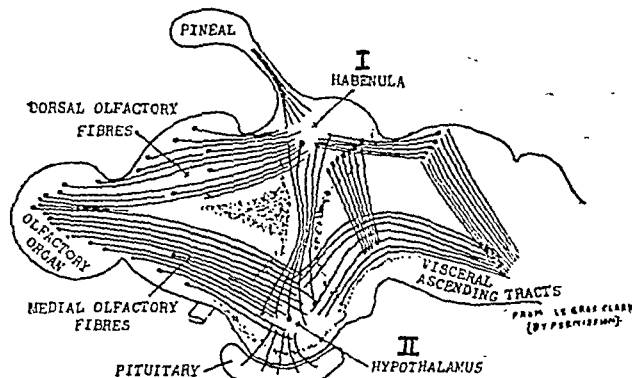


FIG. B.—Brain of cyclostome. Olfactory impulses reach two brain areas of widely different function.

The posterior cerebral artery supplies the walls of the third ventricle, a large part of the thalamus, and the choroid plexus, as well as the visual cortex; in conditions of atheromatous restriction of the vertebral or basilar lumen an activity of those brain areas supplied by the posterior cerebral artery necessarily depletes the blood supply of the medulla, according to Ricker's peristasis theory with Hiller's corollary (Pickworth, 1937). This might result in an ischaemia of the vital centres which must at all costs be avoided, and so activity of the posterior cerebral artery becomes physiologically inhibited. As the control is not (as one would suppose from its morphology) from the vertebral plexus, but from the carotid plexus via the small communicating arteries (Williams, 1936), such vital implications may very well keep the unfortunate sufferer fully occupied with his internal complications—social activities and even feeding instincts becoming unimportant by comparison. A simpler case of spasm of vessels to vital centres probably occurs in reflex pain of toothache, and might be correlated with the associated mental condition of irritability and incapacity.

Ischaemia of peristatic or pathological origin results in confused behaviour and permits working sections of the cerebral capillary mosaic to be wrongly associated with normal or unrelated sections. During such pathological disturbances an untimely activity of, say, the gonads or pituitary secretions upon local sections of the cerebral capillary pattern can reasonably be supposed to be the cause of obscene language not infrequent in mental disorder cases—that is, however inappropriate with regard to external circumstances, the conduct is nevertheless appropriate to the internal but untimely demands of the individual (*Hamlet*, IV, v. 8). Conversely, it is known that frequent changes of m.e.s., as by multiple interruptions of conditioned reflexes in dogs, cause neurasthenia; and examples are only too numerous where a continued repetition of changes of mental content (such as occurs at puberty and the menopause, and in alcoholic indulgence, remorse for crime, or enforced study), when reinforced by bad training, digestive derangements, or a bacteraemia from local septic conditions, has resulted in a derangement of the cerebral capillary pattern and thus a pre-determined behaviour characteristic of mental disorder.

Mental disorder can therefore be identified with a mixing up of normal and abnormal capillary mosaic patterns. Fragments of some pattern may be assumed to persist coincidentally with fragments of other capillary patterns, in which case a stimulus reaching the brain results in a behaviour corresponding with the predominant type of pattern (that is, the m.e.s.), coloured by other fragmentary patterns also existing at the same time.

Military discipline builds up an m.e.s. which enables a soldier in war-time to obey orders an untrained civilian could not, and typifies the automatic robot-like response to command which I have tried to show is determined by the capillary mosaic regulating synapses, and therefore conduct. Persistent m.e.s. result not only from training but from pathological changes. It is obvious that when one alternative of two synaptic areas is facilitated by hyperaemia the other is relatively inhibited. In the excitement of sport an injury may be temporarily unnoticed. Excitement, shock, and fear inhibit pain. A mental patient with pathological fixed inhibitive states can actually evulse an eye or testis with little if any shock or pain; and the usual temperature response to lobar pneumonia or pyrexia-producing drugs is sometimes temporarily absent in the active phases of mental disorder.

At post-mortem examinations of mental patients yellowish areas can be found contrasting with the normal reddish capillarity in the cortex and basal ganglia. These yellowish areas are macroscopic confirmations of ischaemia which is revealed by my capillary stain. This stain discloses not only such gross irregularities of blood supply but also indicates slight differences in the vascularity of local areas, or cortical layers, which I have endeavoured to show have some physiological significance. (Injection methods cannot be used for this purpose, as they are unreliable with respect to incomplete filling in some cases and over-distension in others.) Gross local variations of the blood supply and the pathology of the vessels themselves have been described in my previous publications. The sections (Special Plate) from recognizable brain regions are given to show relative differences in vascularity of the same section, the thickness of the selected areas being in each case controlled by stereoscopic comparison: it is generally possible to use parts of the same brain for normal control. Fig. 1 (Special Plate) shows three selected areas from a section of the frontal cortex; it demonstrates hyperaemia (A), normal (N), and ischaemia (B) in a case of epileptic insanity aged 15; ganglion cells are also revealed. Fig. 2 shows a vascular area (A) and an ischaemic area (B) from a section of the motor cortex of a case of delusional insanity aged 68. (Compare also the size of the giant Betz cells seen in the lower part of both photographs with the relative capillarity.) Fig. 3 shows the occipital cortex of a case of schizophrenia: note the relative vascularity of the two areas A and B. The section also shows cells and demonstrates the band of Gennari. Fig. 4 illustrates the cortex of two contiguous lobules of the cerebellum, and shows an obvious difference in their vascularity: I have noted a rarity of gross lesions of the cerebellum—in contrast to the cerebrum—in mental hospital patients, but my technique reveals a pathology long expected but not previously demonstrated. The clinical significance of regional vascular irregularities, however, needs many more years of further patient study.

The study of mental disorder therefore becomes somewhat changed by the new outlook I have put forward. Histological lesions of the central nervous system are to be regarded as of only secondary importance to changes in the mediator of alternate higher reflex paths which I have correlated with the cerebral capillary blood supply to the synapses. Similarly more hopeful lines of treatment can be adopted: (a) preventive, by avoidance of, or by skilled nursing during and after, known causes of capillary pathology (head trauma, acute and chronic infections, dietary deficiencies and irregularities, digestive upsets, food poisons, undue excitement, etc.), and not excluding ante-natal care; and (b) in established cases by attention first to the probable cause (for example, chronic sepsis—Graves, 1932; Watson-Williams, and others) and then by a more scientific study and application of drugs and treatments known to affect the capillarity of local brain areas.

Examples of the latter are seen in Poole and Nason's (1935) work with ergotamine causing contraction of dural vessels (its action on pial vessels is irregular), which has been used with success by M. O'Sullivan (1936) for the cure of migraine; Royle (1932) cured incipient insanity by cerebral sympathectomy in suitable cases; Graves's case (personal communication) of ligature of one jugular vein for mastoid complications showed immediate mental improvement, which has been maintained; C. Adler (1936) has used barbital with caffeine successfully for epilepsy; W. F. Duggan (1937) treated tobacco amblyopia with repeated injections of nitrites and acetylcholine; Barber and Tietz

because of the difficulty of explaining in such terms the lapse into the identical disordered mental state, which rapidly follows the lucid interval produced by artificial cerebral stimulation (or excitement in the case of alternating normality and senility quoted). Friedemann and Elkeles (1934) have shown that absorption of toxins by the brain from the blood only exceptionally occurs (with such powerful toxins as cobra venom and lamb dysentery toxin) under normal conditions owing to the perfection of the haemo-encephalitic barrier; but the action of intestinal and other toxins upon the *vascular supply* of the brain is supported by many concordant observations. The above-mentioned toxic effects upon nerve cells are also seen in simple anoxia, and therefore should be considered secondary to an ischaemia induced by the action of toxins upon the smooth muscle of the capillaries.

The toxin responsible for brain changes in general paralysis is said by Neuberger, Metz, and Wilders to act on the cerebral vessels; and Merritt, Putnam, and Campbell (1937) say that degenerative changes in general paralysis may be regarded as secondary to anoxaemia from endarteritis of the small vessels. Alcohol, well known in its effect upon the m.e.s., hitherto has been considered to act upon the ganglion cells, but Thomas has shown (1937) that it has a primary action upon the cerebral blood vessels. Orr and Sturrock (1922), by placing staphylococci in contact with the common carotid, found lesions in the distribution of the cerebral arteries *primarily vascular* in nature. Even the clinical features of toxic action, such as loss of strength, loss of weight, digestive disturbances, increased pulse rate, dry tongue, flushing, pallor, circulatory disturbances of the skin, and peristaltic unrest, are indicative of primary action upon the capillaries of the metabolic centres rather than upon nerve parenchyma. The immunity of the ganglion cells of the central nervous system from prolonged toxæmia is demonstrated by dementia praecox cases, where over many years' duration the presence of circulating toxins, resembling ergot or histamine poisoning (Bayard Holmes), is evident from a study of the vascular system; the brain, however, shows no distinctive gross lesion, and Freeman (1933) speaks of the dementia praecox brain as being "particularly normal." The toxin-inhibited neurone theory must therefore give place to the better-substantiated theory of primary toxic action upon cerebral capillaries. Meyer (1936) and others support this opinion in relation both to selective vulnerability and to many pathological findings in mental deficiency, Spielmeier also having emphasized the importance of an effect via the vascular system.

Action of Endocrine Secretion

"All living cells give off substances into the blood stream which influence the others so that internal secretion is a fundamental vital phenomenon as old as the vascular system itself" (Cowdry, 1934). About two dozen hormones are known which have their action through the vascular system, but little study has yet been made of their selective action upon the capillaries of the reacting organs. Hypothyroidism is associated with fibrotic ischaemia of the thyroid gland, and hyperthyroidism with hyperaemia—and therefore hyperactivity—use being made of this in the local application of ice (generally limited to shortly before surgical operation). The specific hormones of the pituitary which influence growth and activity of the adrenals, the thyroid, and the mammary gland in all probability have a selective action upon the smooth muscle elements of

the capillaries of the respective glands (Jones, 1936, has shown that the capillaries consist of innervated smooth muscle). In practice hyperaemia of the mammary gland is induced by frequent bathing with hot water, with satisfactory results. The recent finding of many closely related adrenaline-like substances and pituitary hormones contributes to the specificity of local capillary reaction in both systemic and cerebral circulations. Schmidt (1935-6) observes a differential response of the cerebral capillaries to the action of pituitary hormones.

The relation of endocrine secretion to the m.e.s. is only vaguely understood, but the new outlook I have put forward has materially simplified the problem. The normal changes of capillary pattern corresponding to the m.e.s. are to some extent dependent upon the selective reaction to the presence of endocrine secretions which Schmidt has shown. Clinically, fear is associated with mobilization of adrenaline; the injection of sex hormone into animals deprived of gonads and genitalia induces sexual behaviour; a moral degradation accompanies some cases of dyspituitarism, precocity occurs with pineal tumours, sluggishness in myxoedema or adrenal insufficiency, and anxiety at the menopause. Advanced endocrine disturbances are only occasionally found in mental hospitals, but minor endocrine disturbances are universally present—limited only by the clinical acumen and enthusiasm of the observer. Fluctuations in the size of the thyroid (girth of neck) are observable in the cyclic states, and the pituitary gland is sometimes involved in septic extensions from chronic sphenoidal affections (Pickworth, 1935).

Hormonic action upon cerebral capillaries, being thus of primary physiological importance in normal changes of the local cerebral capillarity corresponding to the m.e.s., may later be shown to cause at least some of those pathological disruptions of the cerebral capillary mosaic associated with mental disorder. At present, however, we can only assume that some other pathological causes are primary, and that mental symptoms are then intensified by abnormal endocrine activity (such as mania in Graves's disease, and resembling the unmasking of latent character traits by the influence upon the cerebral capillaries of over-indulgence in alcohol).

Pathology of the Cerebral Capillary Pattern

Subdural haemorrhage illustrates simply the inhibitions related to certain motor cortical areas, and subcortical tumours—those symptoms of psychiatric nature, both the results of pressure ischaemia; such symptoms of incipient insanity can, and have been, cured by simple removal of the tumour, and cortical ischaemia symptoms relieved by evacuation of the clot.

Pathological disruption of the normal capillary patterns results from abnormal accumulations of metabolic products when stimuli are continued in spite of poor local blood supply (worry); from chronic pain stimuli (toothache, sinusitis); from bacteriaemia of saprophytic organisms which lodge in cerebral capillaries (focal and intestinal sepsis—Pickworth, 1935); from haemorrhages, near-by necrotic foci, and tumours; and from head trauma (commotio cerebri). Pathological ischaemia occurs by reason of spasm, oedema, diapedesis, capillary haemorrhages, emboli, or thromboses—commonly found in brains from mental hospital cases. A limitation of blood flow to large areas is imposed by atherosclerotic lesions, aseptic meningitis, tumours, chronic subdural haemorrhages, and cardiac decompensation; while hyaline degeneration in the vessels, perivascular cuffing, and intimal thickenings reduce local respiratory exchange.

illustrate these immediate post-operative changes as they occur in one plane. Fig. 1 (Special Plate) is reproduced from a radiograph which was taken immediately after the aspiration of six pints of pus from the left side of the chest and the injection of a little air in order to demonstrate the level of the fluid.

Choice of Drainage Point

The line of inflammation at the union of the visceral and parietal walls of the cavity may be called the healing edge. If this line be considered as a circle, then, it might be supposed that healing would occur centripetally at an equal rate at all points of the circumference and that the ideal position of the drainage opening would be at the centre. In practice the line of union is usually irregular, but an accurate appreciation of the shape of the cavity before operation is nevertheless a guide to the choice of the point for drainage, which is most nearly equidistant from all the parts of the healing edge. The simple conception of an empyema of circular shape healing centripetally is a useful one in so far as it emphasizes the difference between the healing of an empyema and that of a simple abscess in the cellular tissues. It is, however, inaccurate in detail for a number of reasons. First, as stated above, the outline of an empyema is seldom circular; secondly, healing does not take place in a flat plane as on a sheet of paper but along the curved plane of the chest wall; and, thirdly, because inequalities in the elasticity of the walls make the rate of healing vary at different points. The second and third of these reasons require further elaboration. If the chest wall were quite rigid and the lung perfectly expansile, healing would occur along the curved plane of the chest and there would be complete re-expansion of the lung without any collapse of the chest. This end can be attained in the treatment of acute empyema if the chest wall is prevented from collapsing by the proper exercise of muscular control. All the walls of a chronic empyema may be equally rigid owing to the dense lining of fibrous tissue, and if such a cavity can be made to heal by simple drainage it may happen that the chest wall will collapse to meet the lung as much as the lung expands to meet the chest. In these circumstances healing may occur in a flat plane. If the walls of a chronic cavity are so rigid that obliteration is impossible after simple drainage, then the chest wall must be mobilized, and healing occurs along the plane of the rigid collapsed lung.

The third consideration is closely bound up in the principle of the second. Inequalities in the rate of healing at different points depend mainly on differences of elasticity, and these may be in either the parietal or the visceral wall. In the parietal wall the ribs and intercostal structures, the diaphragm, spine, and mediastinum may all be involved, and the rate of healing along these walls varies with their relative extensibility. Thus healing between lung and mediastinum is rapid compared with that between lung and chest wall. Differences also occur in the extensibility of the lung in different parts, and this is particularly well demonstrated in empyemata secondary to streptococcal pneumonia. In this disease the inflammation is primarily in the interstitial tissue of the lung, resolution is often incomplete, and scar tissue is formed. This may vary in extent in different parts of the lung, and therefore the ability of the lung to expand varies accordingly. It is sometimes seen that the most extensive scarring has occurred in the interlobar septum, and this

layer of fibrous tissue acts as a rigid band between the hilum and the periphery of the lung, preventing expansion. Fig. 2 (Special Plate) is a radiograph of such a case, in which a streptococcal empyema occurred as a result of post-operative inflammation of the right lung. It was drained through an opening about an inch above the lower part of the cavity and half-way between its anterior and posterior extremities. Healing was delayed in the region of the interlobar septum, so that the drainage track ultimately became almost vertical, leading from the original opening below to the end of the thickened, scarred interlobar septum above. The illustration shows the track injected with lipiodol. It also shows the dense interlobar septum extending from the hilum out to the small residual empyema space at the periphery.

Classification of Acute Empyemata

The classification of acute empyemata into the sym-pneumonic and the post-pneumonic, and the general recognition of the significance of these types from the point of view of treatment, have done very much to reduce the immediate mortality from operation, but now that this lesson has been learnt a classification should be considered which would help to reduce the incidence of chronic empyema with its associated morbidity and mortality. To this end two groups, simple and complicated, are suggested. The simple empyema is one in which no permanent structural alteration has taken place within the lung tissue, and where, with adequate drainage, the lung expands completely to fill the chest with no deformity of the parietes. Such an empyema should always heal without difficulty, and if it becomes chronic this can only be as a result of inefficient drainage. The complicated empyema is one in which structural damage has occurred in the lung to such an extent that complete re-expansion is impossible, and in those circumstances not only will there be delay in healing but this will occur partly at the expense of the parietes. The factor that interferes with expansion may be an acute process such as a streptococcal pneumonia or, rarely, a more chronic one such as an underlying carcinoma. Strangely enough, the existence of bronchiectasis, though undoubtedly a cause of slow healing, is not so inimical to complete cure as might be supposed, and the reason for this is not far to seek. When an empyema develops in a patient with bronchiectasis the accumulation of pus in the pleura takes place at the expense of the healthy easily compressible lung tissue rather than the hard fibrosed part. The latter remains more or less stationary during healing, and obliteration of the cavity occurs as the result of re-expansion of the compressed healthy tissue. The healing of a simple basal empyema is usually associated with slight elevation of the diaphragm and obliteration of the costo-phrenic sinus. This is strictly a change in the parietal wall, and would be of no clinical significance if it were not for the fact that drainage tubes are sometimes inserted into the costo-phrenic sinus and that inefficient drainage almost invariably results.

The placing of a particular empyema into one or other of the two classes depends on the detailed clinical history of the case and the bacteriological examination of the pleural fluid. The most significant point in the history is the relation of the febrile attack to the pleuritic pain. In general it may be said that if the pleuritic pain occurs at the beginning of the illness the empyema is likely to be a simple one. The commonest inflammatory disease which does not cause permanent structural damage to the

(1937) gave daily doses of ergotamine tartrate, which they found diminished suicidal, homicidal, and destructive activity (Linderman observed the converse with adrenaline injections—namely, that patients became more subjective and introspective). Such treatments offer great individual and economic hopefulness, provided sufficient further scientific study of their relation to cerebral capillary function is made to render them scientific instead of empirical: in this direction the work of the Harvard Medical School, Boston, is to be highly commended.

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It is announced that one of the main subjects for discussion at the International Congress on Rheumatism now being organized to take place in Oxford in March is juvenile rheumatism. The views of experts from other lands on this serious malady will be of great interest, and meanwhile there is available Professor H. B. Cushing's recent Blackader Lecture (*Canad. med. Ass. J.*, 1937, 37, 311) on this disease as it occurs among Canadian children. He places acute rheumatism and cardiac disease in childhood as taking "first place as a threatened danger to normal childhood and adolescence in this country," basing this upon figures which indicate that about 25,000 school children in Canada are afflicted with rheumatic cardiac disease. Professor Cushing reviews the possible means of attack upon this malady and describes the interesting results obtained at the Children's Memorial Hospital, Montreal, where for the past three years children with rheumatic cardiac disease have been treated in a special pavilion very much on the same lines as patients with tuberculosis are treated. It is too soon in the experiment for any definite conclusions to be drawn, but the entire staff of the hospital is convinced that the results obtained are measurably an improvement on those seen before this step was taken. Professor Cushing pleads for organized co-operative effort to secure recognition, supervision, and after-care of all cases of rheumatic fever. He sees the need for the improvement of social conditions, particularly as regards general hygiene and housing conditions. Thirdly, he makes the point that since relapses of rheumatic fever follow regularly on infections of the respiratory tract and of the throat efforts should be made to lessen such infections and improve the hygiene of the mouth and the throat of the community.

THE HEALING OF EMPYEMA CAVITIES WITH SPECIAL REFERENCE TO ASPIRATION AND AIR REPLACEMENT AS AN AID TO OPERATION

BY

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(WITH SPECIAL PLATE)

Since the healing of empyema cavities has been investigated by repeated radiographs with lipiodol injection, it has been apparent on many occasions that the original drainage opening, though adequate at first, has during the course of re-expansion of the lung become unsatisfactory. Healing might often have been accelerated by better planning of the drainage opening. It seems that the exact shape and position of the cavity, and the way in which the lung will expand—things upon which the position of the opening must depend—are more difficult to assess than has been supposed. Ideally the drainage tube should pass perpendicularly through the chest into the empyema at a point in the wall which would normally be the last to heal. Although the attainment of this end—a matter of the greatest importance to successful treatment—might appear to be simple, it has in fact been found to present considerable difficulty. In order to place a drainage opening accurately it is necessary to understand the way in which the obliteration of a cavity normally takes place, the factors which govern this, and how they apply to the particular case under consideration.

Factors governing Healing

Healing of an empyema cavity must be distinguished from mere diminution in capacity. When pus is first removed there is in the acute case an immediate and notable diminution in the capacity of the empyema due to the return of the displaced mediastinum, re-expansion of the compressed lung, and elevation of the depressed diaphragm; but true healing is a comparatively slow

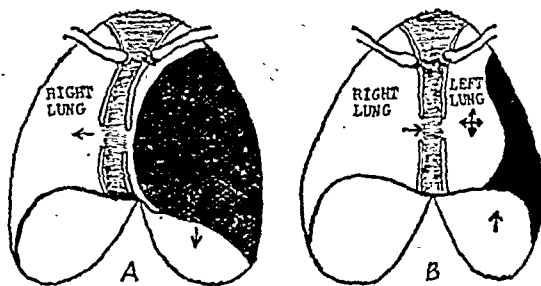


FIG. A.—Diagram showing mediastinal displacement, compression of left lung, and depression of diaphragm by a large empyema.

FIG. B.—The results of simple aspiration.

process, which depends upon the gradual and steady adhesion of the visceral and parietal walls of the empyema. The latter results from granulation-tissue formation and fibrosis all along the line of approximation of the two walls. If the pus removed from an empyema at operation is measured and the cavity immediately refilled with an antiseptic solution it is found that the amount of fluid required to fill the cavity is usually only a small fraction of the volume of pus originally present. It would be absurd, however, to suppose that to that extent healing had taken place. Figs. A and B

TUBERCULOSIS IN INFANTS

BY

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(WITH SPECIAL PLATE)

Differences of opinion exist regarding the prognosis of tuberculosis occurring in infants during the first year of life. Many authorities consider that there can be no recovery if the disease is contracted during this early age period. Others hold that recovery is rare. Some deny altogether the existence of infant tuberculosis. With the intention of throwing light on this subject a critical examination has been made of a series of seventy-eight cases of infants suffering from tuberculosis—cases which have been under treatment during the past four years in St. Ultan's Hospital. Of these patients sixty have died and eighteen have recovered, giving a mortality of 77 per cent.

Tuberculosis as it occurs in the infant is a special study, and differences between infantile, childhood, and adult types must be emphasized. The infant gets its infection from contact with a human being in close touch with it, usually the mother; in this case the infection is repeated and often massive. Abdominal tuberculosis is rare in the first year of life; when it occurs it is as often due to ingestion of dried tubercle bacilli from floor dust as to infected milk. The main condition, therefore, which we have to deal with is inhalation infection with primary involvement of the lung. The infant shows little resistance to tuberculous infection, partly because it cannot get away from the source and so have time to acquire immunity, and partly because its defence capabilities in general are low during these early months of life. Inherited immunity may be regarded as negligible so far as tuberculosis is concerned. The picture of infantile tuberculosis is that of a non-healed primary (Ghon) focus in the lung, and the greatest danger is that this will develop into acute miliary tuberculosis of the lung or into meningitis. Of the three stages of tuberculosis (primary complex, generalized haematogenous spread, and isolated bronchogenic phthisis) we find in infants the first stage, characterized by tremendous glandular enlargement, merging rapidly into the second stage, which in its turn is characterized by involvement of the meninges or of the lung by miliary spread. If a cavity is present in an infant it is due not to third-stage bronchogenic spread but to the breakdown of the primary focus, perifocal caseous pneumonia, and cavity formation at the site of the primary focus. Cavities, caseous and confluent caseous pneumonia, meningitis, and acute miliary tuberculosis are all fatal under the age of 1 year. Children up to 3 years old who are infected by the tubercle bacillus will show a somewhat similar but modified picture, and recovery during the primary stage is the rule rather than the exception. After the age of 3 infection becomes much less tempestuous, for the glandular defence is more successful in stopping fatal blood-stream spread; in spite of the danger of involvement of bone, joint, eye, kidney, etc., the primary complex heals in many cases without metastases. In later childhood, in addition to secondary metastases, the adult type of phthisis may be seen.

It may be asked how we knew that these seventy-eight infants were suffering from tuberculosis and not from "marasmus." It is generally accepted that a positive

tuberculin skin test in an infant indicates an active lesion. Secondly, sixteen consecutive necropsies performed at the outset of the investigation provided a criterion for the interpretation of radiographs in subsequent cases. Thirdly, a history of contact in the home was forthcoming in 70 per cent. of cases.

Analysis of the Fatal Cases

Of the sixty patients who died twenty-three were infected before they were 6 months old. The sexes were evenly divided. The following conditions were involved:

Pulmonary Tuberculosis (22 cases; 5 necropsies).—In these there was no attempt at healing in the primary focus. Localized caseous pneumonia and occasionally cavitation were observed. Duration two to three months. Broken-down primary focus.

Miliary Lungs (18 cases; 5 necropsies).—Including millet-seed acute miliary and confluent caseous pneumonia affecting both lungs; abdominal organs frequently involved. Primary focus indiscernible. Duration two to three months. Second stage, haematogenous spread.

Tuberculous Meningitis (17 cases; 4 necropsies).—All following a pulmonary lung infection: primary focus seen in fourteen cases by radiography (three were not radiographed, but one was seen post mortem). Duration one to two weeks. Second stage, blood-stream infection.

Abdominal (2 cases; 1 necropsy).—One secondary to localized lung lesion (swallowed sputum). One with lungs free, fed on milk of one tuberculin-tested cow; mother had open phthisis; ingestion from floor-dust.

Congenital Tuberculosis (1 case; 1 necropsy).—Primary focus in the liver; entry via the umbilical vein from placenta of phthisical mother.

Table showing Site of Primary Focus

Zone	Deaths		Recoveries
	Pulmonary Tuberculosis	Meningitis	Primary Tuberculosis
Right upper ..	12	3	7
Right lower ..	5	2	5
Left upper ..	4	8	3
Left lower ..	1	0	0
Glands only seen	0	2	3

Table showing Contacts of Cases

	Deaths	Recoveries
Mother	19	9
Father	9	4
Uncle, aunt, brother, etc. ..	9	5
Not elicited	23	—

Fifty-seven deaths, then, occurred from inhalation infection, either with caseous pneumonia due to non-healing of the primary focus or in the stage of haematogenous dissemination. All these infants were seen only after the first stage had passed, with the exception of two who were admitted in the primary stage but in whom the focus broke down during an intercurrent infection (whooping-cough and Vincent's angina). A few days after admission it was possible to give a hopeless prognosis to the parents of fifty-five of these patients. By the comparison of post-mortem and x-ray findings data were provided for earlier diagnosis of tuberculosis of the lungs, and it was recognized that any hope of effecting a cure depended on diagnosis during the primary stage, before caseous pneumonia or blood-stream dissemination had set in. It is essential that healing of the primary focus be ensured; for in the

lung is pneumococcal pneumonia, and this is most often the cause of simple empyema. If, however, a febrile attack is the initial disturbance, followed after some interval by pleuritic pain, the empyema is likely to be a complicated one. Streptococcal pneumonia, and pneumonitis secondary to lung abscess and bronchial block, start in the depths of the lung tissue and spread outwards to the pleura by the interstitial lymphatics, so that pleurisy occurs at a later stage of the illness.

Treatment

With regard to the treatment of the two varieties of empyema, it may be said that in no case does preliminary

radiographs of the chest are taken in the upright position, in antero-posterior and lateral planes, sometimes one or other oblique plane, and occasionally in the prone position. From these films the best point for drainage is chosen according to the principles advanced above. The method of drainage, open or closed, is not considered to be of any importance so long as the tube is large enough and in the right place. A portion of rib is always resected. The above procedure has no influence whatever on the ultimate choice of treatment in a particular case; some are still treated by aspiration alone and some by aspiration followed by drainage, and the rules for the choice of the appropriate method are sufficiently well established to be omitted here.

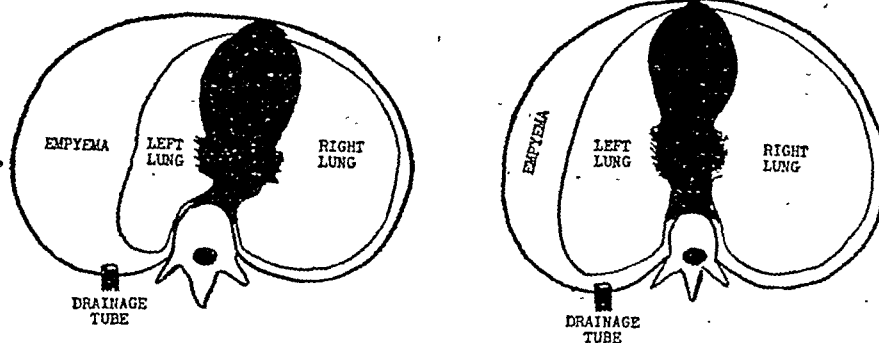


FIG. C.—Diagrams showing immediate expansion of lung, rendering drainage tube ineffective.

aspiration do harm, and that in every case this simple operation relieves the patient and at the same time gives valuable information to the operator. It must be admitted that where a cavity is filled with large masses of fibrinous clot aspiration is not always possible, but the routine attempt at the above procedure has been found to diminish the number of cases requiring secondary drainage operations.

It has already been mentioned that relief of pressure in an empyema is associated with immediate anatomical adjustments within the chest, and it is obvious that these changes must result in an alteration of the shape of the empyema cavity. When empyemata have been drained without previous aspiration it has sometimes been found that these adjustments result in the lung coming up flat against the end of the tube and so interfering with the drainage of a relatively deep space. This is depicted in Fig. C. Before the point of drainage is decided, therefore, it is an advantage to allow these immediate adjustments to be made by the aspiration of as much of the pus as possible, followed by radiological examination in two or more planes.

From every point of view it is desirable, before operation, to know these details: the shape, position, and size of a cavity after the relief of pressure within it; the composition of the parietal wall; and such information about the way in which the empyema will heal as may be deduced from consideration of its nature and the elasticity of its walls. To this end it has become the practice in the treatment of these cases to aspirate through a wide-bore cannula, where possible, as much of the pus as can be removed, and then, by leaving the cannula in position while detaching it from the suction apparatus, to allow a little air to be drawn into the cavity by the patient's own respiratory effort. The presence of air in an empyema cavity is not harmful in any way, but by creating a fluid level it makes accurate radiological examination of the cavity possible. Following aspiration,

Summary

1. The way in which an empyema heals is discussed and the factors governing this are indicated.
2. The best position for the drainage tube is shown to depend on the immediate anatomical adjustments following the relief of pressure in the empyema, and on the factors influencing the way in which gradual obliteration of the cavity takes place.
3. Knowledge of these things may be gained by the routine pre-operative aspiration of pus and partial air replacement followed by radiological examination in various planes.
4. The position of the drainage opening is of the greatest importance if chronic cavities and secondary drainage operations are to be avoided.

The Cicely Northcote Trust was bequeathed to St. Thomas's Hospital twenty-eight years ago with the object of extending almoners' work into the wards, and making a comprehensive medico-social service for in-patients and their families before admission, while in hospital, after discharge, and in certain cases until death. The report of work done between October, 1936, and October, 1937, has recently been issued, and as in previous years contains numerous examples of the great value of the undertaking alike to patients and medical practitioners. The "follow-up" activities sometimes secure adequate nursing for in-patients who could not otherwise obtain it after discharge. Latterly, it is mentioned, there has been a closer linking in cases of malignant disease between the social and the medical follow-up work, especially for patients who have been treated with radium. Records of each case are kept, and prove to have statistical as well as clinical value. The scope of the work seems likely to extend, and further financial help is desirable. The Trust almoners are required to interview all patients admitted to the wards to discuss whether any contribution can be made towards the cost of treatment, or whether assistance is actually necessary to ease home difficulties.

hospital treatment, may result in cure even in such apparently dangerous cases (Plate, Fig. 2). Prognosis depends entirely on the stage at which diagnosis is arrived at, and thus every effort must be made to search out these cases and to recognize at a very early date the fact that they have been infected. The primary infection will show no clinical signs typical of the condition, and diagnosis can only be made on the grounds already mentioned.

Treatment

First and mainly treatment consists in removal of infants from all possible tuberculous contact. They should not be put in sanatoria where there are cases of open phthisis. They should be taken to infant hospitals or preventoria, and the isolation must be maintained until healing is evidenced by calcification or by fibrosis. Calcification is the less usual end-result, because if infants have caseating foci there is nearly always a fatal termination. Fibrosis is the commoner end-result; and here in later radiographs nothing abnormal is seen, and the only proof of past infection is the serial radiographs and a positive tuberculin test. Healing is established in mild cases in six months, but other cases may take up to two years. The falling of the sedimentation rate to normal also indicates healing. The second essential of treatment is rest in bed. Movements in the cot have to be permitted, but exercise out of the cot must be postponed until serial radiographs and normal sedimentation rate and weight gain show that the lung is healed. Fresh air is essential throughout treatment, but infants must not be exposed beyond their limits of endurance, and throughout treatment they must be kept warm. Digestive disturbances must be attended to and a suitable diet rich in vitamins, with added calcium, must be given. Ultra-violet rays and strong sunshine are absolutely contraindicated in all pulmonary lesions in infants and children; however, in these climates outdoor shade in summer and exposure to sun in spring and autumn are safe. Temperature charts, the sedimentation rate, and radiographs all demonstrate how dangerous is sun-bathing to a small child with a pulmonary lesion, be this only in the primary stage. It will be found that casualties occurring during the primary stage of pulmonary tuberculosis will be among those infants whose parents are not convinced, and who do not allow this treatment to be carried on until complete healing has been ensured.

Summary

1. Seventy-eight cases of tuberculosis of the lungs are reported in infants under 1 year old: 23 per cent. recovered.

2. Healing can only be achieved by early diagnosis—that is, in the primary stage.

3. Early diagnosis can only be made by tuberculin skin test, radiography, and history of contact.

4. Treatment consists mainly in immediate removal from contact and in rest.

D. Bobeff (*Mscr. Kinderheilk.*, October 8, 1937) records the case of a Bulgarian girl, aged 10, who on the sixteenth day of a severe attack of faucial diphtheria, six days after the onset of palatal palsy, developed gangrene of both legs, most marked on the right side. The necropsy three days later showed thrombosis of the abdominal aorta, multiple infarcts in the left kidney, gangrene of both feet, and myocarditis. Bobeff has found only two other cases on record of occlusion of the abdominal aorta following diphtheria.

AN UNUSUAL TUBERCULOUS APPENDIX

BY

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AND

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(WITH SPECIAL PLATE)

Although tuberculosis of the appendix is not an uncommon disease it is still the exception for it to be mentioned in standard textbooks of medicine or surgery. It has been stated that from 1 to 3 per cent. of all appendices removed at operation are tuberculous. It is obvious that an investigation into this problem at a large hospital would entail an enormous increase in the microscopical work of the institution, and this might be regarded by the pathologists as out of proportion to its value. An investigation carried out by Pagel and Weichherz (1936) at Papworth Village Settlement, based on eighty-four necropsies on tuberculous subjects, showed that roughly one-third had no intestinal tuberculosis; another third had intestinal tuberculosis with no involvement of the appendix; the remaining third had involvement of both the intestine and the appendix. In three cases the appendix was the only part of the gut to be involved, and in each there was extensive tuberculosis in the lungs.

The appendix is almost always involved in ileo-caecal tuberculosis. It is generally recognized that tuberculosis may primarily involve the intestines, but it is not so certain that the appendix alone can be the site of tuberculosis. In view of the above remarks it requires some courage to suggest that the case described below is one of primary tuberculous appendicitis, successfully treated by operative removal, with the patient alive and perfectly well nearly two years later.

Case Record

On March 18, 1936, a marine engineer, aged 19 years, had a slight attack of abdominal pain lasting about an hour. It was so mild that the patient did not trouble to obtain medical attention, and in fact went on with his work. On March 23 he had a recurrence of the pain, and when seen by one of us (E. W.) was sent into a nursing home with the diagnosis of acute appendicitis. On admission the temperature was 104° and the pulse 90. There was very little rigidity but some tenderness in the right lower abdomen. On account of the comparative absence of rigidity it was possible to palpate a large tubular structure, about an inch in diameter, running from the right iliac fossa into the pelvis. It felt like an indurated coil of intestine or an intussusception. The patient and his mother were quite definite that he had never been ill before.

Operation.—This was carried out within three hours of the onset of symptoms by D. J. H., the anaesthetic being given by E. W. On opening the abdomen it was seen that the tumour was an enormously enlarged appendix, its peritoneal coat being dark red. It felt perfectly solid and hard, and there was no constriction at its junction with the caecum. After ligating its mesentery the appendix was removed intact and the raw area left on the caecum covered over by making use of the ileo-caecal fold of peritoneum. There was some induration of the wall of the caecum for about half an inch beyond the actual area to which the root of the appendix was attached, and if the tuberculous nature of the appendix had then been known this area would have been resected.

Subsequent Progress.—The patient made a rapid recovery, the temperature falling two degrees a day, and was normal on the third day. It is curious that the pulse never exceeded 90 at any time during the illness. The incision healed by

infant hypersensitivity is markedly disproportionate to the weak glandular defence. The invasion of the tubercle bacillus and the swamping nature of its course, unopposed in the infant, may lead to death within a few weeks of its first entry. Thus it would appear that all hope of cure depends on early recognition of the infection, followed by immediate removal of the infected infant from further contact. "Early" means before physical signs are established: to be on the safe side all doubtful cases should be treated as positive until the contrary is proved.

Analysis of Cases that Recovered

The eighteen patients who recovered were in the primary stage of pulmonary tuberculosis; eight were under 6 months old when first observed. All had definite radiological appearances, all had a history of family contact, and all were positive to the tuberculin skin test. Regarding the tests, twelve were positive to the percutaneous test, and the six who were negative to it proved positive to a second test—namely, a stronger dilution given intracutaneously. The position of the recovered cases to date is as follows: twelve are completely healed radiologically and are clinically well—two for a period of four years, four for three years, five for two years, one for one year; and four are still under observation but have been healed for six months. The remaining two are still in hospital after three months' treatment; their radiographs are now clear, they are gaining weight rapidly, and there is no reason to think that they will not heal completely.

Diagnosis

In these cases diagnosis was made on three grounds, and three grounds alone—namely, the tuberculin skin test, the chest skiagram, and contact history. Each case underwent repeated physical examinations, which provided no definite information; indeed, the results were often misleading. The conclusion at which I arrived was that the more one hears in an infant's chest the less likely it is to be due to tuberculosis. There is no cough as a rule, but pressure of glands on the trachea will sometimes produce a barking hoarse cough with an expiratory whoop which may be confused with pertussis. Some slight dullness on percussion and diminution of breath sounds on auscultation may be present if the infiltration is heavy, but otherwise the primary stage is silent. The later stages are also characterized by absence of physical signs. Vomiting (caused by swallowed sputum) and anaemia are sometimes present, and there is no increase in weight. Fever is usually absent.

The Tuberculin Skin Test.—This test is invaluable in detecting the primary stage. A weak dilution must always be tried first, as the infant may be hypersensitive to tuberculin. If negative the test should be repeated once a week, for the reason that an incubation period of six weeks from the entry of the bacillus must pass before the establishment of allergy, which is manifested by a positive test. The preliminary test in this series was by means of Hamburger's percutaneous ointment, which is equivalent in strength to a dilution of 1 in 1,000 intracutaneously. If this was negative, four days later 0.1 c.cm. of a 1 in 100 dilution Mantoux was injected intracutaneously. It is sometimes difficult to elicit a response in an infant under 6 months old. At times also it is not easy to get a positive response in tuberculous meningitis or advanced miliary tuberculosis, but the 1 in 100 Mantoux is usually successful.

Radiology.—The use of radiology is essential, but we must know what to look for in the film, and our inter-

pretation must be guided by the tuberculin test. We seek a primary focus in the lung field, an infiltration, and enlarged mediastinal glands. The primary focus may be concealed in the infiltration, and it is not easy to decide whether this is an infiltration of the primary stage or a caseous pneumonia; the prognosis is very different in the two. The glands involved may belong to the hilar or paratracheal groups, or both; the glands may be seen with the primary focus, or alone if the latter is small and invisible by x rays. Sometimes the glands do not appear as discrete entities, but as a ribbon shadow on either side of the trachea (Fig. 1 on Plate): in this case the shadow is caused by vessels which are displaced by glands; the error of taking the film during the phase of full expiration will give a false impression of a ribbon shadow. Transitory enlargement of hilar glands occurs in bronchitis and pneumonia, but a negative skin test and repeated radiographs will settle this point. Lateral views are useful in showing up the bifurcation glands. In infants one must not look for calcification, and healing by fibrosis will not produce the striation seen in adult films. The primary infiltration involves part or all of a lobe, or even a whole lung, in an infant. It may disappear in a short time, but it can remain for over two months. Its nature is that of a non-caseous exudation. The shadow seen in cases of epituberculosis lasts much longer than two months, and is, on the whole, somewhat denser, which is to be expected if this transitory tissue reaction, which is without caseous changes, is accompanied, as is often the case, by atelectasis due to occlusion of a bronchus by plugging or by compression. None of the above series showed epituberculosis clinically, radiologically, or at necropsy; the condition appears to occur more frequently during the second and third years, as well as in older children.

History of Contact.—It is most important, especially when a parent is involved, to obtain the contact history. This matter has been dealt with fully by Gregory Kayne in his exhaustive article "Tuberculosis in Home Contacts" (*British Medical Journal*, 1935, 1, 692). But chance infection also plays a part. A newborn twin in a maternity hospital was lent by the nurse to comfort a woman who was very ill and had lost her own baby. This baby, aged 16 days, was sent to our hospital as "delicate," and he died of miliary tuberculosis of the lungs when 6 months old; the other twin and the rest of the family were free from tuberculosis. In the accompanying contact table the twenty-three cases where no history was elicited were not investigated personally, so I cannot vouch for them as having no history; it may have been a remote one.

Prognosis

When the diagnosis is made in the primary stage prognosis is favourable provided that the infant is immediately removed from contact. Protection from intercurrent infection is also most important. The prognosis is fair when the primary infiltration is localized and the hilar glands only are involved: then the tuberculous process will probably heal, but if the baby is very young no certain prognosis can be given. The prognosis is much less favourable when the lung shows a widespread infiltration or when a caseous pneumonia is commencing, or if there is massive involvement of the paratracheal glands. Infection of the paratracheal glands rings a note of grave warning, for at any moment these glands may discharge their content of tubercle bacillus into the blood stream: this takes place via the thoracic duct, and leads to generalization and metastases. Nevertheless removal from contact, with

bodies of the sacral vertebrae until it is felt to recede at the lumbo-sacral angle being plainly impossible in all but a grossly contracted pelvis. The error of position of the fingers can be readily proved by attempting internal pelvimetry with radiological control, using a piece of lead in the glove tips of the index and middle fingers. The lead shadow will be seen to be well wide of the mark, even when the perineum is forcibly depressed.

The third factor is the rigidity of the perineum, and, as the type of case in which we most earnestly desire to measure the true conjugate is usually a primipara, this assumes major importance and demands an anaesthetic of reasonable depth, at least, for its removal.

Lastly, the measurement is likely to be of most use in those cases of minor contraction, and these are the very cases where, for the reasons above enumerated, it is most difficult or impossible to obtain.

Conclusion

The conclusion is that the clinical measurement of the true conjugate is either impossible to measure, or inaccurate when measured, in all but cases of severe pelvic contraction; that a genuine attempt to measure it demands in a primipara a full anaesthetic; that the location of the sacral promontory requires practice and skill and is valueless unless performed by one well versed in pelvic examination; and that the measurement, when truthfully obtained, is open to considerable experimental error, in addition to errors due to the particular anatomy of a given patient, such as the depth and inclination of the symphysis.

WHY "POST-ANAESTHETIC" PULMONARY COMPLICATIONS?

BY

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That the great majority of "post-anaesthetic" pneumonias are "post-anaesthetic" in time relation only is no longer open to doubt. Inhalation anaesthesia does not predispose to pneumonia unless there is pre-existing lung disease. The typical post-anaesthetic pneumonia is the result of many minute pulmonary emboli from the operation site, and so is slightly commoner after local than after general anaesthesia. Its most important causes are trauma, mobility of the affected part, and sepsis (Cutler and Hunt, 1922). The control of "post-anaesthetic" pneumonia is thus mainly in the hands of the surgeon, not the anaesthetist. The term is therefore deplorable, because it diverts attention from the real causes and possibly suggests negligence on the part of the anaesthetist.

Aspiration of Foreign Matter in the Trachea

Very interesting observations on the ease with which matter such as blood and mucus enter the trachea have been made by M. C. Myerson (1922); he demonstrated it in 76 per cent. of patients who had had a tonsillectomy under light general anaesthesia, a cough reflex being present. Ochsner and Nesbit (1927) made an even more striking demonstration by placing lipiodol in the mouth of patients who had local anaesthesia of the tonsillar region. Radiographs taken later showed that lipiodol had

passed into the lungs in every case. The same thing happens readily in patients who have pharyngeal anaesthesia as a result of disease.

AN ILLUSTRATIVE CASE

Recently I made a necropsy on the body of a woman of 65 who drowned as a result of taking a cup of tonic (sanatogen) directly into the trachea. A small amount of fluid had entered her trachea on many previous occasions; she was known to have a syphilitic paralysis of the palate. Her body was slightly wasted and cyanosed; the blood was dark and fluid; she had a syphilitic aortitis and aortic regurgitation. There was no obvious pre-existing lung disease. The bronchi were filled with a whitish frothy emulsion, which was not readily distinguishable from pus by the naked eye. Microscopically its nature was clear, but a considerable amount of the sanatogen had been taken up by phagocytic cells. Routine sections showed no bronchopneumonia. There was no post-mortem evidence of the many small amounts of foreign matter which had entered her trachea on previous occasions.

It therefore seems certain that the cough reflex fails as a mechanism of expulsion under light anaesthesia; also that blood and mucus do not appear able to provoke pneumonia by themselves. It is not suggested that foreign matter can enter the lungs with impunity, for that is obviously not so. A typical example of this was a woman of 46 who was rescued from a suicidal attempt in a canal recently. She was resuscitated fairly easily, and was hysterical when admitted to the Derbyshire Royal Infirmary. For some hours she made good progress, but pulmonary oedema developed and she died about thirty hours after jumping into the canal. At necropsy I found a simple acute inflammation of the larynx and trachea, generalized pulmonary oedema, patches of red hepatization indicating early bronchopneumonia, no evidence of pre-existing lung disease, and a normal heart. In this case the cause is clear: it was neither "post-anaesthetic" nor due to embolism. Such cases are not rare, and they serve to emphasize the danger of regarding complacently the blood and mucus which enter the trachea far more readily than most of us realize.

General Anaesthesia as a Cause of Lung Abscess

The role of general anaesthesia in the aetiology of lung abscesses after tonsillectomy has been variously estimated. The usual belief is that the condition is commonest after open general anaesthesia and rare after intratracheal ether or other types of general anaesthetic in which special care is taken to prevent foreign matter entering the trachea. The average incidence is probably 1 in 2,500 tonsillectomies (Moore, 1922), but figures vary from 1 in 358 (Glowacki, 1923) to 0 in 20,000 (Lyman, 1923). A. L. Lockwood (1923) found that out of 208 lung abscesses 201 followed general anaesthesia. M. Manges (1916) noted that lung abscesses were commoner after operations with the patient upright. J. Maxwell (1934), in an exhaustive study, however, finds that the main association is sepsis in the operation field, and favours an embolic origin: such a view frees the anaesthetic from both direct and indirect blame. He also notes that lung abscesses are commoner after tonsillectomy than after dental operations. I have recently made two necropsies which throw some light on the problem.

TWO ILLUSTRATIVE CASES

Case 1.—An emaciated boy of 4 years had a lower left molar tooth removed on October 2. An abscess about five days old was present. The anaesthetic used was an ethyl chloride spray, and the boy did not lose consciousness. He

first intention and the patient went home on April 8, a fortnight after the operation. He has been seen and examined several times since. In February, 1937, he served as second engineer on a trip to the East, and returned in June. He was then carefully examined by us, but nothing abnormal could be found in the chest or abdomen. In fact he felt and looked perfectly well.

The Specimen.—Before hardening in formalin this was six inches long and one inch in diameter, and slightly curved. It was quite solid and hard, with a small black spot representing the original lumen. The cross-section at the root was greyish pink, with no evidence of necrosis or suppuration—in fact, the only sign of inflammation was in the peritoneal coat, which was dark red. The specimen, which has been placed in the museum of the Royal College of Surgeons, is now smaller and the colour of the peritoneum has faded. Fig. 1 (see Plate) shows the size and shape after hardening and mounting. Fig. 2 gives the microscopical appearance of a section taken from the cut surface at the root. A few giant cells can be seen in a mass of lymphoid tissue. The various layers normally found in the wall of the appendix have been completely replaced by tuberculous tissue, the peritoneum alone having survived.

Comments

It is unnecessary to state that the exact nature of the change in the organ was not realized until the microscopical slides were examined. The specimen was unlike any appendix we had seen previously. It is obvious that the disease must have started months, if not years, before it was discovered. The absence of symptoms until within three hours of operation allowed us to remove the specimen before it had been damaged by inflammatory processes. We are of the opinion that the acute symptoms were caused by interference with the blood supply, as there was no visible lumen which could have been infected. At the operation the other abdominal organs were looked at in the ordinary way, but nothing abnormal was found. It must be admitted that small tuberculous lesions were not specially sought, as the diagnosis of tuberculosis had not then been suspected. But in view of the subsequent history of the patient it is reasonable to assume that there could not have been any well-developed tuberculous changes in the intestines or lungs. He returned to work in a few weeks, and has since enjoyed perfect health.

We are indebted to Mr. W. J. Salter, technician to Llandough Hospital, for the photographs.

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La Migraine Ophthalmique, by Drs. G. Renard and A. P. Mekdjian (the publishers are Masson of Paris and the price is 22 francs) gives a convenient summary of what is known of migraine, well set out under carefully designed subheadings. No unifying conception emerges, the authors stressing the multiplicity of associated disturbances, and dealing in particular with the allergic basis of the affection. One point of interest which they bring out is the disturbance in blood pressure, which they studied both from the general aspect and by ophthalmodynamometry of the retinal vessels. In general they found a tendency to hypotension during the attacks. Their thesis is illustrated by some case reports. They argue that hypotension can be taken as a diagnostic feature distinguishing true migraine from the transient blotting out of vision seen in elderly people with hypertension. They regard migraine as a condition which, though distinct from epilepsy, has in common with it the fact that there is a widespread, though ill-defined, underlying general departure from the normal, both psychological and somatic.

PELVIMETRY AND THE TRUE CONJUGATE

BY

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Every obstetrician must from time to time have been asked to see ante-natal cases in which a practitioner or midwife has felt on vaginal examination the sacral promontory; and there must be a number of women who are, because of this genuine misconception, submitted to unnecessary obstetric operations, with a diagnosis of gross pelvic contraction.

While not decrying the academic importance of attempting to measure the true conjugate clinically, it is the purpose of this brief communication to draw attention to the extreme rarity with which the sacral promontory can be palpated per vaginam; and my excuse for burdening an already adequate literature is that in the course of the last twelve months' ante-natal work three cases have been referred to the Middlesex Hospital Ante-natal Clinic labelled with such a phrase as: "Sacral promontory felt per vaginam: ? Caesarean section for pelvic contraction." All three were subsequently delivered by the natural passages. The only explanation that answers this fallacy is that the "sacral promontory" is in reality one of the lower bodies of the sacral vertebrae.

Three Factors to be Considered

Whether or no the sacral promontory is palpable depends on three factors: first, the length of the true conjugate; secondly, the effective length of the examining finger; and, thirdly, the rigidity of the vaginal introitus, which largely depends on the co-operative relaxation of the patient and her parity.

The anatomical true conjugate on the average female dry bony pelvis measures between 4.25 and 4.5 inches: the distance of the point behind the symphysis, from which the true conjugate is measured, to the subpubic angle is 1 inch on the bone, and must be nearly 50 per cent. greater than this when measured to the anterior lip of the vaginal introitus, in order to take into consideration the triangular ligament and its associated superficial small muscles and soft structures. This latter is greatest in the primipara and least in the multipara, for obvious reasons. Applying the well-known principles of geometry, the total effective length of an examining finger must be roughly 4.75 inches to feel the promontory in a normal pelvis.

The effective length of the examining finger, assuming that the index and middle fingers are used together, varies slightly with different surgeons, but surprisingly little. The determining factor here is largely the resistance encountered by the ring finger knuckle against the perineum, and to increase this useful length the perineum must be pushed upwards and backwards. Discounting this last factor, the uncompensated effective length of one's fingers is about three and a half inches. In a normal pelvis, therefore, with a true conjugate of 4.5 inches, the finger must be lengthened by depressing the perineum at least 1.25 inches before the promontory is reached, or, conversely, the pelvis must be foreshortened down to a true conjugate of 3.5 inches before the tip of the middle finger is likely to meet the posterior bony landmark. The exact location of the promontory is, moreover, a matter of difficulty, the manœuvre of sliding the finger up the

fairly steady but there was a gradual increase in myeloblasts. The clotting time was 7.5 minutes (normal 5 minutes), and the bleeding time 14 minutes (normal 1-3 minutes). Albumin was occasionally present in the urine, and the excretion of uric acid was increased from 40 mg. to 59 mg. per 100 c.cm. Films prepared from material obtained by sternal puncture showed eosinophil and neutrophil polymorphs and myelocytes, but the most prolific cell seen was about twice the size of a red cell, with a large, rounded, pale nucleus and non-granular cytoplasm. Repeated stereoscopic radiographs of the skull showed no periosteal reaction in the affected orbit, even when the tumour had attained considerable size. Films of the thorax revealed no bony changes in the ribs or sternum, and the lung fields were clear apart from slight increase in the bronchial markings.

TREATMENT

Treatment was undertaken in a spirit of pessimism. In view of the blood count the patient was given weekly injections of 3 c.cm. of Lilly's liver extract (conc.), and a mixture of ferri et ammon. cit. 20 grains with liq. arsenic. 3 minims, three times daily. It was thought that copper might be a helpful medicament both for its synergic action with iron in influencing the anaemia and also for its supposed anti-malignant effect. The patient was therefore given 3 c.cm. of Crookes's collosol cuprum intramuscularly three times in the first week and thereafter once weekly.

On September 24, as the haemoglobin had dropped to 15 per cent. and the patient's general condition was critical, she was given a transfusion of 1,000 c.cm. of whole blood, and there was a rapid general improvement. The next day the spleen was palpable for the only time during the illness. On October 23 x-ray therapy was commenced, directed to the orbital tumour. The radiologists give the following details: 300 r daily for five days; factors, 200 kV 8 mA, filter 1 mm. Cu plus 1 mm. Al; focal skin distance, 50 cm.; field, directly over orbit, 7.5 cm., round cone. Although the orbital tumour decreased in size the patient's general condition gradually deteriorated, and she died on November 1.

POST-MORTEM EXAMINATION

The pericardial sac contained fluid in the form of greenish foam. The endocardium showed a thrush-breast appearance. The spleen measured 8 in. by 4 in. and was normal in appearance. The kidneys measured 6 in. by 3 in. and exhibited dark macular areas. The ovaries were normal in size but bright green throughout. There was free fluid in the peritoneal cavity, and there were very numerous enlarged mesenteric glands; the liver surface showed small green areas, and on section a typical nutmeg effect was seen. The pancreas showed numerous green areas. The brain was normal, but there was considerable extradural and intradural fluid. The adrenals appeared normal. The orbital tumour was a green mass, about the same size as the eyeball, and was attached to the bone. The whole of the posterior surface of the sternum was covered by a thick mass of green tissue.

Pathologist's Report

I am much indebted to Dr. F. B. Smith of Preston for the following detailed report:

NAKED-EYE APPEARANCES

1. *Eyeball*.—With all contents of socket. At one side is a thick disk of green tumour $1\frac{1}{2}$ by $1\frac{1}{2}$ by $\frac{1}{2}$ in. with fragments of bone adherent to its outer surface. Consistence of tumour even and elastic, like that of the sternum.

2. *Sternum and Rib Cartilage*.—Whole of posterior surface of sternum covered by flat yellow-green tumour, of uniform consistence, rubbery, and a quarter of an inch thick: smooth even surface. Extends slightly into the rib cartilages. There is a similar but smaller flat tumour over the lower half of the front of the sternum. The periosteum is part of the "neoplasm," which strips smoothly off the bone.

3. *Piece of Heart Muscle*.—Shows a few petechiae on the outer surface.

4. *Piece of Liver*.—1 by 1 by $1\frac{1}{2}$ in. Pale brown with distinctive yellow mottling.

5. *Wedge of Spleen*.

6. *Piece of Kidney*.—Transverse slice of one-half of a kidney half to one inch thick, capsule absent: surface slightly nodular, some elevations red, others yellow-green.

7. *Slice of Pancreas*.—Shows small green patches.

8. *Appendix*.—Four inches long, normal external appearance.

9. *Ovarian Cyst*.—Opened. Flat diameter $1\frac{1}{2}$ inches. Inner lining pea-green, and patches of the same colour on the outer surface.

10. *Mesentery*.—Contains one calcified gland and many small glands. Faint green colour in patches in the connective tissue but not in the glands.

11. *Chain of Abdominal Glands*.—Marked hyperaemia and bright green colour of all surrounding connective tissue.

12. *Shaft of Femur: (1) Split, (2) Unsplit*.—Six inches. Marrow uniformly red. The sawdust is distinctly green.

HISTOLOGICAL NOTES

1. *Orbital Tumour*.—The sample contains a large lobule of lachrymal gland, embedded in fibrocellular and fatty tissue. The "tumour" has a fairly rich supply of blood capillaries. There is cellular infiltration of the fibroblastic tissue, mainly diffuse, evenly distributed, but with isolated closely packed columns of cells between fibrils of stroma. The cells are of widely varying shape but uniform size of about 10 to 15 microns: spherical or polygonal, with more nuclear substance than cytoplasm. The cytoplasm is non-granular when stained with haemalum and eosin. The nuclei vary widely in shape, being spherical, elongated, and slightly folded, or bilobed, or double: the nuclei are hyperchromatic and show coarse granules and strands of chromatin. Nucleoli are not seen. The design under the low power is diffuse fibrosis, with moderate and diffuse infiltration by cells indicated. These cells invade freely the interacinar stroma of the lachrymal gland.

Orbital Plate.—Attached to the outer surface of the orbital tumour is a thin plate of bone. This, after decalcifying, shows cellular design and features the same as the above, though fibrosis is greater and bony trabeculae are thin and widely spaced.

2. *Sternal Tumour*.—This is a densely cellular lesion—a closely packed mass of infiltrating "chloroma" cells, compressed between a thin superficial capsule and the bone surface. Stroma is scanty, but is visible between layers of cells only one cell thick. The periosteum is only recognizable by detached flakes of bone. In capillaries is a dense aggregation of undistorted cells, resembling those seen in films of the blood taken before death. Fresh films of sternum tissue stained for oxidase by the Goodpasture technique show a considerable proportion of large mononuclear cells giving a positive reaction.

3. *Heart Muscle*.—Many capillaries are packed with "chloroma" cells, which also are thinly scattered in inter-fibrillary spaces, with a few small perivascular aggregations.

4. *Liver*.—Gross fatty change, with survival of thin bands of parenchyma in the periphery of lobules. Widespread permeation of sinuses and perivascular portal sheaths with "chloroma" cells.

5. *Spleen*.—General design preserved: for example, Malpighian nodes are prominent, numerous, and of normal cellular structure; but the pulp is densely packed with "chloroma" cells.

died nine days later. There was a foul osteomyelitis of the left side of the jaw, pus from which extended into the cellular tissues of the neck, but no mediastinitis was found. The lower lobes of both lungs were almost completely solid from a very large number of small abscesses. In the left upper lobe there was a broken-down abscess three-quarters of an inch in diameter, which may have been older than the others. The pus in all the abscesses was very foul. No tooth-fragment could be found though a careful search was made, and this would have been a relatively easy case in which to discover it had it been present. The heart and other organs were normal. It appeared clear from the distribution that these abscesses were the result of inhaled septic matter. It is possible that the basal abscesses were secondary to the one in the left upper lobe, but the history does not support that suggestion. It is difficult to imagine an anaesthetic less likely to favour inhalation of septic matter than a brief ethyl chloride spray. The boy was reasonably well for several days, and then his mouth began filling up with pus, which was very offensive, but which he could not be persuaded to spit out. He almost continually had his mouth full of it, and so there must have been many occasions on which it entered his trachea. The dentist and the anaesthetic were naturally exonerated in this case.

Case 2.—On May 1 I made a necropsy on the body of an elderly woman. A tooth fragment was found in the middle of the right lower lobe of the lung. There was no surrounding abscess, but a diffuse acute pulmonary oedema was present, with blood-stained froth in the trachea and bronchi. This had presumably been caused by the irritation of the tooth, for the heart was normal. She had, however, a rather severe chronic nephritis. In this case the coroner also exonerated the dentist and anaesthetic—there had not been either. The patient had suffered with bad teeth for some years, and parts were frequently breaking off (this was learned after the necropsy). She had resolutely refused to go to a dentist because she was frightened. Her husband left her in apparently good health, and when he returned two hours later she was lying dead on the kitchen floor. The cause of her death was a mystery until the necropsy was made. The tooth fragment was not an embolus, of course; and these two cases show the ease with which foreign matter can enter the trachea in the complete absence of anaesthesia.

Summary

1. General anaesthesia by itself is of very little importance in the aetiology of post-operative lung complications.
2. Aspiration of foreign matter into the trachea and bronchi occurs with surprising ease and frequency.
3. Lung complications have been reduced by attention to the causes of embolism (operative trauma, mobility of the affected part, and sepsis) and great care in preventing the aspiration of foreign matter into the trachea.
4. It is probable that embolism and aspiration are both important causes of post-operative lung lesions and that neither alone can explain all cases.

I am indebted to the coroner for Derby, Captain T. H. Bishop, O.B.E., for permission to publish notes on the necropsies recorded, all of which were made on his instructions.

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CHLOROMA

A CASE HISTORY AND POST-MORTEM FINDINGS

BY

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Chloroma is a disease of particular interest, not only on account of its rarity but also because of its somewhat dramatic clinical course and the fact that it is considered to occupy a position intermediate between the leukaemias on the one hand and neoplasms of the marrow on the other hand. The number of authenticated cases reported in medical literature is small. Roehm, Riker, and Olsen (1937) state that up to the end of 1936 they amounted to only 194, and this figure is probably accurate, since the majority of cases presenting such a severe clinical syndrome as is characteristic of chloroma would, at some phase of the disease, be under hospital supervision and the diagnosis recorded. All these cases proved fatal with the exception of two, in which recovery is said to have occurred following operative removal of the primary tumour.

The aetiology remains obscure. There is a tumour-like hyperplasia, probably of the leucocyte parent cells, occurring primarily in the red marrow. Authorities differ as to whether the tumour cells should be considered myelocytic or lymphocytic: most cases appear to belong to the former category. In the present case the cells in the marrow and substernal tumour showed the presence of oxidase granules when stained by the Goodpasture technique, but they also showed the presence of a dense nuclear membrane which is not typical of the myeloblast. Roehm, Riker, and Olsen report a case in which the cells were too primitive to be labelled either myelocytic or lymphocytic.

Case Record

A girl aged 17, a laundress, was admitted to hospital on September 11, 1937, suffering from general weakness and protrusion of the left eyeball. Ten weeks previously she had had an attack of vomiting lasting three days and pains of neuralgic type in the left side of the face. She was becoming pallid, was easily tired, and developed diplopia.

Clinical Examination.—The patient was grossly anaemic but well nourished, with no jaundice or oedema; the left eyeball showed well-marked exophthalmos, being also dislocated downwards and outwards. The temperature was 100.5° F. The heart rate averaged 115 to 125; the apex beat was displaced half an inch to the left; and the first sound was reduplicated and accompanied by a short mitral bruit. Examination of the lungs revealed no anomaly except unduly harsh breath sounds and scattered rhonchi; there were no moist sounds and no signs of pleural effusion. The abdomen was normal, neither liver nor spleen being palpable. The nervous system was normal, but the ocular fundi showed bilateral papilloedema, scattered haemorrhages, and occasional patches of exudate. Palpation of the left supra-orbital margin revealed a moderately hard mass on the nasal side. Pressure along the sternum showed a positive Craver's sign—that is, tenderness at the level of the fifth costal cartilage. There was some deafness on both sides, but this was of middle-ear type.

Special Investigations.—The first blood count gave the following figures: haemoglobin, 25 per cent.; red cells, 1,080,000 per c.mm.; colour index, 1.3; white cells, 60,000, containing 43 per cent. myelocytes and 9 per cent. myeloblasts. Later counts showed that the white cells remained

My thanks are due to Dr. M. O. Abdine, ear and nose surgeon to the hospital, for giving me the clinical history of the case.

Alexandria.

H. BARSOUM, F.R.C.P.Ed.,
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Abnormality of Ribs

(WITH SPECIAL PLATE)

The following case possesses items of interest.

A girl aged 14 months was brought to this hospital, the mother saying she thought "that the right shoulder was a different shape from the other." On examination it was seen that the left shoulder was normal and the right appeared to be more square. There was a bony lump in the supraclavicular fossa, rather towards the posterior margin. An x-ray film disclosed absence of the second rib on the right side. The antero-posterior view (see Plate) shows that the ribs on that side are definitely thinner and less calcareous than those on the opposite side; they also show a concavity upwards instead of a convexity downwards.

I am indebted to Mr. G. Richardson for permission to report on this case.

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Hyperparathyroidism

(WITH SPECIAL PLATE)

The following case of hyperparathyroidism with generalized osteitis fibrosa may be considered worth recording.

CASE RECORD

A married woman, aged 40, complained of pains of a rheumatic character for the past four years, during the last two of which she had been treated for "rheumatism." At first the pain had not been severe and she could get about, but for two years she had been increasingly incapacitated by progressive weakness. During the past month she had noticed pain in the right arm and the left knee, and was radiographed. The skiagram showed some general decalcification of the bones and a cyst in the neck of the right scapula. Further radiographs revealed cysts in the os innominatum.

On examination the heart, lungs, and alimentary system were normal, and there was no urinary frequency. The patient, who was nulliparous, had been in good health up to four years ago, and her appetite had also been good. She always seemed to be drinking, but thought she had no frequency. Skeletal examination revealed a swelling in the upper part of the right arm, which was tender. The knees were also tender. The blood calcium was 15.9 mg. per 100 c.cm. X rays disclosed general decalcification of the bones: the right scapula, right os innominatum, left tibia at the upper end, right femur, upper end of right humerus, and right radius all contained areas of erosion. A uroselectan examination of the kidney showed a normal pelvis. No stones were present.

The patient was admitted to the Sheffield Royal Infirmary on November 17, 1936. An aspiration biopsy of the right humerus was performed by Dr. F. Ellis, and revealed an osteoclastoma. The diagnosis of hyperparathyroidism was confirmed, with generalized osteitis fibrosa. Further chemical examinations on December 12 showed the serum calcium to be 15.5 mg. and blood phosphorus 1.3 mg. per 100 c.cm. A spontaneous fracture of the upper end of the shaft of the right humerus occurred soon after admission.

Operation.—On December 20, 1936, under gas-and-oxygen intratracheal anaesthesia with rectal paraldehyde, I explored the thyroid gland and its surrounding structures. After considerable palpation and dissection a nodule about the size of a large marrowfat pea was discovered at the lower pole of the left lobe of the thyroid gland. It was lying apart from

the capsule but fixed to the thyroid lobe. On dissecting it off it ruptured, and was seen to be slightly cystic. Being rather disappointed with the findings, further search was made, and behind the first nodule another was found, about the same size but firmer in consistency. It, too, was dissected out and removed. The colour did not differ from that of the thyroid tissue. Search at the lower pole on the right side also revealed a body very much like that of the second; this, too, was removed, and all were sent for section. The pathological report stated that section of the nodules showed two of them to be typical parathyroid adenomas.

Recovery from the operation was good, but two days later a feeling of "pins and needles" developed in the fingers of both hands and spread all over the body. Typical carpal spasms associated with tetany developed, and some facial twitching occurred. There were no urinary symptoms. Ten c.cm. of calcium gluconate were given twice daily with 1 c.cm. of parathormone. The spasms and other symptoms subsided rapidly, and there were none ten days after the operation. The blood-serum calcium on December 29 was 8.2 mg. per 100 c.cm., and on January 7 10.9 mg.

Since operation steady progress has been made. All pain has disappeared. The patient can walk two miles now without fatigue. Her weight has increased considerably and she no longer feels tired. The bones have regained their calcium and the areas of rarefaction have disappeared. The fracture in the right humerus united with a slight deformity.

I am indebted to Dr. L. C. D. Hermitte for cutting the sections and for the photomicrographs, and to the radiological staff of the Royal Infirmary for the x-ray films.

A. W. FAWCETT, F.R.C.S.,
Honorary Assistant Surgeon,
Royal Infirmary.

Sheffield.

Tumour of Vocal Cord following Nasal Endotracheal Anaesthesia

As not many cases of laryngeal complications have been reported after intratracheal intubation the following may be of interest.

CLINICAL HISTORY

A married woman, aged 49, was admitted to the London Jewish Hospital on April 19, 1937, while I was house-surgeon, with chronic cholecystitis, for which cholecystectomy was performed on April 22. The operation took fifty-five minutes, and was performed under nitrous oxide-oxygen-ether anaesthesia through a medium-sized Magill's tube, inserted by the "blind" nasal route after repeated attempts. Except for some slight chest pain about three weeks after operation, which cleared up in a day or so, the patient made an uneventful recovery, and she was discharged on May 23.

On June 30, 1937, she attended the out-patient department with a complaint that she felt something moving up and down in her throat, especially on talking; that sometimes she was unable to talk, that occasionally she found herself talking in a high-pitched voice; and that once or twice she had "lost her voice" for a short time. All these symptoms were of nine to ten weeks' duration, and she had had no throat trouble of any kind previous to the operation.

On laryngoscopic examination by Mr. H. Kisch a small tumour was seen at the base of the right vocal cord. The major portion of this growth was removed on July 7, under intravenous pentothal anaesthesia. On the 14th the remaining small portion was found to have shrunk considerably and not to necessitate removal, and she was discharged on the 15th. Two months later there was no sign of the tumour, and since then she has had no throat trouble.

PATHOLOGICAL REPORT

The pathological report was as follows: "Polypus granuloma of unspecified nature from vocal cord, composed of fibrous tissue and numerous capillaries lined with larger endothelial cells; infiltrated with lymphocytes and plasma cells, and, superficially, polynuclear neutrophils covered with fibrin."

6. *Adrenal*.—Normal except for a few "chloroma" cells visible in capillaries of the connective-tissue capsule.

Kidney.—The naked-eye view of a section of kidney is distinctive because of prominent dark superficial areas. These are deposits of "chloroma" cells embedding tubules and glomeruli.

7. *Pancreas*.—The interlobular and interacinar stroma is almost wholly "chloroma" cells.

8. *Appendix*.—"Chloroma" cells constitute the interglandular stroma of the mucous membrane and the submucosa. Normal lymph follicles are preserved.

9. *Ovary*.—Converted into a solid "leukaemic" tumour; thickly scattered are aggregations of brown-yellow pigment, both coarsely granular and homogeneous. Normal ovarian stroma is inconspicuous. The interstices of the vascular pedicle are thickly infiltrated by "chloroma" cells.

10. *Mesenteric Gland*.—8 by 10 mm. Preservation of normal peripheral ring of follicles. Central pulp densely infiltrated by "chloroma" cells.

11. *Abdominal Gland*.—Enlarged, 25 by 15 by 10 mm. Contains active tuberculosis. Peripheral lymph nodes preserved, but the pulp, vascular pedicle, and external connective-tissue bed are solid leukaemic tumour.

12. *Femur Marrow*.—Paraffin section stained with haemalum and eosin. The main feature is dense cellularity, with very few fat spaces and an absence of the design of normal marrow. The predominant cell is distinctive, 12 to 20 microns, with large nucleus, mostly round, many slightly curved, some more curved or bilobed. The nuclear membrane is thick and prominent; some nuclei have dense large granules of chromatin, many are pale and vesicular; one, two, or three pink nucleoli are frequent. The cytoplasm is faintly basophil, and non-granular. Primitive erythrocytes are very scanty. Normal eosinophil and neutrophil granular cells, both primitive and mature, are moderately plentiful, but typical normal lymphocytes are absent. A few granular aggregations of golden pigment are present outside cells. A fresh film of marrow, stained for oxidase by the Goodpasture technique, shows that most of the large mononuclear cells give a marked positive reaction.

In the visceral deposits there is marked compression and distortion of the infiltrating cells by tight packing. Mitoses are frequent among the "chloroma" cells. Coarsely granular eosinophil leucocytes are present in most of the leukaemic deposits.

Discussion

In such a case as this there appears to be an uncontrolled stimulation to undisciplined multiplication of the myeloblasts or their parent cells. Whether such stimulation is due to some unknown infection or is a primary malignant change in the myeloblastic tissues remains in doubt.

The histological findings indicate, as one would expect from the clinical course, that chloroma is a much less benign disease than leukaemia. In the latter condition the tissues are infiltrated by the specific cells in a manner which may be described as a peaceful colonization; in chloroma, on the other hand, the tissues are invaded by an aggressive militant force with malignant potentialities, as shown by the frequent findings of active mitosis and the formation of tumour masses. The periosteum appears to be the most vulnerable part of the defence line, for here the attacking force makes most progress with the development of neoplasms.

I wish to express my thanks to Dr. W. Hayes, Dr. A. St. Clair Robertson, and Dr. F. B. Smith of Preston for their kind collaboration in this case.

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Clinical Memoranda

A Case of Chloroma

(WITH SPECIAL PLATE)

This case of chloroma is recorded on account of the rarity of the condition.

CASE REPORT

History.—A boy, aged 6 years, was admitted to hospital on September 6, 1937, with marked double exophthalmos. He had complained of headache for the last month, previous to which he was in perfect health. Twenty days before admission the parents noticed protrusion of both eyes, which gradually increased until it became very marked. They also noticed that the boy's vision had not failed. On examination the most striking thing observed was the extreme double exophthalmos with oedema of the conjunctiva and a left corneal ulcer due to lagophthalmos. The patient was also greatly emaciated. The skull was big in proportion to the body, and a fairly large swelling at the right angle of the lower jaw and a smaller one at the left angle were present. There were greatly dilated veins over the scalp and forehead. The lymph glands of the neck were somewhat enlarged and discrete, but there was no enlargement of the axillary or inguinal glands. The circulatory and respiratory organs did not show any abnormality. The liver was three fingerbreadths below the costal margin, and the spleen was fairly big, reaching to half-way between the costal margin and the umbilicus. The temperature was 37° C. and the pulse rapid, and the patient's condition was unsatisfactory. There was epistaxis and left facial paralysis. The patient's four brothers are in perfect health. The case was diagnosed as "? thrombosis of cavernous sinus, ? intracranial tumour," and the skull was x-rayed, the radiological report being "increased intracranial pressure causing wide separation of sutures due to a general condition and, less likely, to localized tumour formation." No investigations, not even a blood count, could be made, as the patient died twenty-four hours after admission to hospital.

Pathological Findings.—On post-mortem examination the most striking things observed were the marked emaciation, the exophthalmos, and the enlargement of the skull out of all proportion. On opening the body the masses at the angles of the jaw were found to be soft, resembling sarcomatous tissue and being green in colour. The lungs and heart did not show any abnormality. The stomach contained a large amount of blood, evidently swallowed from the epistaxis the patient had had before death. The alimentary tract did not reveal any lesion. The liver was enlarged, and the most peculiar thing about it was the presence of green infiltrations along the portal tracts. The spleen was five or six times the usual size and was deeply congested. As to the urinary system, there were greenish infiltrations scattered in the cortex of both kidneys, but the genital and endocrine organs did not show any abnormality. The lymph glands of the neck, mediastinum, and mesentery were enlarged and discrete, with the same greenish coloration. On examining the skull and its contents thin deposits of the green material were seen underneath the temporal muscles and along the sutures, which were separated. The dura mater was found to be somewhat adherent to the interior of the skull, and subdural masses, broad and flat, were scattered all over the internal surface of the dura, only small areas of which were free (see Plate). All these masses were somewhat soft and of a green colour; they did not invade the brain, which did not show any lesion. The orbits were packed with this green material, causing the marked exophthalmos. On cutting into the petrous portions of the temporal bones the same material was also found, and this explains the left facial paralysis. The bone marrow revealed the same greenish coloration, which on exposure gradually faded into grey. Microscopical examination of the dural tumours showed the chloroma to be of the large lymphoid-cell type. These cells were infiltrating the liver along the portal tracts, the cortex of both kidneys, the lymphatic glands, the splenic pulp, and the bone marrow.

benign adenopathies such as Schaumann's disease, though these subjects have important practical bearings, and where can they be discussed better than in a textbook of haematology? Section 7 deals with miscellaneous conditions, and includes a good account of malaria. Section 8, on haematological technique, contains much useful information, but might have been better adapted to the needs of the text. The May-Grünwald-Giemsa staining method is not described, though it is recommended on page 407, whilst the Gordon test for Hodgkin's disease is given in full, though the text omits even the barest account of Hodgkin's disease.

All this is not to deny that the book gives much useful and readable information about important aspects of haematology, but merely suggests that it does not give sixty-five shillings' worth. To write a good textbook of haematology needs almost as unique qualities as to draw the sword Excalibur or the bow of Ulysses—much clinical work with patients, much experience of clinical pathology and morbid anatomy, much reading of publications in very different fields—and we still await the man who will combine these qualities with the patience to write a book.

A HANDBOOK OF MALARIA

Malaria: A Handbook of Treatment, Parasitology, and Prevention. By Bernard Nocht, M.D., and Martin Mayer, M.D. With a foreword by Sir Rickard Christophers, C.I.E., F.R.S. (Pp. 196; 25 figures, 2 coloured plates. 10s. 6d.) London: John Bale Medical Publications, 1937.

Professors Nocht and Mayer, as previously noted in this *Journal* when reviewing the German edition, have performed a most useful task in bringing out, in the form of a small handbook, a short modern account of malaria. The appearance now of an English edition of their work will still further add to its usefulness. The English translation is a small, handy, attractively printed volume, with a foreword by Sir Rickard Christophers. The account given is complete and up to date, and the book forms a ready means of reference to the most recent ideas on diagnosis, treatment, and prophylaxis, otherwise only to be found scattered through the extensive literature of the subject. It is especially up to date in the amount of information given regarding the new anti-malarial synthetic compounds such as atefrin and plasmoquine and their use in treatment and prophylaxis, as well as in the very full and detailed discussion on the dosage, modes of administration, and properties of quinine. After a brief reference to the history of malaria discovery, distribution, and statistics, an account is given of the clinical picture in malaria, including the characters of the attack by different forms of the parasite, pernicious manifestations, features of the disease in children, and the subsequent course and effects of the disease. Following this is an important chapter on treatment, dealing fully with the drugs used and their methods of administration. Next come short sections on such subjects as pathological changes in malaria, useful biochemical tests, induced malaria, immunity, serological reactions, and ape malaria. An adequate account is given of the technique of preparing and examining blood films and of the characters of the different parasites. There is a chapter on blackwater fever, and, finally, a short survey of the development of the parasite in the mosquito host and a very brief summary of preventive measures against malaria.

In the nomenclature of the types of parasite and forms of malaria the English edition has, rightly in the reviewer's opinion, followed the usual English rather than the German custom. Thus the parasite of malignant tertian

is referred to by the now almost universally accepted name among English and American writers of *Plasmodium falciparum*, and not *P. immaculatum*, as commonly employed by German writers and as given in the German text. The term "malaria tropica" has been replaced, as is usual among English writers, by "malignant tertian." Otherwise the translation follows the German text closely. While the book fulfils admirably the purpose for which it was, as the authors state, originally written—namely, for the use of the postgraduate student and medical man—it will also be of much service to the expert as a work of reference.

PICTORIAL AIDS TO DISSECTION

Illustrations of Regional Anatomy. By E. B. Jamieson, M.D. Five volumes. Second edition. (211 plates. 32s. 6d., postage 9d.) Edinburgh: E. and S. Livingstone, 1937.

The second edition of Dr. Jamieson's *Illustrations of Regional Anatomy*, Sections I to V, with the addition of Sections VI and VII, of the lower limbs, represents the complete series of this excellent pictorial aid to the student's work in the dissecting room and his study of the descriptive textbooks of human anatomy. Many new coloured blocks have been prepared for this edition, and some of the plates have been enlarged. The addition of colour is especially helpful in the distinction of certain of the nerve tracts of the brain, such as the superior and inferior longitudinal fasciculi, the cingulum and tapetum, the limits of which are not readily distinguishable in actual specimens. Also the clear, unabbreviated labelling of the illustrations is of great value at the present time, when so much has to be learnt in a very limited period of the student's curriculum. Moreover, the importance of a visual concept of the structural relations of parts being readily grasped and retained in the memory is a practical consideration which can hardly be overestimated.

Few criticisms are necessary in a work of such general good quality. From the artistic standpoint, however, some of the hollow viscera appear too rigid and too solid. Also, in Plate IV, the pharyngo-tympanic tube on the right side appears to slope forwards from the pharynx instead of backwards and laterally. That a demand for a second edition should have occurred so soon after the publication of the first is ample evidence of the sterling merit and usefulness of the work, and we can confidently recommend the "illustrations" as a reliable aid to junior and advanced students of human anatomy.

ELEMENTS OF PATHOLOGY AS APPLIED TO MEDICINE

An Introduction to Medical Science. By William Boyd, M.D., M.R.C.P.Ed., F.R.C.P.Lond. (Pp. 307; 108 figures. 16s. net.) London: Henry Kimpton, 1937.

Professor William Boyd, whose books on medical and surgical pathology have been so well received by students and teachers, has set out in his *Introduction to Medical Science* the elements of pathology as applied to medicine, and hopes that it will be found useful to medical students in the intermediate years of their course, to nurses, and to hospital technicians. He limits his subject-matter to an introduction, but has succeeded in his object of showing that the closest relationship exists between the pathological changes or lesions in the organs and the symptoms from which the patient suffers. The book follows the usual lines, the general principles of pathology being discussed under the headings of the causes of disease, bacterial and animal parasites, the phenomena of inflam-

COMMENT

In view of the fact that (1) the patient had had no throat symptoms of any kind previous to operation and (2) injury to the vocal cords is a definite and recognized, though comparatively uncommon, complication of nasal intubation, one is justified in assuming the above to be a case of complication of endotracheal anaesthesia.

I wish to thank Mr. S. I. Levy, senior surgeon, London Jewish Hospital, and Mr. H. Kisch, senior surgeon, ear, nose, and throat department, London Jewish Hospital, for their permission to publish this case.

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Cambridge.

Unusual Case of Rupture of Internal Semilunar Cartilage

The following case seems worth recording on account of two uncommon features: (1) the fact that the violence which caused the lesion was of a very unusual character, and (2) the complete absence of swelling of the knee-joint at the time of the accident and after.

CASE REPORT

The patient was a quarryman, aged 29. He stated that about the middle of August last he was struck on the inner side of his right knee by a piece of heavy stone the size of a cricket-ball. He received the blow while in a sitting posture, with the right knee flexed and the foot tucked under the left leg, which was fully extended. There seems to have been no acute pain at the time of the injury, and he not only went on working that day but continued to work for two months. He noticed, however, that something seemed to move in the joint and prevent complete extension, but he found that by alternately flexing and extending the knee and rubbing the inner surface free movement returned. Then at the end of October the knee "let him down" and his usual manœuvres failed.

He consulted me on November 1, when I obtained the above history, but close questioning then and subsequently failed to elicit any description of an injury corresponding to a twist or a wrench. On examination the knee looked quite normal; there was no obvious swelling of the joint, and this was confirmed by mensuration. The man said that at no time had he noticed any swelling. Over the site of the anterior half of the internal semilunar cartilage there was a point of marked tenderness. Extension of the joint was all but complete, and attempts to make it complete caused him to wince; flexion was quite free.

Conservative treatment was undertaken, but after ten days it was found that there was no improvement. He was then seen by a surgeon, and as x-ray examination proved negative it was decided to explore the knee. On November 30, the joint was opened through a curved incision, and the synovial membrane was seen to be acutely inflamed, though there was very little synovial fluid. The internal semilunar cartilage was observed to be split longitudinally, and the inner portion lay in the centre of the joint—the well-known bucket-handle tear. As much as possible of the cartilage was removed.

Healing took place without incident, and there was never any effusion into the joint. On the fourth day the pillow on which the knee was supported was taken away and extension was found to be complete and painless. Movement of the limb in bed was encouraged, and in less than a week later the full range of flexion was obtained. The patient was allowed out of bed on the eleventh day and walked without discomfort on the twelfth. He is now walking well, and his only disability is some difficulty in climbing stairs.

My thanks are due to Professor Graham Simpson, who saw the man and performed the operation, for his encouragement to me to publish these notes and for his co-operation in preparing them.

Bakewell.

HUGH G. WATSON, M.B., Ch.B.

Reviews

HAEMATOLOGY

Diseases of the Blood and Atlas of Hematology. With Clinical and Hematologic Descriptions of the Blood Diseases, including a Section on Technic and Terminology. By Roy R. Kracke, M.D., and Hortense Elton Garver, M.S. (Pp. 532; 44 coloured plates; 17 figures. 65s. net.) Philadelphia, London, Montreal: J. B. Lippincott Company. 1937.

At its published price the combined textbook of *Diseases of the Blood and Atlas of Hematology*, written by Dr. R. R. Kracke and drawn by Miss H. E. Garver, must be the most expensive book on blood diseases in the English language, and one eagerly turns over its pages to discover how much the author and the publishers have provided in return. The book is beautifully printed on a large page and is surprisingly light in weight. It contains over 500 pages, sixteen figures, and forty-four coloured plates. For the two last, curiously enough, no table or index is provided, and the index to the text is defective—for example, the reviewer looked in vain for osteosclerotic anaemia or leuco-erythroblastic anaemia and myelomatosis or Kahler's disease, though both subjects are mentioned in the text. The illustrations are well chosen and well reproduced, but while some of them are good, on the whole the artistry, and especially the representation of nuclear detail, fall below the standard of Continental textbooks. Compare, for example, Plate XI, nucleated erythrocytes, with Plate I in the 1923 edition of Naegeli's *Blood Diseases*.

Sections 1, 2, and 3 deal with terminology, morphology, and physiology of the blood cells. Dr. Kracke makes a strong case against the confusion and illogicality of current haematological terms, and pleads for a system which would prevent the introduction of contradictory words such as agranulocytosis. Unfortunately Dr. Kracke has been unable to avoid the pitfalls which beset attempts to reform terminology, and though he has not got so deeply bogged as Osgood some of his suggestions are hybrids, such as acidocyte for eosinophil polymorphonuclear and fragilocyte for the fragile cell of acholuric jaundice, and needless discords such as baso-erythrocyte and polychromatocyte. Scientific terminology cannot be reformed or standardized by a single individual, as is shown by the confusing efforts of Osgood and Kracke, or by a committee of a single nation, as is shown by the recent *faux pas* of the Council on Pharmacy and Chemistry of the American Medical Association. The time is ripe for an international co-operative attack on haematological nomenclature.

Sections 4, 5, and 6 deal with anaemias, leukaemias, and haemorrhagic diseases, which are clearly and simply described, though the note of personal experience is often lacking. Statements from the literature which most haematologists would disbelieve, such as that on the value of treating polycythaemia by gastric drainage or lavage, are given the same weight as the confirmed evidence of good authorities. Tropical nutritional anaemia is not mentioned (is that because haematologists in the United States of America have never distinguished it from sprue and pellagra?), and the account of leuco-erythroblastic anaemia is too meagre. Morbid anatomy and histology are almost entirely omitted. Splenic anaemia has some fifteen lines only under the anaemias of childhood. There is no discussion of Hodgkin's disease and related lymphoblastomatous conditions, or of their separation from more

graphy and some alterations in pathological nomenclature found necessary to bring descriptions of certain conditions into line with current opinion regarding their nature of origin—for example, osteoclastoma for the old myeloma. In the section on thyroid enlargements reference might have been made to the fact that a goitre displaces the common carotid artery outwards and backwards, as this is a diagnostic feature which has proved of value in certain cases. Twenty-two plates reproducing radiographs add to the value of the work: thus, for example, the x-ray appearances of the bismuth "swallow" in achalasia of the cardia and in oesophageal cancer may readily be compared and contrasted.

In the work entitled *Sex, Custom and Psychopathology* (London: George Routledge, 21s.), which is an ethnological and psychiatric study of the South African native, and particularly of the Tembu tribe, Dr. B. J. F. LAUBSCHER, senior psychiatrist to the Union Mental Service, gives a detailed account of the social practices, beliefs, and customs, and their influence on psychopathology in a primitive culture. The author's information was obtained from the hospital staff in the native wards, native doctors and diviners, the heads of kraals, elders and councillors, chiefs, etc., and the magistrates and native commissioners. In addition to a full description of the natives' folk lore, in which phallic worship plays a prominent part, an elaborate account is given of the initiation ceremonies which mark the transition from childhood to manhood or womanhood and form the most important epoch in the life of the native living in the kraal; the conception of mental disorder held by the native, which is closely connected with his environment and influenced by the customs and beliefs underlying witchcraft and magic; and the incidence of sexual offences, suicides and homicides among the natives. The text is interspersed with photographs of the natives and their ceremonies, and various types of mental disease. This vast collection of original research is a valuable contribution to anthropological and psychiatric literature.

Many of our readers will like to see and to possess a little booklet entitled *An Austin Twelve on the Frontier*. It is by Dr. E. GERTRUDE STUART, formerly in charge of the Church of England Zenana Missionary Society Hospital at Quetta. It consists of some forty pages only of actual text, but it contains also a considerable number of excellent photographic illustrations and is so well written as to present a very vivid and most interesting picture of medical missionary work on the North-West Indian border. After a few graphic pages on "The Frontier and its People" and on "The Building up of a Medical Mission," the narrative takes an autobiographical form, being put into the words of an old Austin car which has seen and done remarkably good service in a great cause. This scheme of presentation is carried out more effectively than such a method generally is. The medical and missionary work at the Good Shepherd Hospital and in the surrounding villages, the happenings of the great earthquake, the saving of lives and of property, and the heroic attentions to the sick and the injured are well described and indicated, and the booklet as a whole constitutes a most effective appeal for interest in, and practical help for, the work of the society under whose auspices it is issued at the price of 6d.

Protoformotherapy in Treatment and Prevention: Fifteen Years of Research on New Scientific Bases of Therapeutics, by Dr. N. E. ISCHLONDSKY of Paris (London: Kimpton, 21s.), contains an account of three lectures delivered by the author in Cairo under the title, "The Internal Secretion of the Embryonic Tissues, its Biological Significance and its Importance in Practical Medicine." He claims that "protoformative ineret," which appears to be some form of extract of embryonic tissue, is a cure for very many forms of disease.

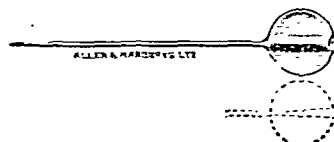
De l'Influence de Divers Cations sur le Croît Microbien, by Dr. LUCIEN NEIPP (Paris: Masson, 90 fr.) is a monograph of which the greater part is devoted to a summary of researches which the author has carried out in this subject. The observation that the presence of minute traces of metals in some cases favoured the growth of micro-organisms promoted the popularity of the Arndt-Schulz' hypothesis, which states that toxic agents in minute doses produce a favourable action. Dr. Neipp found that salts of lanthanum, cerium, lead, and mercury when present in minute concentrations did cause augmentation of bacterial growth, but, curiously enough, no such effect was observed in the case of silver. He examined also the influence of metals on the surface electric charge of bacteria, but concluded that the effects produced by metals could not be attributed to their producing changes in the surface potential. The monograph is fully illustrated with tables and graphs summarizing the author's experimental results.

Preparations and Appliances

A SUTURE NEEDLE

Mr. NÖLL E. WATERFIELD, F.R.C.S. (Great Bookham, Surrey), writes:

Messrs. Allen and Hanburys have made at my suggestion the suture needle shown in the illustration. It consists of a needle, straight or curved, hollow in its whole length. At the



end distal from the point there is a flattened disk by which the needle is held; this same hollowed end is slightly funnel-shaped.

The method of use is for the needle to be inserted through both edges of the cut; the suture is then threaded through the needle until the end projects, this being then held and the needle withdrawn.

The advantages are: (1) The painlessness with which a suture can be inserted, due to the fact that there is no drawing through the skin of two thicknesses of ligature and the needle at the same time, but only the puncture of the needle itself; this, to take the same size suture, is of much smaller calibre in comparison with the ordinary needle. (2) The ease of threading. The "eye" of this needle is much larger in proportion than that of the ordinary needle.

THREE NEW PREPARATIONS

Messrs. H. R. Napp, Ltd., 3, Clements Inn, Kingsway, W.C.2, have sent samples of the following three products which they are introducing:

"Carbomucil" is a granular preparation of activated charcoal with desiccated vegetable mucins. The makers claim that the granules will disintegrate in the bowel, and that absorbent action of the charcoal will be exerted there and will not be exhausted in the stomach. The preparation is recommended for conditions in which there is absorption of toxins from the intestinal tract.

"Immidiol" is a fluid which contains anthraquinone glucosides in a salicylic acid alcoholic solution. It is recommended as a gargle (half a teaspoonful in half a glass of water).

"Caapi" or anti-coryza tablets contain atropine sulphate, caffeine, phenacetin, and quinine. They are recommended for the treatment of acute coryza.

mation, immunity and allergy, the disturbances caused by changes in the blood flow, and a general idea of tumour formation and malignancy. The separate organs are then dealt with systematically. The illustrations are good and numerous—over one hundred to the three hundred pages of text; many are explanatory diagrams and others are excellent photographs of patients and pathological specimens. This part of the book, as it comes from a master hand, gives a very good summary of knowledge, linking up the physiology of the body with the changes occurring in the pathological state. It might be useful to students before taking up a larger textbook, but is too short and lacking in detail to be sufficient in studying for examinations. For nurses it may be too elaborate, but could be usefully adapted by the lecturer to nurses as the basis for their instruction, without their studying it themselves. It is in the author's intention, however, that nurses should read it during their training, as he has added some practical chapters at the end on the means of preventing disease and on the duties of the patient's nurse in collecting for laboratory examination and testing the various excreta and pathological material required.

THE CONTROL OF NOISE

Noise. By A. H. Davis, D.Sc. No. 6, Changing World Library. (Pp. 148; 20 figures. 2s. 6d. net.) London: Watts and Co. 1937.

The problem of noise and its prevention is approachable from the point of view of psychology and of physics. Dr. A. H. Davis, although his work lies in the Physics Department of the National Physical Laboratory, so that he may be supposed to be chiefly interested in the various physical expedients for reducing the noise nuisance, such as floating floors, baffle silencers, rubber insulators, and various upholstery, by no means neglects the psychological approach. It is open to question whether we live in a noisier age than our fathers, but it cannot be doubted that we are more sensitive to noise. Herbert Spencer's ear-stoppers and Thomas Carlyle's double windows suggest that the Victorians had something to put up with, even before the mechanical age got fairly started, but apart from such irascible spirits as those just named the people in general did not seem to mind it. The modern man passes through streets noisy with traffic, but he has learned not to hear it, and goes to an office noisy with typewriters or a factory with more clamorous machinery, to which he adjusts himself, and in the evening he bears with philosophic patience the gramophones or radio sets of his family or his neighbours. No doubt a great deal can be done by the normally healthy person to accommodate himself to a noisy environment. How largely the problem is a psychological one is suggested by the fact that many town dwellers who can sleep in rooms overlooking a trolley tram route are unaccountably distressed by a rural night, with its continual rustlings and patterings, croakings and chirrupings.

The effect of noise on the human organism still calls for study. That it induces fatigue can hardly be doubted, if only by reason of the increased effort to speak and to hear. It is said that listening to jazz music has the effect of slightly increasing the physical strength as represented by strength of grip—perhaps a convulsive movement of the hand as if to throw something at the players. The sense of smell and the normal ability to distinguish slight changes in colour are also said to be increased under the stimulus of noise, which suggests a fear reaction, rendering other senses more alert. In later chapters the author discusses the measurement, control, and elimination of noise. But

when all is said and done the best sound-absorber is good manners. The young gentlemen who bang their car doors at midnight and make a noisy get-away need to have it brought home to them that they are guilty of anti-social behaviour, and so do all the rest of us who cause unnecessary noises. It is a question of education, on the one hand, and, so far as concerns the noise which unavoidably accompanies industry and transport, it is a question of mechanical engineering to make it as little noticeable as possible.

BIBLIOTHECA MEDICA AMERICANA

Vol. I. *A Brief Rule to Guide the Common-People of New-England How to order Themselves and Theirs in the Small Pocks, or Measels.* By Thomas Thacher. First published in 1677/8, reprinted in 1702 and 1721-22. Foreword by Henry R. Viets, M.D. (Pp. 52. 7s. net.) Vol. II. *A Discourse upon the Institution of Medical Schools in America.* By John Morgan. Reprinted from the first edition, Philadelphia, 1765. Introduction by Abraham Flexner. (Pp. 63. 9s. net.) Vol. III. *Adaptation in Pathological Processes.* By William H. Welch, M.D., LL.D. Reprinted from Transactions of the Congress of American Physicians and Surgeons, 1897, vol. IV, pp. 284-310. Introduction by Dr. Simon Flexner. (Pp. 58. 7s. net.) Baltimore: The Johns Hopkins Press; London: Humphrey Milford.

These three little reprints form the first three volumes of the fourth series of the Bibliotheca Americana published by the Institute of the History of Medicine from the Johns Hopkins University at Baltimore. They show the interest which the medical profession in the United States is taking in the medical history of their own country under the guidance of Professor Henry E. Sigerist. Each volume is printed in facsimile type, is provided with a portrait, and is given an introduction.

Thomas Thacher published his *Brief Rule* in 1677/8, and Dr. Henry Viets has made the volume noteworthy by the very excellent life of the author which introduces this reprint.

John Morgan, who wrote on the *Institution of Medical Schools in America* in 1765, is introduced by Dr. Abraham Flexner. He was of Welsh ancestry, and late in life studied under the Hunters in London, and afterwards in Edinburgh, Paris, and Italy. He returned to Philadelphia, and became well known as the first professor of medicine in America. His pamphlet is well worthy of reproduction on account of his high ethical standard, and for his advocacy of a sound preliminary education for those who desired to practise medicine.

Professor W. H. Welch's *Adaptation in Pathological Processes* is introduced by Dr. Simon Flexner. The essay is good reading, although it was written in 1897. It shows the influence that Cohnheim and Weigert had exercised over a mind that was by nature thoughtful and acquisitive.

Notes on Books

An eighth edition of Pearce Gould's *Elements of Surgical Diagnosis* (Cassell, 10s. 6d.) has been published eight years after the seventh edition and just fifty-three years since the first appearance of this work, which was originally written by Sir Alfred Pearce Gould and is now edited by his son, Mr. ERIC PEARCE GOULD. The reputation of this little book is so well established, particularly among medical students, that only passing reference need be made to it. In common with Treves's *Surgical Anatomy* and one or two other small manuals, it may be described as a student's vade-mecum, and the bulge seen in his pocket is not infrequently caused by it. The new edition includes a reference to intravenous pye-

Minister of Health, or the Secretary of State for Scotland, for an Order making compulsory the efficient pasteurization of milk sold by retail in its area." In recent official publications, while an increased consumption of milk is advocated, the factor of safety from pathogenic micro-organisms has been stressed.

The Association is in complete agreement with the view that the physical well-being of the people would be enhanced by increased consumption of milk, but it is alarmed at the spectacle of a publicly financed campaign for more milk-drinking unless the milk is rendered safe by pasteurization, or at least made less liable to convey disease by tuberculin-testing of cattle and the elimination of the reactors from herds supplying milk for human consumption. The Government may propose, but Parliament disposes. Opposition to the policy outlined in the White Paper may still be strong enough to defeat it or to twist legislation into a worthless form. The motive behind the Association's campaign is not to undermine any reasonable confidence in the nation's milk supply but to help the Government in its well-designed proposals for securing that the supply generally merits confidence, by placing the facts before the public and their representatives. The milk producers and their representatives would be well advised to realize that a greater consumption of milk in this country is unlikely to be attained unless there is some guarantee of its safety, and that the mere cleanliness on which they tend to concentrate is not enough.

DRUG. ALLERGY

Sensitization to chemical compounds is a fascinating, if at times alarming, study. Alarming are the fatal allergic reactions in human beings which have followed the ingestion of even minute amounts of aspirin; fascinating are the varied animal experiments conducted during the past fifteen years to determine the precise manner in which these chemicals lead to anaphylactic responses. In order that the full significance of these reactions may be grasped a few of the facts concerning allergy to chemicals and drugs should be appreciated. We are not concerned here with reactions caused by drugs applied locally to, or in various occupations coming directly into contact with, the skin, but with drugs or chemicals usually inhaled, ingested, or injected. It is necessary to distinguish between the allergic reaction to the drug and the toxic action. In the latter case the symptoms are an exaggeration of the pharmacological action, and so vary from drug to drug; they may be produced

in all persons by an overdose. In another group of persons the ordinary pharmacopoeial dose of the drug, which should bring about only a normal physiological response, gives rise to similar toxic symptoms, and to these cases the term "drug intolerance" is applied. In cases of drug allergy even a fraction of the average dose of the drug will excite—only in certain persons—a train of symptoms never produced by the toxic action of the drug; they include fever, skin eruptions, asthma, and vasomotor rhinitis, and similar or identical clinical manifestations occur whatever the chemical nature of the drug. In fact it seems remarkable that an allergic reaction to such antipyretic drugs as antipyrine or quinine often includes hyperthermia. The same drug may cause a different grouping of the characteristic clinical symptoms in different allergic individuals, but it is always some of the same group of allergic symptoms that are produced by widely different drugs. It is usual for drug allergy to exist to only one substance or chemical group (for example, the phenyl group), and in this respect drugs differ from protein antigens in that in the latter the allergy is to the entire molecule, whereas in the former a certain element or chemical group is responsible. Variations may arise even in very closely related isomers of the same drug, allergic reactions following the use of the laevorotatory compounds while no allergy exists to the dextrorotatory isomers. Also, in allergy to a glandular product such as insulin the sensitiveness may exist to the protein of the animal from which the endocrine product was derived (for example, pig, ox, sheep), but in some cases it occurs with the pure hormone itself. Allergic reactions to drugs are quite common in persons allergic to ordinary protein substances, and the manifestation produced by the drug is usually the common condition from which the patient suffers. Skin tests with drugs are usually of little or no value except in cases of contact dermatitis. Many of the drugs are insoluble, and so intradermal tests are not possible. Negative reactions are often obtained in individuals with definite clinical sensitivity, while some drugs (for example, morphine and codeine) give prominent wheal reactions even in normal skins.

On the clinical side such facts concerning the natural drug allergies are well exemplified in a recent study undertaken by H. F. Buchstein and L. E. Prickman.¹ They have surveyed the literature concerning allergic reactions from aspirin and have reviewed sixty-two cases from the records of the Mayo Clinic. The following were the common characteristics. (a) In practically all cases there was

¹ *J. Amer. med. Ass.*, 1937, 108, 445; *Proc. Mayo Clin.*, 1937, 12, 616.

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THE ASSOCIATION'S MILK POLICY

It is not the desire of this *Journal* to criticize the views of other organs of the Press as to what the public should or should not be told, but the position revealed in an article in the *New Statesman and Nation* of January 22 calls for a statement of the British Medical Association's milk policy. Without committing itself to support of this policy the article expresses doubt as to the propriety of newspapers refusing the Association's advertisements urging that milk should be safe. The occurrence of milk-borne disease has been a matter of constant concern to successive generations of medical practitioners, and many family doctors consistently advise their patients to boil all milk before consumption. They deprecate especially the use of raw milk for the feeding of infants and young children, because it may contain tubercle bacilli and other pathogenic micro-organisms. Until recently, however, there was some division of opinion as to the form which a national programme should take. Some medical men thought, with the more enlightened agriculturists, that a planned policy for the eradication of disease in herds and the safeguarding of milk from contamination at the source or in transit was practicable and desirable. They knew that the measures which medical officers of health were able to take in farms and dairies were hampered by the inertia of their own councils and the imperfections of the law, but they watched with interest and sympathy the efforts of the Ministry of Food and, later, of the Ministry of Health to raise the standard of the milk business by a voluntary system of grading. Even those who were sceptical as to the prospect were unable to disregard the increasing importance attached to the quality of freshness in food, following the remarkable series of discoveries relating to vitamins since the first decade of this century. They recognized that the detriment to health from the heating of milk *might* be greater than the gain from reducing its liability to convey infection. So long as there was room for doubt on this point the Association refrained from expressing its corporate opinion.

Since the war wide experience of the feeding of infants of all social classes with dried, and therefore denatured, milk appropriately supplemented

by vitamins, and numerous feeding experiments both on human beings and lower animals, have proved beyond scientific doubt that heating does not, in practice, detract from the value of milk as a food. At the same time, pasteurizing plant and practice have reached a high level of efficiency, and the phosphatase test has furnished a reliable index of the proper application of the method to any volume of milk ostensibly pasteurized. Officers of local authorities have learned from Government publications and the terms of official Orders how to inspect the equipment and procedure of pasteurizing firms, and plant is obtainable at a reasonable cost for handling milk in relatively small bulk. Pasteurization on a wide scale has therefore become a practical proposition. On the other hand new knowledge of the prevalence in cattle of diseases like contagious abortion, and streptococcal and salmonella infections communicable to man has made it clear that elimination at the source is a far bigger problem than used to be thought.

With these facts before it the Council of the British Medical Association reported to the Annual Representative Meeting in 1935 that, in its opinion, "local authorities should be enabled, after a reasonable period of notice, to prohibit the sale in their areas of milk which is not from tubercle-free herds or has not been submitted to approved treatment to render it bacteriologically safe." The Council's report was approved. In 1936 it was felt that the milk question should be fully ventilated, and accordingly the Representative Body of the Association was asked to vote on a recommendation "that only milk complying with the conditions required for the designations 'Tuberculin Tested' or 'Pasteurized,' or preferably both, can safely be consumed without boiling." In moving the recommendation the Chairman of the Public Health Committee made a full statement on the milk position, in the light of modern knowledge. After discussion the recommendation was adopted with only one dissentient, and accordingly became the policy of the Association. A year later the Representative Body was informed that this resolution had been conveyed to the Ministry of Health, a further opportunity thus being offered for the expression of any contrary opinion. There was no opposition. This policy can therefore safely be assumed to express the considered and remarkably unanimous opinion of the members of the Association, which has therefore endeavoured to propagate it. The policy appears to have been endorsed by the Government itself, for as recently as last July, in a Command Paper entitled *Milk Policy*,¹ it announced its proposal "that, subject to certain conditions, any Local Authority shall be enabled to apply to the

¹ Cmd. 5533. H.M. Stationery Office, July, 1937. (2d.)

functions which civilization forces upon it. Lake, in his book on the foot, gives reasons to suppose that many deformities, such as hallux valgus, splay-foot, etc., are due as much to inherent tendencies in the foot as to the abuse of footwear. How otherwise can the numerous cases of these conditions which occur in patients who have never worn extreme types of footwear be explained? Lake concludes thus: "We can sum up man's footwear of to-day by saying that, if not quite ideal, it is at least a happy compromise with utility and as such cannot be subjected to much serious criticism. The same cannot be said, however, in the case of women's shoes, for here the manufacturer has been compelled to bow to the dictates of fashion." If this attitude is correct it would be rash to assume that much improvement would necessarily follow the universal adoption of "rational" footwear. Nor would it be wise, without much more investigation and unanimity of opinion, to dictate to the shoe manufacturer what constitutes the ideal shoe, lest it be a case of the blind leading the blind. The most altruistically inclined maker of rational footwear has to depend for guidance upon mere creeds which he sometimes mistakes for scientific knowledge. As a result there is on the market to-day footwear extolled because it throws the weight on to the outer border of the foot, or in another make on to the inner border of the foot, in another because it is rigid, and in another because it is flexible. Amidst such diversity of opinion it is dangerous to be dictatorial. There is a real risk of falling into an error, common enough, of attributing every trouble which arises to the operation of some external and preventable cause. This specious assumption is popular since the alternative suggestion that inherent tendencies may be responsible leads logically to some uncomfortable and unwelcome conclusions. There is obviously need for careful inquiry into the whole subject by a group of unbiased people representing various shades of opinion from both the medical and the manufacturing aspects. It may be recalled that Charles V found it necessary to forbid the wearing of *trop outrageuses poulaines*, and that in this country in the reign of Mary the width of the broad-toed shoe of Henry VIII was restricted by royal decree to six inches.

INFLUENZA VIRUS VACCINES

Active immunization against virus diseases is often believed to demand the administration of living virus, however attenuated. It has recently been pointed out by Bedson¹ that this belief can no longer be accepted; killed virus will immunize experimentally against several infections, such as herpes and psittacosis, and in practice as well as experimentally against distemper. There were therefore reasons for hoping that killed preparations of influenza virus would immunize. That they do so was proved experimentally, and attempts were made during last winter in this country by Andrewes and Wilson Smith to apply this method in the clinical field, unfortunately with inconclusive results. Meanwhile, investigators in the United States

have adopted the bolder plan of injecting suspensions of living virus intramuscularly for the purpose of immunization, since it appears that the administration even of fully active virus by this route is followed by no ill effects. An account has now appeared by Stokes, McGuinness, Langner, and Shaw² of two years' efforts on these lines. The subjects of the experiment were the inmates of five State Colonies—institutions which have more than once before proved a boon to the immunologist conducting a practical test on a large scale—and the treated individuals and controls were separated on an alphabetical basis, than which nothing could be more judicial. The preparation of virus used was a chick embryo culture, and no ill effects were caused by it. The results may be expressed briefly by saying that among individuals so treated the amount of febrile upper respiratory tract infection was significantly less than in controls; reckoned in numbers of such attacks the difference is less than when reckoned in total days of fever. It must therefore be concluded that this method of immunization does afford a substantial degree of protection. With more concentrated virus suspensions and perhaps more frequent administration the results might possibly be even better. Whether this method will ever be capable of general application is another matter. Taking the broadest possible view of the problem, it may well be asked whether epidemic infections of the air passages cannot better be attacked by some other means altogether, perhaps by mitigating the conditions in which they spread. These are air-borne infections which thrive as a rule only in winter, and it may prove in the end more feasible so to purify the air we breathe that their spread is prevented than to try to protect ourselves by inoculation against what, after all, are insanitary conditions.

BUMPER FRACTURES

Attempts to improve riding comfort and increased speed have led to a lowering of the height of the chassis of the modern motor car the world over. The chassis height, as measured from the level of the road, determines the position of the bumpers and the site at which fractures take place when the bumper comes into violent enough contact with the legs of a pedestrian. A fracture by direct violence is produced just below the knee, and the popliteal artery or its terminal branches may be damaged and gangrene of the foot result. F. G. Dyas and M. L. Goren of Chicago have lately emphasized the significance of these facts in a paper on bumper and fender fractures.³ Within six months four patients with gangrene following such fractures were seen in the Cook County Hospital, and these cases are becoming frequent in this country as well as the U.S.A. F. J. Cotton and Richard Berg⁴ introduced the term "bumper fracture" some eight years ago, and defined it as a crushing injury produced by abduction of the leg forcible enough to smash the external tuberosity of the tibia against the fulcrum of the

¹ *Amer. J. med. Sci.*, 1937, 194, 757.

² *Surg. Gynec. Obstet.*, 1937, 65, 690.

³ *New Engl. J. Med.*, 1929, 201, 939.

⁴ *Proc. roy. Soc. Med.*, 1937, 31, 59.

either a personal or a family history (or both) of allergic disorders, especially asthma. (b) The first onset of symptoms in a few cases followed the first known ingestion of the drug, but in most the drug had been taken many times before without ill effect. (c) The reaction is usually an exacerbation of the patient's allergic disease, quite rapid in onset, coming on within a few minutes to a few hours, and usually exceptionally severe, prolonged, and resistant to treatment with adrenaline. Many deaths have been recorded. Oedema appears as the characteristic pathological finding, whether of the lungs, face, larynx, or gastro-intestinal tract. (d) There was a high incidence of nasal polypi in patients extremely hypersensitive to aspirin. The moral of the study is that aspirin should be employed with caution in any allergic patient, especially if asthmatic, and that it should never be given to one who has nasal polypi. J. S. Davis and L. F. Frissell,² from a survey of the literature on amidopyrine and from their own experience, favour the view that *agranulocytosis* is an allergic reaction to amidopyrine. In skin tests with amidopyrine on fifty individuals the only positive reaction was obtained in a patient who was extremely sensitive to the drug. On the experimental side Landsteiner and his co-workers have studied the sensitization of animals with simple chemical compounds by intracutaneous or superficial administration. They had shown previously (1922, 1924, 1930) that artificially conjugated antigens could sensitize, their reactions being specific for the substance linked to the protein. In further experiments (1935, 1936), using benzoyl chloride and *p*-chlorobenzoyl chloride, they suggested that the sensitization effects induced were due to conjugated antigens formed *in vivo*, but they did not consider this very surprising, as both substances were easily decomposed by water and were highly reactive with proteins. In recent experiments³ they have employed picryl chloride (2:4:6 trinitrochlorobenzene) and 2:4 dinitrochlorobenzene; substances relatively stable as regards both their solubility in water and combination with serum proteins at serum alkalinity, and both known to cause allergic phenomena in human subjects, the former on intracutaneous administration and the latter in industrial workers handling it. Sensitization followed a series of intracutaneous injections, the presence of antibodies in the serum was shown by passive transfer, and shock resulted when the corresponding protein conjugate made by gently shaking horse or guinea-pig serum with the finely ground drug was given intravenously. These later experiments again suggest the combination of the simple chemical with

some substance of the animal body to form an antigenic conjugate. The protein conjugate theory would hardly seem to apply to natural drug allergies, for in ordinary cases the reaction occurs far too quickly to allow time for any protein union, such as with insoluble aspirin, but nevertheless Landsteiner's experiments are very convincing in the absence as yet of any worthy alternative theory.

DOES THE SHOE FIT?

Much attention has been devoted in the past few weeks in our correspondence columns, and subsequently in the lay press, to the question of the provision of "correct footwear." The Government industrial research organization also has been investigating the best type of footwear to suit various trades and occupations. To some the problem appears easy to solve. They believe that by the adoption of a shoe having a tight-fitting heel raised but slightly off the ground, a broad spatulate toe giving freedom of movement for the toes, and a straight inner border, all the many foot troubles of the present day (except, of course, those due to congenital lesions or acquired disease) might be abolished entirely. There is reason, however, to think that the problem is not quite as simple as this. It will be agreed that in modern civilized conditions some form of foot protection is needed and that such protection can only be adequately achieved by something more than a mere sandal—in other words, by a form of shoe having "uppers." If this is conceded it is obviously of the utmost importance that the means of protection should not in itself produce disability. Those who have implicit faith in Nature advocate shoes of the above type because they believe that in this way they are restricting the foot as little as possible in the carrying out of its natural functions, and that in these circumstances no disability can possibly arise. Unfortunately, under civilized conditions our feet have very unnatural functions to perform. A moment's thought will show that the adoption of level roads and pavements, etc., means that we use our feet only in a limited and stereotyped way, and that in consequence many of the movements of which they were previously capable are abandoned, while, within the limited range of movement now required, the strains, stresses, and wear and tear are increased excessively. Furthermore, the foot is a part of the body which is undergoing comparatively rapid evolutionary change, in which, therefore, variations in the proportions and strength of its components are both large and common. While in no way belittling the tragic effects of outrageous forms of footwear, we should be careful that all the facts have been assessed before we lay the blame for all foot troubles upon the manufacturer of boots and shoes: perhaps the adoption of an unnatural mode of life also has something to do with it. Indeed, a shoe having the purely negative virtues mentioned above may not in the long run be as advisable as one which lends some positive assistance and support to a structure which is grossly abused by the restricted

² *J. Lab. clin. Med.*, 1937, 23, 107.

³ *J. exp. Med.*, 1937, 66, 337.

biology and Pathology of the Queensland Health Department, gives an interesting description of this new so-called "Q" fever, and Drs. Burnet¹ and Freeman of Melbourne, the former well known for his researches on filterable viruses, contribute an account of the demonstration of the responsible organism in the tissues of inoculated mice. The disease has so far been met with chiefly in abattoir workers and dairy farmers. It is characterized by an acute onset and a fever that tends to fall fairly rapidly after one to two weeks, or more gradually after three or four weeks; convalescence is of variable length, and so far no fatal cases have been recorded. The outstanding symptom is headache, which is very severe and may resist treatment for some days; a rash is uncommon, but may occur in the second week. The blood usually shows a relative and an absolute lymphocytosis. Ordinary bacteriological examinations are negative. The differential diagnosis has to be made from influenza, Weil's disease, enteric fever, typhus, and seven-day fever. The definitive diagnosis is made by the inoculation of guinea-pigs with blood taken from the patient during the first fortnight of the disease, or less often with urine during the later stages and the early part of convalescence. The guinea-pig develops a febrile reaction of abrupt onset and decline, lasting four to six days, and subsequently is immune to re-inoculation. If the guinea-pig is killed during the fever, its liver is found to be highly infective for normal guinea-pigs and for mice. Mice, like guinea-pigs, develop a non-fatal disease. Examination of the mouse's spleen seven to ten days after inoculation reveals the presence of intracellular microcolonies of Rickettsia-like bodies staining purple with Giemsa; the virus is believed to be a new type of Rickettsia. The Weil-Felix reaction, it may be noted, is completely negative both in man and animals. The epidemiology of the disease is still obscure, but now that it is possible to make a laboratory diagnosis with considerable certainty it should not be long before the mode of infection and spread is known.

YELLOW BLACKBOARDS

Some six years ago, at the request of various interested bodies, the National Institute of Industrial Psychology began a series of investigations into working conditions in schools, utilizing the invaluable experience it had already gained in connexion with work in factories and offices. It started by examining the types of school buildings already in existence, and finally included such matters as a survey of sickness absences in various types of school and a study of the various systems of heating, ventilation, and lighting. The determination of the most suitable environmental conditions for children and teachers in the school became of increasing importance. In considering school equipment it was thought that no more fitting subject could be chosen than that familiar and somewhat formidable landmark in everybody's education—the school blackboard. Apparently, writing on a large piece of slate with a small piece of slate

was the earliest attempt at blackboard instruction, and in imitation of the teacher the children did likewise on miniature blackboards, or slates, with slate pencils. The blackboard evolved to become what we all know it to be, and the children's slate became extinct, to be succeeded by white paper written on by pen and pencil. While it was recognized that the strain felt by children in copying from the blackboard might be due in part to the repeated movements of the head and the eyes and to changes in accommodation and convergence, it was thought that it might also be due to copying from a black board on to white paper. The National Institute of Industrial Psychology has now published a report, by W. Douglas Seymour,¹ which threatens to put the blackboard along with the slate among other educational vestiges. In copying from a blackboard children have to move their eyes from a black surface with a reflection factor of 10 to 15 per cent. to a white surface with a reflection factor of 85 to 90 per cent. The object of the work done by the Institute was to discover whether a board with a far higher reflection factor than the blackboard would enable children to copy from it more quickly and with less strain. As a white board would be likely to cause glare a light yellow board was chosen for the experiments. Blue was chosen as the colour of the chalk. Two methods—a laboratory reaction-time test and class-room tests—were used. An instrument was devised to record on a moving tape the times taken by adults to read successively exposed short syllables presented first in white letters on a black board and then in dark blue letters on the yellow board. The results showed clearly that the words on the yellow board were read more rapidly than those on the black board, the average difference being 15.4 per cent. In the classroom experiments the speed of copying the usual white letters on a blackboard was compared with that of copying dark letters on a light board. The tests were carried out in four schools in Barking and Ealing. A test passage of 100 words was written on the board and the children were told to read it right through and then copy it on paper. Three different methods of trial were adopted, covering over 1,000 cases and under ordinary classroom conditions. The results pointed definitely in the same direction: the children were found to copy nearly 10 per cent. more in the same time from the yellow board than from the black board. This saving in time, it is suggested, represents a material reduction in strain. Further investigation is being made of the most suitable materials from which boards of the colour found best from the visual standpoint may be constructed.

On February 14 Sir Arthur Keith is giving a lecture at the Royal College of Surgeons on "The Prehistoric People of Mount Carmel," when he will be presented with a bronze bust of himself, subscribed for by a group of his friends, to commemorate his twenty-five years as Conservator of the Museum of the Royal College of Surgeons.

¹ *Med. J. Austral.*, 1937, 2, 299.

¹ *Improving the Blackboard.* By W. Douglas Seymour. National Institute of Industrial Psychology, Aldwych House, W.C.2. (1s. 6d.)

lateral condyle of the femur. The popliteal artery is most vulnerable in the lower part of its course where it is related to the popliteus muscle behind the head of the tibia. At this point, just below the origin of the lowest genicular branches of the main artery, the collateral circulation is poorest; hence damage at this site is likely to result in gangrene. In addition to the risk of indirect traumatic gangrene, bumper fractures are liable to produce much disability by depressing the outer tibial condyle and so interfering with normal movements at the knee-joint. Dyas and Goren describe a method of elevating the depressed condyle by means of a bone graft in cases which cannot be treated successfully by manipulation.

NEUTRONS FOR RADIOTHERAPY

Knowledge of the behaviour of neutrons has rapidly accumulated since their discovery by Chadwick less than six years ago. Physical methods of detection are probably not hindered by the smallness of the amount of matter or energy which may be dealt with, but biological research generally needs relatively strong sources of energy before any well-marked effects can be observed. The invention of the cyclotron by E. O. Lawrence¹ within two years of the discovery of the neutron was thus of the greatest importance to biological research. In this apparatus a beryllium target is bombarded with 5-million-volt deuterons (heavy hydrogen nuclei), and a beam of neutrons is produced comparable in power to the x-ray and gamma-ray beams used in radiotherapy. It will be remembered that whereas the absorption of x rays concerns mainly the electronic system of the atom, that of neutrons is restricted to the nucleus. Thus, with x rays, the heavier the element the greater is the absorption; but for neutrons, the laws of absorption of either corpuscular or quantum radiation do not apply. Their absorption depends rather upon the collision cross-sectional area of the nucleus, so that a high coefficient of neutron absorption is found for some elements of very low atomic number—for example, hydrogen, lithium, and boron. For x rays, gamma rays, or neutrons, however, the result of absorption is the production of ionization tracks in the tissues. It would therefore be expected that the biological effects of these various radiations would be essentially similar, though some differences might arise from different selective absorptions of the primary radiation or from the varying velocities of the ions produced. So far the biological effects of irradiation with neutrons have been observed to be similar to those produced by x or gamma rays. Thus animal lymphoid and haemopoietic tissues² have been found to be the most affected by neutrons, as they are by x rays; the lethal effect on *Drosophila* eggs, the retardation of the root-growth of wheat seedlings, and the inhibition of cell-division in fern spores³ have been produced by neutrons in the same way as by x rays; a transplantable mouse sarcoma⁴ has been destroyed *in vitro*; and skin

epitheliomata and recurrent nodules of mammary carcinoma⁵ have been made to disappear in the human subject. Though the biological effects of neutrons and x rays are thus similar, it does not necessarily follow that the mechanism of their production is identical. For accurate comparison measurement of dosage is essential. At the present time neutron dosage is conveniently expressed in roentgens, 1 r of neutrons being that dose which produces the same amount of ionization in the thimble chamber of a roentgen-dosimeter as would be produced by 1 r of x rays. It is then found that for equivalent doses in roentgens neutrons are more effective than x rays: for the *Drosophila* eggs they are 2.1 times more effective; for the wheat seedlings, 5 times; for the fern spores, 2.5 times; and for the lethal effect resulting from the whole-body irradiation of mice,⁶ neutrons are four times more effective than x rays. It would therefore appear that the relative susceptibility of various cells or tissues to neutrons may differ much from their relative susceptibility to x rays, though the general order of radiosensitivity of cells (as first expressed in the "law" of Bergonié and Tribondeau) may be the same for both types of radiation. There are thus at the present time two ways in which radiotherapy with neutrons may be advantageous: first by the exploitation of these relative susceptibilities; and, secondly, by increasing the absorption of neutrons locally by a local increase in the concentration of light elements such as boron. This latter is a possibility capable of much easier realization than that of increasing the local absorption of x rays by the injection of heavy metals. For the future, there emerges also the question whether sufficient quantities of artificially radio-active elements can be produced in the tissues to be of therapeutic importance. There is one further important deduction to be drawn from Lawrence and Tennant's paper. They point out that, since neutrons per equivalent roentgen are four times more effective than x rays as regards the lethal effect resulting from whole-body irradiation, the average daily dose to the personnel working with neutrons should not exceed one-fourth of the tolerance dose accepted for x rays. Even so, whether daily doses of this magnitude over a length of time will cause damage is not yet known.

"Q" FEVER

One of the most encouraging advances made in the field of medicine since the war has been the gradual extraction of a number of definite infectious diseases from the rubbish heap labelled Pyrexia of Unknown Origin. To the list of brucella, rickettsial, leptospiral, and filterable virus infections which have been identified by combined clinical and bacteriological investigation must now be added a new disease that has just lately been recognized in Australia.⁷ In a recent account Dr. Derrick,⁸ the Director of the Laboratory of Micro-

¹ *Phys. Rev.*, 1934, 45, 608.

² *Proc. Nat. Acad. Sci.*, 1936, 22, 124.

³ *Amer. J. Cancer*, 1937, 29, 556.

⁴ *Proc. Nat. Acad. Sci.*, 1936, 22, 543.

⁵ *Amer. J. Roentgen.*, 1937, 37, 289.

⁶ *J. exp. Med.*, 1937, 66, 667.

⁷ *British Medical Journal*, 1937, 2, 722.

⁸ *Med. J. Austral.*, 1937, 2, 281.

F. A. PICKWORTH: PHYSIOLOGY AND PATHOLOGY OF MENTAL AND EMOTIONAL STATES



FIG. 1.—Frontal cortex. Three areas from same section, showing increased (A), normal (N), and deficient (B) blood supply. Ganglion cells are also shown. (Mag. $\times 32$; 50μ thick.)



FIG. 2.—Motor cortex (case of delusional insanity), showing relatively good blood supply (A), and deficient blood supply (B). Compare the size of the Betz cells (marked by arrows) of both parts with the relative capillarity. (Mag. $\times 32$; 50μ thick.)



FIG. 3.—Occipital cortex (case of schizophrenia). Note normal vascularity (A), and relative anaemia (B). Cells are quantitatively normal. The white band of Gennari is marked by an arrow. (Mag. $\times 32$; 50μ thick.)



FIG. 4.—Cerebellum. Cortex of two contiguous lobules showing difference in vascularity. (Mag. $\times 60$; 250μ thick.)

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

SALINE INFUSIONS

BY

HAMILTON BAILEY, F.R.C.S.

Rectal Saline Infusion

Rectal saline infusion has the advantage of simplicity; it requires neither special apparatus nor asepsis. A drachm of salt to a pint of water at a temperature of 115° F. is allowed to gravitate into the rectum through a funnel and tube connected to a catheter. The patient's hips are elevated, and the funnel is held at a height of two feet. The usual amount of infusion is half a pint every four hours.

The celebrated John B. Murphy of Chicago introduced continuous rectal saline infusion (proctoclysis), which was a distinct advance, especially in cases of peritonitis. Slow continuous delivery of the saline aided its absorption, and with less disturbance to a patient in a critical condition. Murphy emphasized that the height of the reservoir should not be more than one foot above the rectum (Fig. 1), that the delivery tube should be of comparatively wide calibre, and that his glass bulb with many perforations (Fig. 1, inset) should always be employed. *It is to be noted especially that in Murphy's apparatus there is no valve or dripper in the circuit; thus flatus can be expelled up the wide rubber tube into the reservoir.* These simple principles have not been fully appreciated, and need further diffusion among the medical and nursing professions.

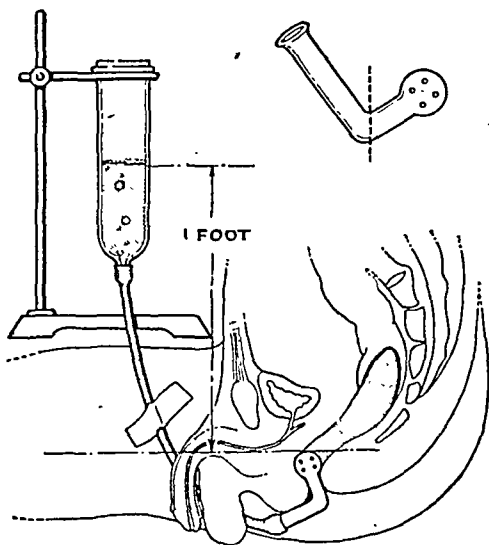


FIG. 1.—Diagram embodying the essential principles of proctoclysis as laid down by Murphy. Inset: Murphy's glass cannula; the part to the right of the dotted line lies within the rectum.

Many consider that the administration of saline by the rectal route satisfies almost every requirement. I have heard it said that if a mariner with "water, water everywhere, but not a drop to drink" were equipped with a funnel and tube he could absorb enough sea-water via the rectal mucosa to avert death for days or even weeks. Whether or not this is true, a close observer soon realizes

that rectal saline, even when given by an experienced and painstaking nurse, is sometimes returned, particularly in cases where it is most needed. I am compelled to agree with Willard Bartlett of St. Louis that whoever wishes to adopt saline by the rectal route exclusively should first administer it a few times in person, and watch the results.

Summarizing, rectal saline is simple, safe, but slow and not satisfyingly certain.

Subcutaneous Saline Infusion

The apparatus for administering saline subcutaneously consists of two sharp-pointed aspirating needles which are attached to some form of infusion apparatus by a Y-shaped glass connexion. The subcutis beneath the breasts is usually chosen for the injection. The skin is sterilized and the sterile needles are inserted with the saline already flowing. They are kept in place with adhesive tape. The fluid should be at a temperature of about 112° F.; it cools considerably while passing through the tubes. The container is raised to a height of three feet, and the saline must gravitate at such a rate that there is no undue swelling of the subcutaneous tissues. It is often possible to give two or more pints of saline by this method without removing the needles.

This mode of administration of saline is inclined to be painful; it cannot be continued for more than a few hours; and the tendency is to replace it by the more certain method of continuous intravenous infusion, which can be administered without discomfort and with great precision.

Intravenous Infusion

Given in a massive single dose (a pint or more) intravenous infusion has many times saved life. True, saline and other isotonic solutions are but a poor substitute for

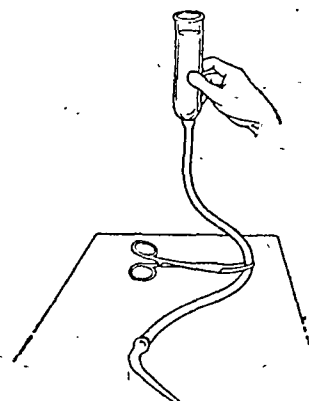


FIG. 2.—Funnel and tube in readiness for an intravenous infusion. Some fluid has been allowed to escape from the nozzle in order to be certain that there is no air in the tube.

whole blood, but occasions arise when urgency forbids the delay inseparable from blood transfusion. When a patient is collapsed his veins will be in a like condition, and it is necessary to insert a cannula into the vessel.

Technique.—Before the vein is exposed the funnel and tubes should be filled with the solution. To ensure the absence of air in the tube and nozzle some fluid is permitted to escape. As soon as air-locks and bubbles are eliminated the tube is clipped (Fig. 2). A rubber catheter

D. J. HARRIES AND EMRYS WILLIAMS: AN UNUSUAL TUBERCULOUS APPENDIX



FIG. 1.—Photograph showing size and shape of appendix after hardening and mounting.



FIG. 2.—Microscopical appearance of a section taken from the cut surface of the base of the appendix.

H. BARSOUM: A CASE OF CHLOROMA



FIG. 6.—Osteoclastoma associated with osteitis fibrosa. Photograph of tissue removed by puncture from the right humerus, showing the typical giant cells.

W. A. BELLAMY: ABNORMALITY OF RIBS



FIG. 5.—Photomicrograph of the parathyroid adenoma removed by operation. An alveola-like arrangement of the cells is well marked.

P. R. ALLISON: HEALING OF EMPYEMA CAVITIES, WITH SPECIAL REFERENCE TO ASPIRATION AND AIR REPLACEMENT AS AN AID TO OPERATION



FIG. 1.—Radiograph of chest after aspiration of six pints of pus, showing mediastinal replacement and partial expansion of lung.

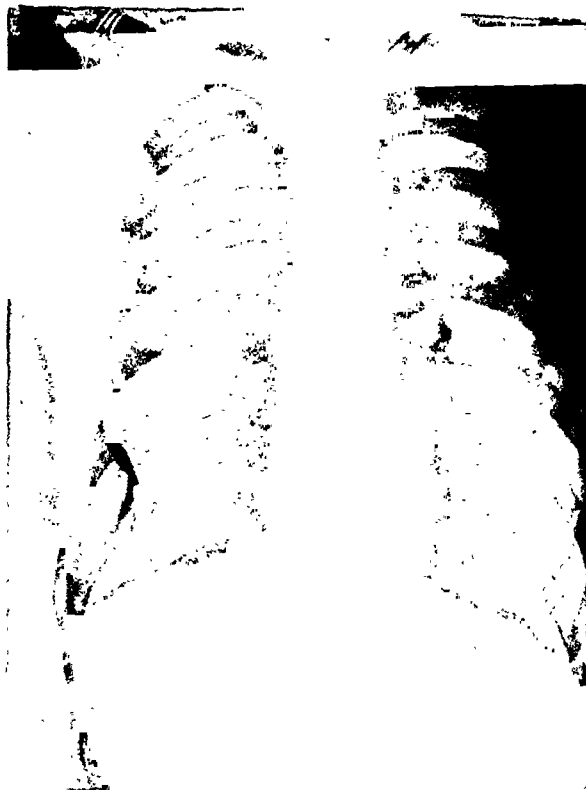


FIG. 2.—Radiograph of chest in another case following injection of lipiodol into sinus, showing thickened interlobar septum.

DOROTHY PRICE: TUBERCULOSIS IN INFANTS



FIG. 1.—Aged 5 months. Ribbon shadow caused by tuberculous paratracheal glands. Child recovering.

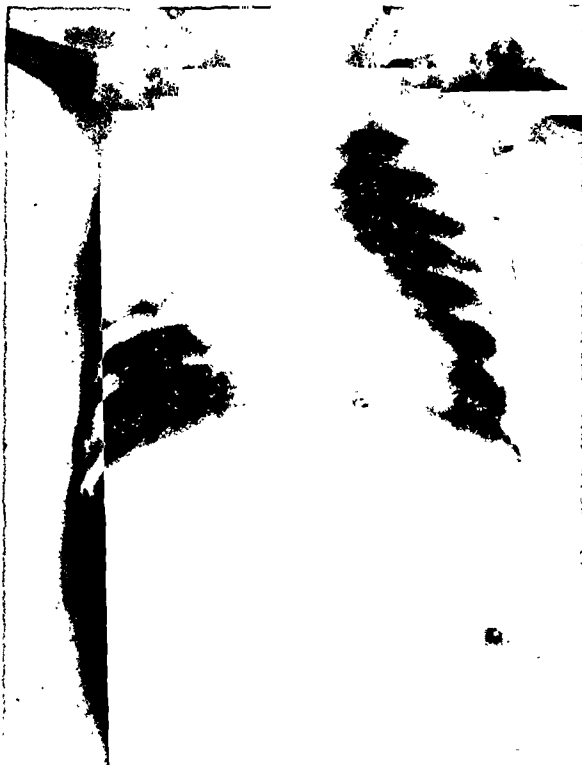


FIG. 2.—Aged 10 months. Infiltration of right lung, accompanied by spina ventosa and multiple subcutaneous tuberculous abscesses. Cured two and a half years later, with radiograph clear except for a small calcified hilar gland.

is placed round the arm. If the veins in front of the elbow are not visible the venous blood is milked upwards from the wrist. A folded towel is placed beneath the elbow to hyperextend the joint. If the patient is conscious a little local anaesthetic is injected into the sterilized skin over the vein. A short transverse incision is made through the skin, and the beak of a small haemostat is introduced into the wound and its jaws opened widely (Fig. 3). If this manœuvre is carried out once or twice the

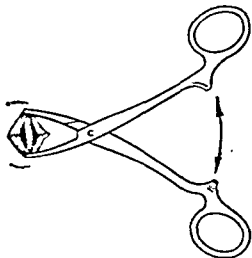


FIG. 3.—A rapid and efficient method of displaying a subcutaneous vein through a small transverse cutaneous incision.

vein will be cleared from the subcutaneous tissues better than by painstaking dissection, and there is no fear of tearing even a delicate vein. Two catgut ligatures are passed beneath the vein; the lower is tied and the ends are caught in the haemostat. Using gentle traction on the latter, a small transverse nick is made in the vein wall. The anterior wall of the vein is held up (Fig. 4) until the nozzle (through which the saline is now running) is within the lumen; then the proximal ligature around the vein and the nozzle within it is tied. After the administration, as the last ounce of fluid is gravitating into the vein, the cannula is withdrawn and the ligature surrounding the vein is tied quickly. Two skin sutures are required to complete the operation.

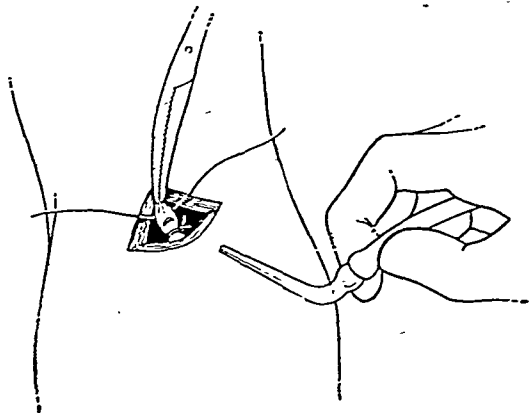


FIG. 4.—A vein exposed at the fold of the elbow ready for the insertion of the cannula.

Continuous Intravenous Infusion (Venoclysis)

Useful as is the massive dose of intravenous saline the indications for its use are limited. It must be borne in mind that unless there has been a corresponding loss it is manifestly unphysiological to put into the circulation a pint of fluid more or less suddenly. In shock, dehydration from vomiting, oliguria, and many forms of toxæmia, a slow continuous flow of saline intravenously approaches the ideal, for we know exactly how much fluid the patient is receiving. The fluid can be given over a period of

days, and the rate of flow and the amount of fluid can be regulated with mathematical precision.

Continuous intravenous saline is valuable in the treatment of shock. In these cases an ampoule of coramine may be added to each pint of the saline solution with advantage. French observers have reported favourably on the results of adding adrenaline in doses of 5 minims of 1 in 1,000 solution to each pint.

Preparation of the Solution.—Obviously a solution which is introduced directly into the circulation must be absolutely sterile. But this is not enough: it must also be free from dead bacteria and other extraneous matter, such as fur from the sterilizer. Boiled tap-water does not fulfil these requirements, and reactions are bound to occur if it is used. Triply distilled water not more than a week old must be employed in all cases. It is, of course, equally important to have the sodium chloride sterile and pure. Tablets sold in tubes for the preparation of normal saline are not manufactured with a view to intravenous therapy. Sterile ampoules for making the solution are obtainable.* Leading manufacturing chemists now put up sterile normal saline in sealed litre bottles. When there is difficulty in obtaining fresh distilled water, and the facilities for sterilizing the somewhat bulky apparatus are not perfect (as in a private house), saline in this form, though comparatively expensive, has obvious advantages.

Saline or Saline and Glucose?—Normal saline solution alone meets most requirements. When glucose is employed we are introducing a substance into the circulation which requires katabolism, and if glucose is to be used there should be adequate reasons for its introduction: the patient must be in need of glucose, as one who has been starved, and only enough glucose for his immediate requirements should be introduced by the intravenous route. As regards insulin, if there is no reason to think that there is a deficiency of this hormone there is no need to give more.

Apparatus.—Special needles and cannulae for intravenous infusion are available. The ones shown in Fig. 5

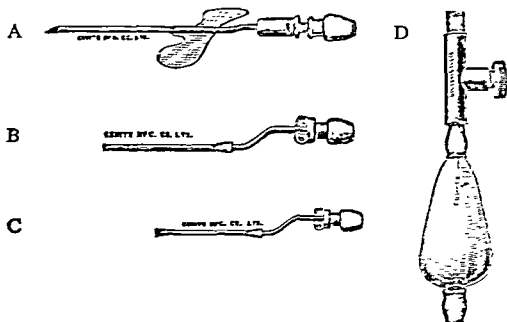


FIG. 5.—Author's needle and cannulae. A, Needle for insertion into a vein by puncture; B, Cannula; C, Cannula, child's size. All the above are gold-plated to prevent corrosion. D, An interceptor for continuous intravenous saline.

will be found to be satisfactory. Every portion of the apparatus (see Fig. 7) must be freshly boiled and washed through with sterile water or saline before the reservoir is filled. New rubber tubing should be boiled, stretched, and washed through to remove chemicals, and boiled again before the apparatus is assembled. An interceptor—Fig. 5 (D)—is an integral part of the armamentarium: it should be freed of contained water from the sterilizer before the reservoir is filled. The whole apparatus must

* The Crookes Laboratories, Park Royal, London, N.W.10.

A. W. FAWCETT: A CASE OF HYPERPARATHYROIDISM



FIG. 1.—Right humerus before operation and before fracture.



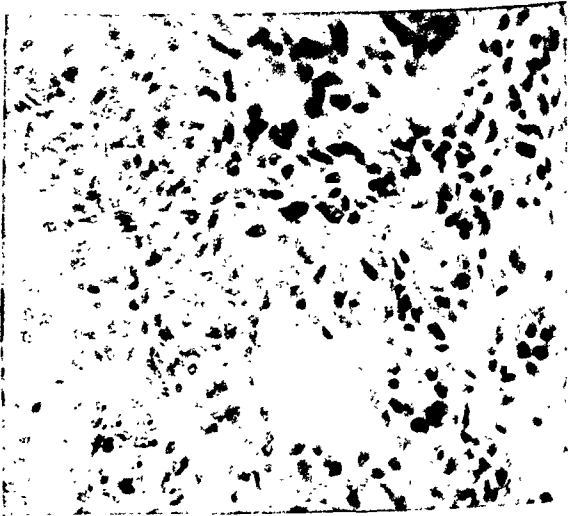
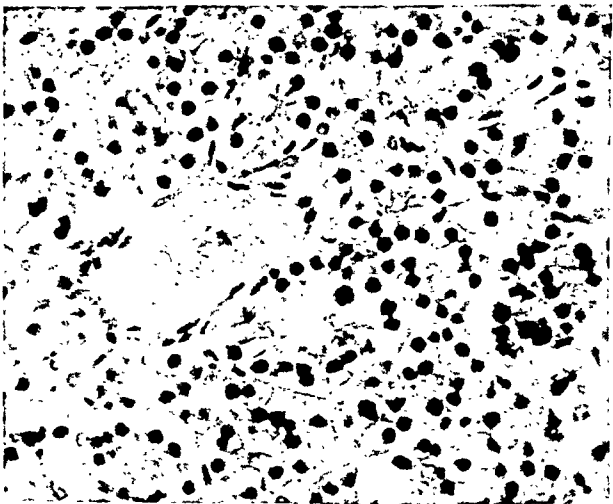
FIG. 2.—Right humerus, showing union following fracture. Taken two months after operation.



FIG. 3.—Left tibia, showing cyst formation.



FIG. 4.—Pelvis before operation, showing areas of rarefaction.



be seen to be in working order and the filled reservoir suspended suitably before any attempt is made to prepare the patient for the reception of the saline.

TECHNIQUE

Choice of the Vein.—In general it is best not to use a large vein; one just a little larger than the cannula or needle is most suitable. A vein of the forearm is usually chosen. If no veins can be seen an incision should be made over the beginning of the internal saphenous vein; even in newborn infants one never fails to find this vessel just anterior to the internal malleolus. In patients who are restless, or may become so, the leg as a site for the infusion is preferable, for the lower limb can be splinted securely.

Inserting a Cannula.—In many emergency conditions the veins are collapsed; consequently it is necessary to expose the vessel. This is done through a small transverse incision, as already described. Full aseptic ritual must be observed, in the preparation both of the patient's skin and of the operator's hands; it cannot be stressed too often how vital it is for everything to be aseptic in this procedure. For subsequent smooth running it is recommended to flood the wound and moisten the cannula with citrate solution immediately before inserting the cannula into the vein. Once the cannula is satisfactorily in position the wound is closed about it. The cannula is now fixed to the skin by means of fine stitches passed through the slots near its base (Fig. 6).

Inserting a Needle.—If a needle, as opposed to a cannula, is chosen, it is a mistake to take the most prominent vein. One that is easily palpable but well obscured and supported by subcutaneous fat will be found to be less mobile and thus more readily entered. The large prominent veins of the aged are notoriously difficult to enter, and in these cases it is as well to transfix the vein transversely with a fine hypodermic needle before carrying out the puncture. The special needle is unfastened, the base being left attached to the tubing of the apparatus (Fig. 7). The needle is then placed on a Record syringe and a small amount of citrate solution is drawn up through the needle into the barrel. After a tiny nick has been made in the anaesthetized skin with a scalpel puncture of a vein is carried out, and this will be found easier with the syringe attached to the needle. In order to be certain that the vein has been entered blood is drawn up into the syringe, and a little citrate solution is then injected into the vein. The syringe is removed and the base of the needle connected to the adaptor at the end of the tubing. The needle is kept in position by suitable strips of adhesive plaster passed over the wings of the needle.

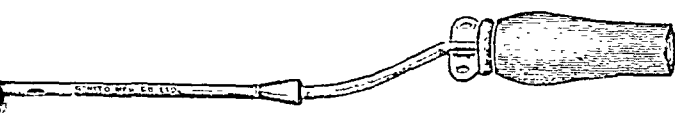


FIG. 6.

Keeping the Limb at Rest.—For the arm a posterior plaster strip well padded with Gamgee tissue with a turn around the wrist forms an ideal splint readily adapted to each individual patient. For the leg a posterior splint with a footpiece is very serviceable (Fig. 8). Alternatively, a Thomas's knee-splint can be used; this has the advantage of ensuring rigidity of the limb if the patient is inclined to be restless.

The Temperature of the Fluid.—In spite of the many ingenious devices that have been put forward for keeping the fluid warm the simplest appears to be the best—namely, the patient's leg or arm into which the saline solution is flowing is kept warm with a hot-water bottle

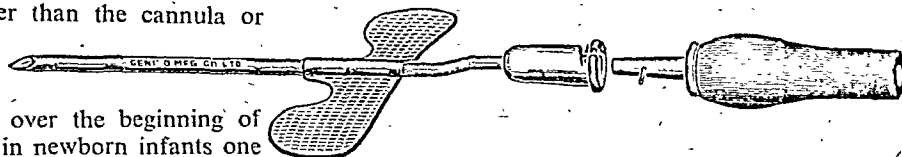


FIG. 7.

or an electric heating pad. In addition to simplicity this leaves the reservoir and the delivery tube in full view.

Rate of Flow.—The average rate of flow for an adult in need of fluid should be fifty drops per minute—that is, a quarter of a pint per hour, or six pints in the twenty-four hours. In urgent cases, for the first hour the rate of flow is often accelerated to 100 drops per minute to see how the patient responds. If the blood pressure is increased satisfactorily we are encouraged to proceed with the measure. When in doubt as to how much fluid the patient should receive the flow should be cut down to thirty drops a minute—that is, approximately three and three-quarter pints in the twenty-four hours—a dose which, at all events, is unlikely to harm him.

The Administration.—The actual administration is largely in the hands of the nursing staff. It is of paramount importance to be sure that the nurse appreciates the simple yet vital responsibilities connected with the care of the apparatus and the maintenance of strict asepsis. The nursing instructions are simple, and can be carried out by any conscientious State-registered nurse providing that she receives special instructions if she has not been trained in the method.

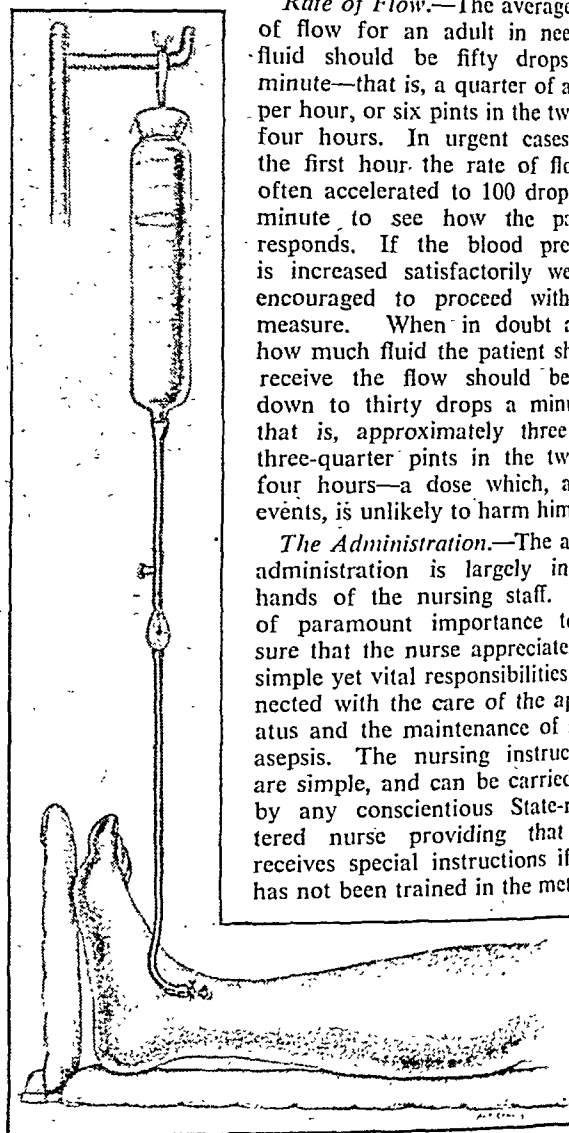


FIG. 8.—The apparatus in use. In very ill patients who are restless or may become so the limb can with advantage be placed in a Thomas's splint. (This apparatus is made by the Genito-Urinary Manufacturing Co. Ltd.)

NURSING INSTRUCTIONS

1. Every utensil used in the transfer of the saline to the reservoir must be absolutely sterile.
2. To prevent the entry of bacteria from the air the top of the reservoir must be covered with sterile gauze.
3. The reservoir must always be kept more than half full of saline.

followed the operative procedure in all but six: thirty-one patients in whom the condition was moderate had all improved, and in the twenty-nine extremities in which the condition was advanced there was subjective improvement in about 50 per cent. In none of these cases had there been any complications.

Dr. White touched briefly on two other conditions—auricular paroxysmal tachycardia and auricular fibrillation. He related the case of a child of 4 whose paroxysmal tachycardia developed at the age of 2. Novocain injection of the left stellate ganglion was carried out, and normal rhythm was restored. In another case, a woman of 70 who had had paroxysmal fibrillation for four years, bilateral injection of the stellate ganglia with alcohol and novocain gave a year's freedom from the attacks. He also related the case of a man in whom pressure on the right side of the neck produced syncope. The condition cleared up after infiltration of novocain along the bifurcation of the carotid.

Sympathetic Ganglionectomy in Raynaud's Disease

Sir THOMAS LEWIS took up first the question of sweating in Raynaud's disease. It was not his experience that patients with this condition sweated freely on their hands: many of them had hands of normal dryness. On the more general question, those who held that the vasomotor system was at fault believed that sympathectomy removed an abnormal vasomotor tone. While he agreed that sympathectomy was quite the correct treatment for many of these patients, he believed that it had its effect by removing not abnormal vasomotor tone but the normal vasomotor tone which almost everyone possessed, and it must have this tendency in cases of Raynaud's disease. Time had still to show whether sympathetic ganglionectomy, while it relieved these patients, could cure them. The rejoinder was made that when the ganglia were taken out a condition of hypersusceptibility to circulatory hormones was produced in the small vessels, and that if the operation failed it failed for that reason. When the argument was put in that way it must be disallowed. If it were true that the occurrence of the attacks in these patients was the result of increased susceptibility of the vessels to circulating hormones, then it would surely be true that all cases of sympathectomy, whether Raynaud's disease was originally present or not, would show Raynaud's phenomena subsequent to the operative procedure.

The fact of increased susceptibility of the vessels following ganglionectomy, to which he had drawn attention eight years ago, had been worked at considerably since then, particularly by Dr. White and his collaborators, and its results had been made the basis of Dr. White's later operative procedures. While he accepted the fact that the preganglionic operation was more beneficial to these patients, he did not believe that it was a better operation or gave greater relief than ganglionectomy. It did not touch the essential point that Raynaud's phenomenon was essentially local, due to a local cause. Some years ago he had stated that he did not think that, however extensive the operation of ganglionectomy was made, all cases would respond to it: there would be many left in which improvement might be achieved, but not cure. He made the same prediction now with regard to the operation of preganglionectomy. He had examined four cases in which the preganglionic operation for Raynaud's disease had been done. In all these cases, shortly after the operation, he had been able to induce attacks in the hand; he could not induce those attacks so readily as before operation, but he had not yet failed to produce a highly abnormal condition of the fingers. At the same time he had nothing but admiration for the enterprise which had led to these surgical operations, but on the question of the value of these operative procedures on the mechanism of the disease his original position was unaltered.

Surgical Intervention in Erythromelalgia and Other Conditions

Professor E. D. TELFORD spoke in particular of erythromelalgia, on which some work had been done in Manchester during the last few years. In 1878 Weir Mitchell published a paper on what he called a rare vasomotor neurosis of the extremities, and described a condition of hot burning feet, with pulsating arteries, dilated veins, intense pain on walking and standing, and intense hyperaesthesia. Twenty years afterwards James Collier followed with an account of ten cases of a similar type, but no real light on the subject was available until Lewis in 1933 published a long and careful observation and came to the conclusion that this was no disease but simply a susceptible state, that there were certain persons who had a threshold for warmth or heat which was much below the normal. Erythromelalgia was not a common condition.

A woman aged 22 was admitted to his ward with the story that since childhood she had been troubled with burning feet every summer, but in 1934 the condition persisted during the winter, and became so intolerable that she could not bear the bedclothes over the feet. The feet had the appearance of having just been removed from a hot bath. Various physiotherapeutic treatments were tried without effect: the patient was discharged but returned in 1936, begging that something might be done to relieve her condition. It seemed unreasonable to do an ordinary sympathectomy, but when it was considered that the condition might indicate some lesion of the vasoconstrictor mechanism it seemed worth while to make a trial of the procedure. Accordingly a one-sided sympathectomy was done in July, 1936, and the attacks on the operated side ceased. He waited for twelve months before carrying out the operation on the other side: this was duly carried out in July, 1937, and since then both feet had remained perfectly well.

The case suggested that sympathectomy was certainly worthy of trial in these rare but distressing instances. The speaker also touched on conditions of excessive sweating, and mentioned some remarkable cases of profuse but strictly localized sweating. One of these was a meter inspector who had to walk twelve miles a day and who had sweating of the feet to such an extent that he had frequently to take off his boots and wring out his socks. A lumbar ganglionectomy resulted in an immediate cure, and six years after operation he was perfectly well. Sympathectomy was an ideal treatment for these rare and very troublesome cases of excessive sweating. It was true there was an alternative in x-ray treatment, but he considered that to be a little too risky and liable to result in fibrosis or even in malignant change.

Professor J. R. LEARMONTH dealt with the subject of sympathectomy as applied to the alimentary and urinary tracts. The clinical problem was to convert disordered transmission into ordered transmission, and incomplete evacuation into complete. He described the procedures which had been applied: for the urinary tract renal sympathectomy, division of the presacral nerves; and for the colon, resection of the lumbar trunks, resection of the presacral nerve and inferior mesenteric nerves, or resection of the mesial branches of the lumbar trunks, this last the most selective and the least destructive. A proportion of good results had followed all the various types of operation he mentioned, and he advanced the view that at least in cases of achalasia there was room for the operation of sympathectomy as a part of treatment.

Discussion

Professor PATERSON ROSS said that they must all agree not only from the experimental point of view but from practical experience that preganglionic section was an ideal operation, but when it came to the treatment of Raynaud's disease—a special case—he agreed with Sir Thomas Lewis that there were disappointments in store for those who expected a cure. In his own experience, while many of the results were gratifying, others, for no

female patients suffering from various psychoses by the intravenous injection of typhoid-paratyphoid A and B vaccine. The conclusions reached are that T.A.B. vaccine is useless in schizophrenic and manic-depressive psychoses; that toxæmia as evidenced by confusion, occurring in association with any psychosis, may improve, but such improvement is uncertain; that pure toxic psychoses where bacterial infection is suspected as a primary cause do best, but treatment with this vaccine is only part of a general scheme, and that occasionally toxic-exhaustive patients who are severely ill derive tonic benefit from small doses.

Biochemical and Physiological Research

Looking at the communications as a whole, the main effort in research seems at present to be directed to chemical, biochemical, and physiological investigations. At Cardiff City mental hospital much work of this kind of high importance continues in progress. It includes work on narcotics and tissue oxidations, also on choline metabolism in the brain, with some interesting physiological findings. At St. Andrew's, Northampton, an investigation has been started on tissue culture of the nervous system in order to ascertain whether the method offers any promising lines of research into the functions of that system. The technical requirements are said to be difficult, but not insuperable. Numerous researches are being carried out at the Central Pathological Laboratory of the London County mental hospitals. One of them is on the selective vulnerability of the nervous system to various poisons and anaesthetics, a work of great importance which may extend over several years. Another is an investigation into the carbohydrate metabolism of various portions of the nervous system. One piece of work at this centre which has so far yielded only a negative result is an investigation into the possibility of the protection of mental hospital populations by administration of oral vaccines. So far the results do not give any reason for hoping for ultimate success in immunization by this method. One expensive and important research, assisted by a grant from the Rockefeller Foundation, consists in the production (in the course of treatment of general paralysis at Horton and Maudsley Hospitals) of therapeutic spirochaetocidal substances. The results are stated to be in process of publication.

Therapeutics

Some sixty or more items in various communications bear directly on treatment, and a dozen of these are concerned with the malarial treatment of general paralysis. At the Lancashire county mental hospital, Winwick, there has been a follow-up of old neurosyphilitics, only those cases which were admitted to hospital from ten to fourteen years ago, when the treatment consisted of malaria only, being included. The conclusions suggest that malarial therapy results in about one-third of the cases being discharged, and that whereas some 90 per cent. of non-treated cases die during the first two years after admission, half the treated cases live at least five years, and nearly a third a full ten years.

Prolonged narcosis as a line of treatment continues to receive much attention, and there are many references to somnifaine and other drugs. At Dorset county mental hospital a painstaking investigation into therapeutic narcosis with soneryl has been carried out, and a favourable report is given. The relative efficiency of luminal and prominal has been investigated at Warwickshire and Coventry mental hospital; the results of substituting prominal for luminal have been on the whole disappointing. From Newport, Mon., come observations upon the use of anti-rabies vaccine in epilepsy: two out of three cases showed some improvement mentally and a slight decrease in the number of fits.

Comparatively few psychological observations are recorded, though these include some very special ones from the psychological department at Bethlem. At Stoke

Park Colony, Bristol, under the Burden Research Trust, some 3,500 normal school children have been examined and group-tested, and nearly half of them further submitted to the Binet mental tests. An investigation on intelligence in relation to family size has been completed. From the Royal Eastern Counties Institution comes a study of mental ability in a rural community, with a view to investigating the effect of paternal occupation, illegitimacy, and parental consanguinity. This was an area in which two-thirds of the children belonged to a group interrelated by marriage, but this did not appear to affect intelligence as compared with unrelated children. No detail in mental medicine is frivolous, and therefore a note from Wonford House Hospital, Exeter, on the therapeutic value for women patients of a hairdressing room, where a permanent wave made melancholic and confused patients think they must be getting better, is worthy of inclusion among more highly scientific communications.

RESEARCH IN BLOOD DISEASES

Grants and Scholarships

The trustees of the Lady Tata Memorial Fund invite applications for grants and scholarships for research in diseases of the blood, with special reference to leukaemia, in the academic year beginning on October 1, 1938. Grants of variable amount are made for research expenses or to provide scientific assistants to senior workers. Scholarships are awarded as personal remuneration; their value will not ordinarily exceed £400 per annum for whole-time research, with proportionate adjustment for work on a part-time basis where this is approved. The grants and scholarships are open to workers of any nationality.

Applications must be submitted before March 31, 1938, and the awards will be made by the trustees in June. Further particulars and forms of application may be obtained from the secretary of the Scientific Advisory Committee, 138, Bedford Court Mansions, London, W.C.1.

Reports of Societies

SURGERY OF SYMPATHETIC NERVOUS SYSTEM

At a meeting of the Medical Society of London on January 24, with Mr. J. E. H. ROBERTS in the chair, the subject of discussion was recent advances in surgery of the sympathetic nervous system.

Dr. J. C. WHITE (Boston, Mass.) confined his contribution for the most part to a consideration of Raynaud's disease. He showed a series of photographs of successive phases of this condition—symmetrical colour changes, cyanosis, and excessive sweating. A large number of young people suffered from cold, clammy hands and feet—Uriah Heep was such a person: "His damp, cold hand felt like a frog in mine." In many the condition disappeared as they grew older, but in some it advanced into typical Raynaud's disease. It was important to note that many of these people showed excessive sweating, not of the whole body but of the hands and feet. Dr. White proceeded to give his results with lumbar ganglionectomy for Raynaud's disease in the lower extremities. The total number of cases operated on was eighteen, and the results, up to six years, were excellent in seventeen. One case gave a fair result: there was fibrosis from scleroderma. In a case which had been followed for six years the pre-operative temperature of the toes was 71.5° F.; the post-operative temperature was 93.2° F., and six years later it was 93° F. In preganglionic sympathectomy for Raynaud's disease of the hands the results in sixty-four patients, involving 106 extremities, were on the whole satisfactory. In forty-six of the extremities in which the disease was only in a mild form excellent results

total of seventy-five a family history of rheumatism was given in fifty-four. It was probable that the benign character of the psoriasis had diverted attention from its relationship to rheumatic affection. Psoriatic patients did not appear to develop mitral stenosis. For years she had been on the watch for a psoriasis case developing a rheumatic heart, but had failed so far in her search. The lesion in psoriasis and the rheumatic nodule evolved in a similar manner; the ultimate difference between them was attributable to differences in the types of cells concerned. Both lesions might persist to abscess formation, which in the case of the experimental rheumatic nodule had been shown to occur in a sensitive animal, proving that allergy played some part. In relation to rheumatic infections three features of the clinical manifestation of psoriasis were of special interest: (1) a latent period of some weeks between the time of the initial infection and the onset of the eruption; (2) the initial distinctive type of the eruption; and (3) the immunity in after-life from such internal complications as valvular heart disease, pointing to some special relationship between psoriasis and the rheumatic infection—a conclusion not invalidated by the fact that psoriasis could and did occur from other causes.

Treatment at Spas

Dr. WILLIAM YEOMAN confined his remarks to the treatment of cases at spas. Since the advent of light and x-ray treatment there had been a notable diminution of skin cases coming to spas. Shortly after the war and during the depression gout became a rare disease, and for some time hardly a case was seen at Harrogate Royal Baths Hospital. The beneficial effect of the waters of Harrogate was first produced by stimulating the action of the liver, and secondly by immersion in the waters. With acute gouty eczema it was impossible at first to give sulphur baths, but after a week or so a cautious start might be made. The association of rheumatism and psoriasis might be a coincidence, but when the two conditions did occur in the same subject there must be a common factor in causation. One frequently saw the rheumatism improving and the psoriasis getting worse, or vice versa, and it was usually the infective rather than the degenerative type of arthritis in these cases. Owing to the tendency of psoriasis to wax and wane it was difficult to assess the value of any treatment, but he felt that this condition was very suitable for treatment at a spa. He stressed the view that spa treatment acted by altering the metabolism of the patient, and was therefore more suitable for skin lesions associated with a disturbance of metabolism.

In the course of some general discussion Dr. N. BURGESS referred to the almost invariable affection of the nails in arthritic patients. In the treatment of psoriasis in acute cases with spreading lesions the appearance of new lesions was a contraindication to ultra-violet light; if new lesions were not appearing this form of therapy was exceedingly useful. Dr. AGNES SAVILL referred to a case in which there had been a steady improvement in the psoriatic condition with ionization. Dr. G. D. KERSLEY was surprised to hear Dr. Hunt's high percentage of family histories. He wondered what was taken as constituting a family history. It was a very common thing for people to reply in the affirmative when asked if they had a relative who had rheumatism. Dr. L. C. HILL said that, to illustrate the inadequacy of statistics, he had lately examined at his own hospital the statistics for gout over the last fifty years. The incidence varied enormously. For ten years it would remain at about 2 per cent., and then go up during the following ten years to 12 per cent. He discovered that the alterations in the percentages coincided with changes in the personnel of the staff. He had personally made a list of 140 cases of rheumatoid arthritis, and had found only two with psoriasis. Dr. HUNT described the care with which her assessment of family histories had been taken.

PRIMITIVE SIGHT AND HUMAN SQUINT

At a meeting of the Liverpool Medical Institution on January 20, with the president, Professor R. E. KELLY, in the chair, Mr. F. BERNARD CHAVASSE read a paper on primitive sight and human squint.

Mr. Chavasse brought forward evidence of the existence of binocular vision in all sighted vertebrates, and of its ultimate refinement, bifoveal vision, which was found not only in a small class of the mammalia but in some birds, reptiles, and even fishes. Overlapping was present in the binocular field of all vertebrates. No one had ever observed a purely monocular following movement in response to a purely monocular, visible, moving stimulus, even in the chameleon. It was safest to think of the "fusion" of the two unocular patterns as a physical affair—a fusion in the appropriate oculo-somatic motor response. Similarly, a psychological cause was not required to explain the physical facts of the comparative anatomy of the optic chiasma. It was a matter of effecting an economy in the neuron architecture required to produce the appropriate movement.

Evolution of Binocular Vision

The primitive vertebrate was as blind as a bat, which did not mean that it was unable to avoid obstacles, even in complete darkness, as a bat did. The barely defined visual fields of the two structures, which in a translucent body were as yet hardly eyes, had, if anything, a vague total overlap. By the time the fields became defined, with a maximum overlap where the prey was, the eyes had become well endowed with muscles. These muscles were developed to keep the eyes fixed relative to the panorama, in spite of movements of the head, so that from the first the two eyes were held in conjugate immobility under the influence of the compensatory (labyrinthine and "neck") reflexes. On the conjugated bi-retina fell various light stimuli, which came to be signals for the enhanced performance of reactions previously effected by non-retinal stimuli alone. He held that by applying three principles of Pavlov in the sphere of comparative physiology an orderly emergence of the various ocular reflexes could be traced; examples were given.

If binocular vision, so far from being the perquisite of man and the great apes, was so primitive as to be universal in the vertebrates, it followed that the developmental tendency towards it, manifest in the individual infant, should be very powerful. Its full development was ordinarily complete at the age of 3, and at the age of 6 or 8 years had acquired a certain unconditional fixity. If the eyes of an infant were forced into a position of squint they became confirmed in their faulty position by one or other variety of perverted binocularity. In the positive aspect of this (as distinct from the negative, amblyopic aspect) there developed, for instance, a perverted correspondence between the fovea of one eye and some eccentric spot with poor visual acuity in the other eye. The perverted reflexes were often perfected during the first three years of life and became hopelessly fixed at an early age. The eyes could be straightened for cosmetic or psychological reasons after this early age had passed, but the squinting eye was generally amblyopic. The ingrained perverted reflexes fought against the surgeon, tempting him into measures risking immediate or secondary divergence; there was as a rule no memory of normal correspondence to effect a physiological bond between the artificially straightened eyes, and it was much too late for such a bond to develop *de novo*.

Time of Operation

It was therefore often necessary, in cases not immediately relieved by occlusive and refractive methods, as well as in the great mass of unrecovered paralytic cases, to operate in very early childhood or in infancy, in order to give the ocular reflexes the chance of developing on

clear reason, were unsatisfactory. He had been much disappointed in one early uncomplicated case in which he was quite satisfied that he had performed the operation he intended to perform, but the woman still had to wear gloves while doing her housework. Mr. H. T. SIMMONS said that a series of patients had been tested for adrenaline sensitization before and after operation, and it was found that the sensitization decreased with time. In cases of Raynaud's disease clinical relapse began to appear six or nine months after the sympathectomy.

Dr. H. LETHEBY TIDY, as a student of Dickens, joined issue with Dr. White in suggesting that Uriah Heep wrung his hands because they were sweating. The whole history suggested that Uriah Heep, a sexual depressive, was against the world, and the wringing of his hands was a psychological action. While he did not deny that sweating occurred in Raynaud's disease it did not always occur, and so far from the patients having a tendency to wring their hands they usually kept them quietly in a bent position.

Dr. WHITE, in reply, urged that sweating of the hands was a frequent symptom in Raynaud's disease, though he agreed that occasionally patients with entirely dry hands were found. Nine out of ten of the early uncomplicated cases, without sclerodermia and in young individuals, showed an extraordinary degree of sweating. As for Uriah Heep, Dr. Tidy had perhaps forgotten another significant reference: "His lank forefinger followed up every line as he read, and made clammy tracks along the page (or so I fully believed) like a snail"!

which possessed certain distinctive features. The arthritis resembled clinically and radiologically atrophic arthritis, and the deformities might be very severe. One peculiar feature was the tendency to involvement of the terminal interphalangeal joints of the fingers and toes, which was rare except in severe and late cases of non-psoriatic arthritis, and the marked psoriatic changes in the nails adjacent to the affected joints. Moreover, intermittent hydrarthrosis of the larger joints was commoner than in non-psoriatic arthritis. In some cases focal streptococcal infection appeared to be the chief aetiological factor, as in one case observed in which infection from numerous dead teeth was unquestionably responsible for both the psoriasis and the arthritis, but in other cases this was not apparent.

In conclusion Dr. Barber touched upon other eruptions in association with gout, particularly a condition of the palms and soles which appeared to be a genuine gouty manifestation. It was characterized by an erythema of the palmar and plantar surfaces, extending on to the lateral surfaces of the hands and feet; by hyperkeratosis, occurring chiefly at sites of pressure; and by subjective symptoms of itching and burning. Although commonest in middle or late middle life, it might be met with in young adults and the aged.

Pigmentary Disturbances of the Skin

Dr. KERR PRINGLE, dealing with pigmentary disturbances of the skin, said that the frequency of concentrated patches of pigment occurring in cases of rheumatoid arthritis had often been pointed out. The dominant tints of the face were orange and citron, and a bronze shadow might be detected on the back of the hand. The unexposed parts of the body might be darkened in patches. Patients would say that the spots appeared at the same time as the rheumatoid symptoms. He had been on the look-out for many years for cases of rheumatoid arthritis presenting pigmented appearances, and he did not think these were as common as was supposed. He also mentioned Heberden's nodes, which were considered to be osteo-arthritis in nature. The initial symptom consisted of redness on the lateral aspect of the terminal joints of one or more digits. Occasionally rounded cyst-like bodies were seen, having the appearance of sago grains, on the knuckles of rheumatoid arthritis. These contained clear fluid, were not painful, and appeared gradually to become absorbed. He had no explanation to offer as to their nature. Patients with rheumatic disorder often stated that their chiropodist had told them that their corns and callosities or deformities of their nails were due to rheumatism. Was there any truth in that? He had always believed that corns and callosities were produced by friction or pressure, the most probable cause being badly fitting shoes or flat-foot. Nor could he believe that rheumatism *per se* had any effect on the nutrition of the nails. He made the further observation that many gouty patients stated that they were much better in general health when the skin condition was active. Treatment should be applied to the general condition—that is, the gout—rather than to the associated skin condition.

Relation of Psoriasis to Rheumatic Infection

Dr. ELIZABETH HUNT confined her remarks to some aspects of psoriasis and its relation to rheumatic infection. It had long been recognized that psoriasis was often associated with rheumatism of various forms occurring in the same individual or a near relative, but not many published records had been available. In 1933 she had detailed a series of fifty-three cases of psoriasis in which the family and personal history in regard to rheumatic manifestations was set out, and a family history of rheumatism, using the word in its broadest application, was obtained in a large proportion. This had been confirmed in a further twenty-two cases since that date. Out of the

SKIN MANIFESTATIONS IN RHEUMATISM

At the Royal Society of Medicine on January 21 the Sections of Physical Medicine and Dermatology combined for a special discussion on the skin manifestations in rheumatism.

Dr. H. W. BARBER, after a brief survey of the subject, considered in detail the question of psoriasis in direct association with rheumatoid arthritis. Apart from the syndrome arthropathic psoriasis, rheumatic symptoms were common in psoriatics. As with rheumatism, the provoking factors in the skin condition clearly varied in different cases, and from the therapeutic standpoint there was as yet no specific treatment. For the present psoriasis might be regarded as a non-specific cutaneous reaction, the tendency to which was hereditary and familial in about 30 per cent. of cases. The eruption might coincide or alternate with various types of rheumatism—fibromyositis, rheumatoid arthritis, osteo-arthritis, and gout. Provoking factors apart from heredity might include environment, diet and errors of metabolism, and acute and chronic infections. A comparison might be made between the influence of a streptococcal infection upon psoriasis and its role in rheumatism. In rheumatic fever and in the psoriasis of childhood, streptococcal infection of the throat played a very important part. The two diseases might develop after a "silent" period of about one to three weeks following either tonsillitis or scarlet fever, and in both subsequent attacks of tonsillitis were followed by recrudescences even in adults. In rheumatoid arthritis and in psoriasis beginning in adult life, focal infection in the teeth, nasal sinuses, or elsewhere might be the chief provoking factor. On the other hand, in many adult cases of psoriasis there was no evidence that streptococcal infection played any part whatever, and the same was true of some cases of rheumatoid arthritis.

Psoriasis Arthropathica

Dr. Barber went on to say that apart from the association of psoriasis with various forms of rheumatic disease and gout, there was a syndrome—arthropathic psoriasis—

sputum. It has latterly been recognized that the pneumococcus can produce a haemolysin which is as active as that of the streptococcus, and work on the differentiation of these two haemolysins is proceeding, one possible practical outcome being the production of a more effective streptococcal antitoxin than has yet been available. From the department of experimental pathology and cancer research Professor R. D. Passy reports that it has so far proved impossible to reproduce Fibiger's work on the association of cancer with the parasitic worm. Further support has been obtained for the hypothesis that cancer tends to start in areas in which defective blood circulation has been induced. At least one, and possibly two, hitherto unknown enzymes have been shown to be concerned in glycolysis in muscle extracts. No success was obtained from using colchicine in the treatment of naturally occurring tumours, and no evidence was obtained that the injection of prolactin or progesterin could augment the effect of oestrone in the development of breast tumours in mice.

The New Westminster Hospital Medical School

The fine new quarters for the Westminster Hospital Medical School are now nearing completion. With the new nurses' home they form one large block on the west side of the open space known as St. John's Public Gardens, Horseferry Road, Westminster. The main hospital building is in course of erection on the east side of the large site that has been cleared. The medical school, with its nine stories, provides everything for study and indoor recreation that modern ideas demand. The basement contains a large lecture theatre to seat 250, gymnasium, billiard-room, squash racket courts, shower baths, changing and drying rooms, and a radon room. On the ground floor are the main students' common room, smoking room, and refectory. The library and museum and adjoining demonstration room are on the first floor, with galleries on a mezzanine. On the second floor are the main classroom, small lecture theatre, and administrative offices. The histological laboratories, workshops, etc., are on the third floor; the general pathological laboratory and directors' rooms on the fourth floor; the biochemistry department and post-mortem room on the fifth floor; the physics department and research room and the operative surgery room on the sixth floor; research laboratories, photographic rooms, animal rooms, and roof garden on the seventh floor. On the fifth and sixth floors there are also bedrooms for thirteen resident medical officers, with gas-fires and a constant hot-water supply to the washbasins in each, and two bathrooms. All money used for the furnishing and equipment of the students' rooms in the medical school has been specially subscribed for the purpose and has entailed no charge on the hospital's funds. The new nurses' home, admirably laid out and decorated, will be opened by Queen Mary on March 1, and the new medical school by the Earl of Athlone in April.

Fees for Anaesthetists at L.C.C. Mental Hospitals

The Mental Hospitals Committee of the London County Council, in submitting certain proposals relating to the medical staff at Maudsley Hospital, states that one of these proposals—regarding fees for anaesthetists—has a wider bearing on the mental services as a whole. It is proposed that the fee of one guinea a session hitherto paid to anaesthetists in connexion with minor operations at Maudsley shall be increased to accord with the fees payable in the hospitals service—namely, two guineas for visits of less than three hours' duration, three guineas for visits of three hours or more but less than four hours, and four guineas for visits of four hours or more. It is also proposed that this scale shall be applied generally in the mental hospital services with effect from January 1. Other proposals relating to Maudsley only are that the part-time medical officers for out-patient diagnostic work

shall be employed for three sessions a week and paid at the sessional rate as fixed for part-time consultants in the general hospital service—namely, £275 a year. Two part-time medical officers are to be employed for the treatment of in-patients by psychotherapy, each for five sessions a week at a salary of £300 a year. A further proposal relates to members of the Maudsley Hospital staff who are granted leave to go abroad to study special problems of psychiatric treatment with the aid of grants from the Rockefeller Foundation or some similar source. On their return they are to be relieved of part of the routine clinical duty which ordinarily would absorb the whole of their time at Maudsley, in order that, in the mental hospital service generally, with its great wealth of clinical material, they may be enabled to follow up special lines of research and inaugurate methods of treatment based on their studies.

Central Midwives Board

At the January meeting of the Central Midwives Board for England and Wales approval as lecturers was granted to A. L. Gunn, M.D., F.R.C.S., Albert Davies, M.D., F.R.C.S., and Thomas Emmett Lennon, M.D. Approval for the purpose of providing instruction in the essentials of obstetric analgesia and in the use of a recognized apparatus was granted to the Leeds Maternity Hospital and the Leicester and Leicestershire Maternity Hospital. To a letter from the supervisor of midwives of a local authority, asking for a ruling on points submitted, the Board replied:

- (1) That if a midwife having booked a case calls in medical aid on account of an abnormality during pregnancy and the doctor decides that it is advisable that he should attend at the confinement, it is in order for the doctor, with the consent of the midwife, to take over the case forthwith and for the midwife to act thenceforth in the case as a maternity nurse.
- (2) That a midwife is not entitled under any conditions to issue a medical aid form in a case in which a doctor has already been summoned by the patient or her relatives or her friends.

In response to an inquiry from a local supervising authority the Board decided to inform the authority:

- (1) That the Board has always held that a midwife, as in the case of a doctor, has the right to refuse to book a case which, on any grounds reasonable or unreasonable, she does not desire to attend; but that this view does not extend to patients on whom attendance may be demanded on humanitarian grounds or a case in respect of which the midwife, as regards attendance, owes a duty to some other body, person, or authority responsible for the provision of an adequate midwifery service.

- (2) That the rules of the Board provide that if a midwife is summoned to a case of miscarriage she should not deal with such a case otherwise than as the assistant of a medical practitioner, except in an emergency when a doctor cannot attend.

Birth Control Report

The seventh annual report for 1937 of the National Birth Control Association (president, Lord Horder), with which is incorporated the Birth Control Investigation Committee (chairman, Sir Humphry Rolleston), records the visit of a joint deputation on February 2 to the Minister of Health asking him to use his powers and influence towards the establishment by local health authorities of gynaecological clinics to deal with the medical care of married women, at which advice on contraception would be available to those women to whom further pregnancy would be detrimental to health. In May the Minister issued to maternity and child welfare authorities a circular (No. 1622) on maternal mortality. In this he stressed the importance of post-natal services, stated that post-natal sessions should be held at every ante-natal clinic, and mentioned the possibility of giving contraceptive advice at post-natal and gynaecological clinics. Following the issue of Circular 1622 a letter was sent by the National Birth Control Association to all maternity

normal lines before their place had been usurped by ineradicable perversions. Photographs were shown of one of several operations which had emerged from these considerations, each designed to produce a particular effect and all specially evolved for treatment in earliest childhood and infancy. Mr. Chavasse said that he did not presume to ask for the acceptance at its first presentation of a novel view of development of the ocular reflexes, let alone for the universal adoption of particular operations by already experienced surgeons. But he did ask for the application by the general practitioner of a principle on which all ophthalmic surgeons were in solid agreement—namely, the immediate investigation of any case in which even the suspicion of an occasional squint had been aroused. Infants might squint from wind as adults did from anger, but as a rule the occasional glide meant that the ancient edifice of binocular vision was already rocking at its foundations.

In the discussion which followed, Dr. C. ALSTON HUGHES contrasted the demands of the new with those of the old methods of operating, and drew attention to the possibility of unpleasant subjective symptoms which might arise from hyperphoria following the more complicated methods, even when the cosmetic result was quite satisfactory. At the same meeting Dr. DONALD OWEN read a short paper on a case of hyperostosis frontalis interna.

Local News

SCOTLAND

Hospitals for Civilian Casualties in Air Raids

As announced in the *Journal* of January 22, (p. 182), the Government, with a view to making the fullest use in an emergency of existing hospital facilities and arranging for any necessary expansion, has decided that a comprehensive survey of the hospital accommodation of the country should be made. The Department of Health for Scotland, which is undertaking the survey in that country, has announced that Lieutenant-Colonel A. D. Stewart, superintendent of the Royal Infirmary, Edinburgh, and Dr. J. C. Knox, medical superintendent, Aberdeen Royal Infirmary, will assist the medical and other officers of the Department who have been detailed for the work. The survey will cover all hospitals and similar institutions, local authority or voluntary, and, so far as time permits, each institution will be surveyed by a medical officer and a lay officer in association. The country has been divided into Special Hospital Districts, and the officers responsible for each of these are: *Glasgow and the West*: Dr. T. Ferguson and Mr. J. Mason Allan; *Edinburgh and the South-East*: Lieutenant-Colonel A. D. Stewart and Mr. J. B. B. Brown; *Dundee and the East*: Dr. E. Watt and Mr. N. W. Graham; *Aberdeen and the North-East*: Dr. J. C. Knox and Mr. P. P. Kemp. *Highland Region*: Dr. Shearer and Mr. A. Smail. The General Board of Control for Scotland will be responsible for the survey of mental hospitals and mental deficiency institutions, and the inspecting officers will be the commissioners and deputy commissioners of the Board.

Canniesburn Hospital for Paying Patients

The auxiliary hospital and Merton convalescent home of the Glasgow Royal Infirmary, situated at Canniesburn on the outskirts of the city, was opened by Sir Iain Colquhoun on January 18. Sir James Macfarlane, who presided, said that in planning the section for paying patients they had borne in mind the possibility of extension, and the administrative block, kitchens, electric department, and heating installation had been devised on

a scale well beyond the present requirements. The accommodation for paying patients comprised forty-six single rooms, two rooms for two beds, and four for four beds. The hospital stands in grounds extending to fifty-five acres, which were purchased and presented by Sir James Macfarlane and his brother, Mr. George W. Macfarlane. The building consists at present of three blocks two stories in height linked by covered corridors. The part for paying patients contains sixty-six beds and the convalescent home has accommodation for eighty beds. The charges to cover both maintenance and nursing will be at the rate of three guineas per week for a bed in a four-bedded ward, four guineas in a two-bedded room, and five guineas for a single room.

Gifts to Scottish Universities

Edinburgh University Court, at a recent meeting, gratefully accepted the gift of Dr. J. Donald Pollock of the premises formerly used as Bristo Church in the neighbourhood of the New University Buildings, to be available for the secular purposes of the University with special regard to the requirements of the Students Representative Council and of students' associations and societies. The hall is to be known as the Pollock Memorial Hall, in memory of the donor's father and mother. Dr. Pollock also presented a number of steel-framed plate-glass cases for the exhibition of specimens in the forensic medicine department. The Court also accepted the bequest of the late Sir John Thomson-Walker of a collection of 2,500 engraved portraits of medical men and a collection of books dealing with the history of medicine, together with a sum of £500 to provide accommodation for the collection. Aberdeen University benefits to the extent of half of the residue of the estate of the late Sir Ashley W. Mackintosh, who was Emeritus Professor of Medicine at the University. He left £35,482, and his will, in addition to providing legacies for the Aberdeen Joint Hospitals Fund, Maternity Hospital, and Royal Hospital for Sick Children, directs that the legacy to the University should be used "for the purpose of continuing and furthering the study and teaching of clinical medicine along the old-fashioned lines of Bright, Sydenham, etc."

ENGLAND AND WALES

Pathological Research in Leeds University

In their annual report for 1936 on the work of the department of pathology in Leeds University, Professors Matthew J. Stewart and J. W. McLeod indicate the continuous rise in the number of students attending the various systematic courses. The research work in progress includes the accumulation of data relating to the various forms of silicosis and silicatosis, and the question of the relative incidence of bronchial carcinoma in these patients continues to be studied. Some success has been obtained in the use of artificial light for the photochemical production of gold sols. Some patients with renal calculi were shown to have an increase in the blood calcium figure, which has been attributed to hyperparathyroidism. On the other hand, an increase of parathyroid tissue in certain cases of renal disease without calculi has been reported, rendering it possible that the hyperparathyroidism accompanying the appearance of calculi may be secondary to renal disease. This investigation has therefore been extended to include a study of the blood calcium content in various types of renal disease. No evidence has been obtained that the epithelial metaplasia occurring in the cervix uteri in disease, though simulating early carcinoma, is malignant or even pre-cancerous. Gold treatment of chronic arthritis and its effect on capillary endothelium and the blood continued to be investigated. A useful modification of the Weigert-Sheridan method of staining elastic fibres has been devised, and has proved particularly useful for the detection of elastic tissue in the

Correspondence

Schick Relapse after Diphtheria

SIR.—The interesting observation made by Dr. F. Pygott in your issue of January 15 (p. 120) moved me to look up some similar results recorded in 1931 in serum-treated diphtheria patients. Of fifty-three patients tested simultaneously with two different toxins between the twenty-eighth and fifty-fifth days after antitoxin, three were Schick-positive, and in fifteen tested after the fifty-sixth day five were positive, so that in sixty-eight patients the Schick reaction was positive in 11.7 per cent. after a definite attack of diphtheria. Our experience with the earlier prophylactics showed that antitoxic immunity to diphtheria is slow in developing. It may be suggested, therefore, that the same is true after the natural disease, and that if Dr. Pygott's and my own patients had been Schick-tested at a much later date the proportion of negative reactors would have been higher. Against that, however, we can set the figures of Ker and McGarrity (1924), who found that in 157 individuals with a previous history of diphtheria 46.4 per cent. were Schick-positive, and also those of Benson (1924), who reported that of 245 children with a similar history 48 per cent. were positive. Doubtless if accurate records pertaining to these histories had been available it would have been found that in not all instances was the diagnosis of the notified disease confirmed; but even making allowance for these a goodly proportion of indisputable cases of diphtheria would have remained, and it is a curious reflection that a natural attack of the disease should give inferior results so far as immunization is concerned to an adequate course of the most recent antigens. The plain fact is that second attacks of diphtheria are not uncommon, and this is not so widely appreciated as it might be. Such results as Dr. Pygott and I have quoted indicate their possibility. The practical points which seem to emerge from them are, first, that an authentic history of previous attacks should not be regarded as a ground for regarding immunization as unnecessary, and such subjects should be at least Schick-tested; secondly, that a definite history of previous attacks should not be regarded as excluding the diagnosis of diphtheria. In several instances in my own experience the results of such an assumption have been serious.—I am, etc.,

City Hospital, Edinburgh, Jan. 24.

ALEX. JOE.

Early Diagnosis of Diphtheria

SIR,—The letter by Dr. H. J. Fardon in your issue of January 22 prompts a note on this problem so often discussed.

Some years ago an intensely interesting study of some thousands of cases of death from diphtheria was made in the U.S.A., the assumption being that if the diagnosis were made and a proper dose of serum given sufficiently early the mortality would be virtually nil. An attempt was made to find why the delays had occurred; naturally the largest percentage lay with the parents who failed to report "suspicious illnesses" sufficiently early. Dr. Fardon suggests that owing to our present medical arrangements delay may occur even after the doctor is called in. All the relevant arguments have appeared in your columns from time to time. If the doctor delays in giving serum he risks the life of his

patient, for we know from carefully controlled animal experiments that if a certainly lethal dose of toxin is given very few hours remain in which even a huge dose of antitoxin given intravenously can save the animal. If, on the other hand, the doctor gives serum to a patient whose sore throat is caused by streptococci or Vincent's organisms, and the patient later suffers from serum rash, the doctor faces an awkward dilemma.

The whole solution seems to lie in very early diagnosis. In an ideal community the diagnostic laboratory would be open day and night, and the pathologist could report immediately that the smear showed predominantly diplococci and streptococci or Vincent's organisms. By the use of the Folger-Solé swab he could detect the presence of diphtheria bacilli in some cases within four or five hours, and then aid the practitioner. The provision of such diagnostic facilities would be somewhat comparable with the arrangement made in America for the rapid typing of pneumococci in pneumonia. It is for our medical leaders to consider to what extent such a scheme is practicable, for it would be costly and troublesome.

As a compromise it might easily be possible to include on the notification form for diphtheria a few questions to be answered by the doctor. When was the first visit made? How long had the patient been ill previously? When was the first dose of serum given? How much serum was given? Was a swab sent for diagnosis before serum was given, and when was it sent? The study of the answers to these questions by each M.O.H. and a periodical confidential report on the analysis to the whole of the doctors in the area would probably serve a useful purpose.—I am, etc.,

Jan. 26.

BACTERIOLOGIST.

Silicosis Inquiry in South Wales: A Disclaimer

SIR,—During the past week several newspapers have published inaccurate accounts of the progress of the investigation into silicosis in the South Wales coalfield which is being promoted by the Medical Research Council with the assistance of their Industrial Pulmonary Disease Committee. These include a statement attributed to "a member of the Pulmonary Diseases Board" (apparently meaning one of the investigators working under the direction of the Committee) to the effect that the results of the inquiry will make possible an immediate reduction of over 80 per cent. in the incidence of silicosis in the anthracite coalfield. The facts are that the investigation is still in an early stage; that the results cannot yet be assessed; and that no such opinion as that purporting to be quoted has been formed. No interview has been given to the Press, and the alleged statement has not been made by the investigators.—I am, etc.,

E. MELLANBY,

London, February 1. Secretary, Medical Research Council.

Rehabilitation Centres for Injured Workmen

SIR,—This subject has been investigated by the Joint Committee of the British Medical Association and the Trades Union Congress, and the memorandum subsequently presented to the Government Interdepartmental Committee was very carefully prepared. The statistical estimates included in it are as exact as it is possible to make them, and the figures mean precisely what they say.

Rehabilitation Unnecessary.—A complete recovery and the return to original work is possible even without rehabilitation treatment, either because the injury is trivial or because the victim is not engaged in heavy industry, in 70 per cent. of cases.

and child welfare authorities which have not yet taken action under previous memoranda of the Ministry of Health. Out of 423 such authorities, ninety-five now have post-natal, gynaecological, or birth control clinics; eighty-six refer cases to voluntary clinics, private doctors, or hospitals; thirty-four give grants and/or lend premises to voluntary clinics; some do more than one of these things. In addition, forty-five stated that they give advice, but have no clinics or special arrangements; and 169 authorities do nothing. The report is issued from 26, Eccleston Street, London, S.W.1, and gives brief details of the year's activities and finance.

NEW ZEALAND

[FROM OUR CORRESPONDENT IN WELLINGTON]

Maoris and Tuberculosis

Tuberculosis in the Maori race presents a difficult problem. It is impossible to enforce the Health Act in small Maori settlements where housing and sanitation are primitive. Hutments now being supplied by the Government as an experiment represent a middle course between communal life, with its risks of infection by chance contact, and complete segregation of cases of active tuberculosis, which is objected to by the Maori people. The huts are not unlike those supplied to railway construction camps. Each has two windows and a fireplace. Except in the case of indigent natives the infected persons or their relatives are expected to provide suitable furnishing. The hutments will be under the control of the medical officers of health, and special nurses will make periodical visits to advise on any problems and watch the progress of the cases. Hitherto the tendency has been for patients who improve under hospital or sanatorium treatment to suffer a relapse on return to the native settlements. In spite of the tuberculosis menace the Maori population is increasing.

Medical Research

The Government has established a Medical Research Council under the provisions of the Health Act. A statutory function of the Health Department is to promote or carry out researches and investigations in matters concerning the public health and the prevention or treatment of disease. The members of the council are all medical except the Director-General of Scientific and Industrial Research. The council will act solely in an advisory capacity to the Minister of Health and will not control expenditure. *Ad hoc* committees will be appointed as part of the organization to supervise each investigation, and adequate funds will be provided by the Government. Preliminary work of investigation has already been done by way of research under the auspices of the Department of Health. Subjects for present and future investigation include nutrition, tuberculosis, goitre, dental caries, hydatid disease, cancer, and undulant fever. It is not intended by the council to provide funds for buildings, but, if approved, full costs of investigation will be allowed, including the salary of the research worker and the cost of equipment. From 1924 to the present time the Government provided only £13,239 for medical research in New Zealand, and the payments were intermittent. Now it is certain that medical research will be on a more definite and liberal plan and co-ordinated with similar research in England and in Australia.

The Pharmacy Industry

The Minister of Industries and Commerce in the Labour Government has provided a plan for the reorganization and control of pharmacies in accordance with the advice of the Bureau of Industry. This plan has been submitted to the principals of more than six hundred

pharmacies in New Zealand, who must vote on the question. The basic points have been outlined as follows: ensuring the dispensing of standard quality drugs at reasonable prices by, or under the immediate supervision of, qualified pharmacists; retaining individual ownership and operation of pharmacies without preventing the properly controlled operation of company pharmacies with branch shops; the exclusion of wholesale druggists, manufacturing chemists, and oversea representatives whose industries may be the subject of separate plans. The Minister stated that "the plan does not propose to introduce at the present stage an official drug tariff and a standard dispensing fee and to require their compulsory observance, but it is recognized that when practicable those steps should be taken." It is also proposed to appoint employees as members of the Pharmacy Board. The Pharmacy Plan Industrial Committee is to have three members nominated by the Government, two by the Pharmacy Board, one from friendly societies' dispensaries, and one from employees of pharmacists. The Director of Pharmacy is to be appointed subject to the approval of the Bureau of Industry. Certain immediate advantages which pharmacists may gain by way of protection against competition may induce a majority to vote for this form of control of their business by the "socialization" of the means of production, distribution, and exchange. If the pharmacists take the Government into their businesses they will not easily get rid of Government control if they so desire at a later period. What is good for the pharmacists may be considered good for medical practitioners, so that the medical profession cannot remain unconcerned about these novel and apparently drastic "plans."

Hydatid Disease

The number of cases of hydatid disease in public hospitals in New Zealand last year was 133; the number of patients in their own homes and in nursing homes is not known precisely, although the disease is notifiable. The mortality rate is 16 per cent. The Royal Australasian College of Surgeons has established a register of fully recorded cases, which now number over a thousand in the register. New legislation has just been passed in New Zealand amending the Dog Registration Act with the object of checking the spread of hydatid disease. The Minister of Health explained to Parliament that the cycle of the disease from the sheep to the dog and from the dog to man was well known. The only certain remedy, he said, was for people to give up feeding raw livers and lights to dogs. Compulsion in this matter was not possible, but education of the public might be gradually effective. The amendment to the Act, however, provided the next best thing, and ordered a form of treatment which had proved useful in the Argentine, Nicaragua, and Iceland. In future, when dogs are registered the owners will be compelled to purchase arecoline hydrobromide and give this to the dogs at regular intervals as a vermicide. At the Royal Agricultural Show the Governor-General, Viscount Galway, called attention to the menace of hydatid disease, and made a special appeal to the farmers. There is no reason why, with proper supervision and the imposition, if necessary, of penalties, this disease cannot be completely eliminated from the country.

The following awards have been made to medical men from the fund placed at the disposal of the Secretary of State for the Colonies by the Trustees of the Carnegie Corporation for the purpose of enabling selected officers of the Colonial Service to undertake special courses of study: Dr. C. J. Austin (medical superintendent, Central Leper Station, Makongai, Fiji), for the study of leprosy in Egypt, India, Malaya, and the Philippine Islands; Dr. W. B. R. Jones (medical officer, Nevis, Leeward Islands), for a course in general surgery at the University of Edinburgh; Dr. A. H. Lowther (Malayan Medical Service), for studies in ophthalmology in Europe, India, and Egypt.

abundantly proved that a pasteurizing temperature much lower than 145° F. will be sufficient to ensure an entire freedom from tubercle bacilli. I am wondering how Dr. Macfadyen can excuse the presence of abortus organisms in certified milk.

Over a long series of investigations in the United Dairies laboratories 70 per cent. of herd samples of certified milk contained the abortus organisms of undulant fever. Of the same samples 63 per cent. contained the haemolytic streptococci of mastitis. I do not think anyone will suggest that the ordinary acid- and gas-forming organisms which are all included under the heading of *B. coli* are in any way comparable in their deleterious effects to these two organisms, *B. abortus* and the *Streptococcus haemolyticus*. The emphasis placed by certified milk producers on the gross bacterial plate count is not significant, since milk which has been pasteurized is entirely free from potential pathogenic organisms. A suggestion made in Dr. Macfadyen's letter that pasteurization is difficult to control is entirely unwarranted. The phosphatase test gives a complete control of the efficiency of pasteurization.

Dr. Macfadyen ends his letter by saying that "if a compulsory scheme were put into operation there would undoubtedly be a false sense of security." What alternative would he suggest? The only one I can see is that a standard of purity would be required that made it a penal offence to sell milk containing the bacillus of tubercle, *B. abortus*, and perhaps the mastitis streptococcus. Does Dr. Macfadyen demand a freedom to sell milk infected with these germs without penalty? Surely not. The United Dairies consistently apply a test of the bacterial content of pasteurized milk—namely, a plate count of milk samples, two days after bottling, taken from unsold supplies returned from the rounds. Two days is generally the longest period of storage of milk in homes. The results are convincing, and abundantly prove the efficiency of pasteurization. There is no question but that pasteurization is the only process which will ensure a supply of safe milk for public consumption.—I am, etc.,

London, S.W.16, Jan. 26.

JAMES KIRKLAND.

Recovery in the Spinal Cord

SIR,—In the dissecting room and at surgical operations students are taught to preserve the nerves but to ignore the small blood vessels; this teaching, however, must not be generalized to the central nervous system. Mott's experiment (quoted in my paper in this issue) demonstrates the dependence of cord function upon the blood supply, and therefore a meticulous conservation of the small vessels is of primary importance in all operations upon the central nervous system.

The report of Dr. J. Purdon Martin's paper in the *Journal* of December 18 (p. 1242) includes in the consideration of requirements for recovery: (a) "interference with its circulation," (b) "scarring," and (c) subsequent "nutritive" of the cord; these are, however, subordinated to (a) severe cord damage, (b) glial overgrowth, and (c) provision of nutrient substances, respectively. The relation of the unfavourable prognosis of local syphilitic lesions and of intercurrent or chronic infections to vascular defect also is not made clear. Recovery of function in the cord is primarily dependent upon the restoration of blood supply to ischaemic areas.—I am, etc.,

F. A. PICKWORTH.

Director, Joint Board of Research
for Mental Disease.

Northfield, Birmingham,
Jan. 29.

Acute Appendicitis

SIR,—May I draw your attention to a point made in Dr. A. M. Spencer's interesting article (*Journal*, January 29, p. 227) on the aetiology of acute appendicitis? I refer to a sentence in the paragraph headed "National Distribution," which states that "in the villages of India and China the disease is unknown." This statement is an important, though perhaps not essential, link in his argument, and therefore deserves some comment. I believe that it has found its place in contemporary literature partly, at any rate, as the result of a paper by Weischer of Tsingtao, and I have seen this source many times referred to and copied.

I do not know anything about India, but it is true that appendicitis is not a common emergency in Chinese practice. It does not, however, follow that because cases of acute appendicitis are not often brought into hospitals, which are nearly always situated in towns, it does not exist in the villages. The large majority of Chinese peasants who come to hospital do so for economic reasons—they cannot do their work. In the mind of the Chinese peasant very few, if any, diseases are acute and require immediate intervention; the local resources must first be exhausted, and by that time the patient has either recovered or died.

The incidence of acute appendicitis in a well-established hospital increases slowly with a local realization of its gravity. Students who go home to their villages tell stories of patients with histories which are unmistakable, and needle marks in the right iliac fossa are common enough. This is the result of "needling", universally used to produce counter-irritation. I have more than once opened an abdomen to remove an appendix and found the caecum adherent to the anterior abdominal wall at the site of an old needle scar. Further, the incidence of appendicitis among a large student community eating Chinese food is, I think, about the same as that among the foreigners eating foreign food. Similarly, it was commonly said that tabes dorsalis and epidemic encephalitis did not occur in China. When the late Dr. Andrew Woods, neurologist to the Pekin Union Medical College, went out into the country to look for it he found a considerable number of cases.

The incidence of disease in China and other village communities is undoubtedly difficult to estimate, but there exists enough evidence to show that negative propositions such as the one to which I refer are based on incorrect information, though they may or may not be partially true.—I am, etc.,

H. W. S. WRIGHT,

Late Associate Professor of Surgery,
Cheeloo University, Tsinanfu.

London, W.1, Jan. 28.

Correct Footwear

SIR,—I should like to endorse Dr. Dorothy E. Mason's contentions regarding the requirements of the normal female foot (*Journal*, January 22, p. 203). In my student days Mr. E. K. Martin was able satisfactorily to demonstrate that "heels" were quite unnecessary. And ultimately a well-known London firm of shoemakers has been able to show that a "heel-less footprint shoe" need be neither spatulate, ungulate, nor rectangular, needing only to fit like a glove round the instep and heel and to leave the toes room to exercise. (An objection to heel-less shoes is commonly based on experience of the bedroom slipper—a sloppy object.) Elegant materials and craftsmanship can undoubtedly do much to mask any unorthodoxy. By taking weight off the toes and distributing it

Rehabilitation Necessary.—A complete recovery and the return to original employment is possible, if careful and expert treatment is followed by expert rehabilitation, in 25 per cent. of cases.

Vocational Retraining Necessary.—Even with the best treatment the patient will be permanently incapacitated from his work, and he must therefore learn a new trade, in 5 per cent. of cases.

There are two sources of permanent incapacity after bone and joint injury: (1) pathological changes over which the surgeon has little or no control, such as deprivation of blood supply of the articular cartilage of the carpal bones, head of the femur, astragalus, etc.; irreparable damage to the main vessels or nerves of the limb; and virulent infection beyond the control of conservative surgery; and (2) malunion due to imperfect reduction or redisplacement; non-union due to inadequate immobilization; joint stiffness due to injudicious splinting, passive stretching, continuous skeletal traction, etc. In the first group permanent incapacity is inevitable, but the proportion of cases in most fracture clinics is less than 5 per cent. The figure will obviously vary in different centres according to the relative number of major and minor injuries treated, but in the average city hospital in industrial areas the proportion should be within 5 per cent. In the second group permanent incapacity is not inevitable: it is the result of an avoidable error of treatment, and in past years this has been the most common source of disability, in some cases the figure for permanent incapacity in this second group approaching even 20 or 30 per cent.

That it is already inconceivable that treatment could ever have been so bad is a great tribute to the British Medical Association Fracture Committee, and to those few individuals who for many years have worked incessantly to improve the standard of fracture treatment in this country. But the goal is not yet reached, nor will it be attained by the establishment of fracture clinics alone. The success of the clinics will be judged by the extent to which they minimize the avoidable errors of treatment. The surgeon who adopts haphazard methods, who ignores radiographic control of treatment, who accepts indifferent methods of immobilization, and who blames his end-results on the fracture or the patient instead of on the treatment, will always find it difficult to believe that disability is inevitable in only 5 per cent. of injuries. When surgeons in charge adopt the principles of fracture treatment whole-heartedly, exercising the utmost vigilance, allowing no complication to pass unrecognized and uncontrolled, and inspiring every patient with enthusiasm, only then will avoidable incapacities be avoided. Unless this is done the rehabilitation centres, which we are determined to establish, will be faced with the same impossible task as the old massage departments.—I am, etc.,

Liverpool, Jan. 25.

R. WATSON-JONES.

SIR,—Mr. Eastwood's letter in the *Journal* of January 22 (p. 202) is indeed timely, and raises many important issues on this subject. Nobody would seriously maintain that the percentage of incapacitated persons leaving a fracture clinic is as low as 5 per cent., nor is there the slightest hope that this figure can ever be remotely approached, let alone reduced. In all probability the fracture clinic figure of 5 per cent. mentioned in the memorandum of the Joint Committee of the British Medical Association and the Trades Union Congress is meant to suggest that this is the proportion of patients totally incapacitated by reason of fractures sustained during the course of their work. Even if this supposition is correct the figure is low, because there is no doubt that the

industrial accident is often a very mutilating affair. The insurance combine's figures of disability quoted in Mr. Eastwood's letter are not high, and undoubtedly include cases of permanent total incapacity and also permanent partial incapacity. It should be borne in mind that an apparently trivial accident, or a fracture, which leaves even a trace of impairment of function may, in a skilled workman, result in a permanent partial incapacity sufficient to prevent him from ever again working with the same degree of efficiency.

Mr. Eastwood is perfectly right in suggesting that before schemes for the establishment of these centres are embarked upon reliable statistics should be obtained from all sources: from surgeons treating large numbers of fractures, from insurance companies, trade unions, etc. There is every likelihood that the results of work done in rehabilitating the injured workman may be disappointing for those who will be forced to provide the means for setting up and maintaining the centres if our profession persists in talking of percentages of cures which never have been, and never will be, attainable by any system of treatment.

My personal view is that the sympathetic employer is the best rehabilitating agent, but with labour as cheap as it is to-day and the rate of production so accelerated, even after a course of treatment at the best rehabilitation centre the maimed man, especially if he is getting on in years, will still have very great difficulty in resuming his place in the industrial scheme of things.—I am, etc.,

Manchester, Jan. 28.

HENRY POSTON, M.Ch.

Safe Milk

SIR,—May a sanatorium worker express thanks to the British Medical Association for coming into the open at last on the question of safe milk? Every year this country spends hundreds of thousands of pounds on "curing" tuberculosis or dealing with outbreaks of milk-borne disease. Its efforts to prevent such troubles are less spectacular, scientists being less clamant than agriculturists. Housewives who strive intelligently to do the best for their families have been befogged by conflicting opinions: "Doctors tell you such different things," they say. This has been true largely because doctors are insufficiently interested in public health problems, and they themselves have been blown about by diverse winds of doctrine. To the British Medical Association's considered opinion, however, widespread respect is accorded, and it means a great deal to crippledom that the Association should have spoken with no uncertain voice.—I am, etc.,

Berks and Bucks Joint Sanatorium,
Peppard Common, Oxon, Jan. 31.

ESTHER CARLING.

Pasteurization of Milk

SIR,—When dealing with such an important article of diet as milk one should be careful to be not only accurate but in a position to prove statements made. Dr. Norman Macfadyen's letter (January 15, p. 148) leads me to think that he is "boosting" certified milk in preference to pasteurized milk. He does not distinguish between *B. coli* of a non-faecal type and *B. coli* of manurial contamination. This is an important consideration, since the *B. coli* found in pasteurized milk are almost invariably of the non-faecal type. A distinction between these two types of *B. coli* is rarely made, and this omission leads to misunderstanding and a general idea that all types of *B. coli* are of manurial origin. So far as the effect of pasteurization on tubercle bacilli is concerned, it has been

Exercise may be painful, but it is necessary to break up and disperse fibrous masses.

It has been our aim to institute a routine for all forms of rheumatism which requires no expensive apparatus, medication, or medical supervision. In working out a routine treatment applicable to all rheumatic cases it has been our object to treat these unfortunates with the simple things, and the results, in our opinion, are worthy of record. A physician who waits until "the fire had burnt itself out and left only the charred remains in the form of distorted joints and twisted limbs" is failing in his duty to his patient. When the disease has reached that stage we tell patients that it is hopeless, and futile to waste their money in useless experiments. In rheumatism particularly, and in medicine generally, it is well to remember that

A little fire is quickly trodden out,
Which, being suffered, rivers cannot quench.

—I am, etc.,

Halcyon Springs, British
Columbia, Jan. 8.

F. E. BURNHAM,
Brigadier-General.

The Problem of the Final M.B., B.S.Lond.

SIR.—The letters which you have been printing concerning the final M.B., B.S. examination are anything but complimentary to the Royal Colleges, and it is time that someone protested against such remarks being made by men representing a University which gives its students no real university life and can persuade only three-quarters of them to sit for the final examination. It will be admitted by most teachers that students who intend to take the M.B., B.S. can do so if given sufficient time, and also that a fair number of those who take the conjoint examination could pass the M.B., B.S. The leaders of our Royal Colleges should realize that at least a third of their students want a so-called university degree and are quite capable of obtaining one if given the chance to do so. I know that they can sit for the Fellowship or Membership examinations, but both these are specialists' diplomas. Why do not the Colleges obtain power to grant an M.B., B.S. of their own, making the examination a severely practical one open to men whose names have been on the *Medical Register* for a year or more? The general public would soon learn that here at last was a degree which was based on practical knowledge and not on textbook theory.

Every winter I engage an assistant to help run my practice, and I have had a number of graduates of various universities. It is unusual to find one who can advise a patient about diet, or who can deal with a difficult labour, or write a prescription, dispense a bottle of medicine, or even open a septic finger. This is a sad commentary on the teaching they have received and the degrees they have obtained. Perhaps the preacher was right when he exclaimed that of the making of books there was no end and that much learning was a weariness to the flesh. Perhaps he had foreknowledge of the M.B., B.S.Lond. when he summed up with the words "Vanity of vanities, all is vanity."—I am, etc.,

Ipswich, Jan. 25. C. S. STADDON, M.R.C.S., L.R.C.P.

SIR.—I submit that it is desirable to put on record the history of this controversy before taking final leave of it. A proposal that "the University might accept for the purposes of part of the M.B., B.S. degree the results of the Conjoint Final examination" was submitted to the Faculty Board in a memorandum dated January 11, 1937, by the then Vice-Chancellor, Mr. Eason (the present

Principal), who stated that he had discussed this proposition "informally and unofficially" with the late Sir Edwin Deller, with Lord Dawson, with Dr. A. M. H. Gray, and with the then acting Principal. The memorandum may therefore be assumed to be the result of that joint effort, and Dr. Gray's chagrin at its failure becomes intelligible.

The motive given by the Vice-Chancellor for taking this action was the communication from the Court, quoted in my letter published on January 8, "with reference to the small number of students in medical schools who take a University degree." The Vice-Chancellor's argument for the proposed co-operation with the Conjoint Board was based upon certain figures in his memorandum, which were immediately demonstrated to be grotesquely erroneous. Many members of the Senate urged the desirability of having more precise knowledge of the facts before seeking outside advice, and a committee was appointed to investigate the present position. It is cheering to note from recently available figures that whereas the number of new candidates for the final Conjoint examination shows a considerable decrease—583 in 1936, 445 in 1937—the numbers graduating M.B., B.S.Lond. for the three years 1935, 1936, 1937, were respectively 144, 156, and 182—a progressive rise.

The Vice-Chancellor's memorandum was very carefully examined on February 23, 1937, at a full meeting of a subcommittee of the Faculty Board. The Dean of the Faculty of Medicine, who was chairman both of the Faculty Board and of the subcommittee, submitted a memorandum following closely the suggestions made in the Vice-Chancellor's memorandum but with somewhat more detail. A specific suggestion was made in the Dean's memorandum that a student having passed the final Conjoint Board examination and also the second M.B. examination should be granted exemption from the written papers of the final M.B., B.S. examination, but in order to qualify for the final M.B., B.S. should sit for a supplementary clinical examination three to six months after taking the final Conjoint Board examination. This memorandum also declared that "it is desirable that the M.B., B.S. examination should be held twice a year as at present": a suggestion that that examination should be held four times a year was met with the significant objection, to which I would invite Dr. Colyer's attention, that this action would constitute "competition" with the Colleges and therefore was not to be entertained.

The report of the subcommittee was submitted to a meeting of the Board of the Faculty of Medicine on March 4, 1937. Although the Court had clearly shown it was willing to wait for the improvement expected from the new curriculum, which could not be manifest for at least five years, the Faculty Board considered the matter to be of such extreme urgency that they proposed to discuss immediately and directly with representatives of the Royal Colleges the scheme outlined above. It was only upon my representation that it would be imprudent to take such action before consulting the Academic and External Councils and the Senate that the Faculty Board finally resolved to follow the constitutional course I advised.

Dr. Gray is not quite correct in his description of the action taken by the Faculty Board. While, as he says, the Faculty Board came to no decision with regard to the suggestions outlined above, their report to the Senate states that "they regard them" (that is, the suggestions) "as being of sufficient importance for discussion with the Royal Colleges, and they therefore make the recommendation set out below: That the Board of the Faculty

naturally, even long hours of walking are devoid of discomfort; and, having no height of heel to step over, it becomes possible to catch the departing bus without having to prance or scuttle. In a small boat, where the need for security of foothold is already generally recognized, no one would dream of wearing heels. Really good shoes are always expensive, but these I have mentioned are considerably cheaper than are bespoke shoes; they are also better fitting, probably because it is impossible to persuade even a good bespoke shoemaker completely to abandon the type of twisted last to which he is accustomed.—I am, etc.,

London, W.1, Jan. 26. ALISON MACBETH, M.B.Lond.

SIR,—The recent correspondence about correct footwear seems to me to be an attack on shoe manufacturers rather than a considered survey of the situation. In the first place people who have never worn shoes can develop valgus deformity of the toes and even bunions. I have in my possession several prints of the feet of African natives which prove this. Secondly, shoe manufacturers now but rarely make shoes with an extremely pointed toe. When I was collecting material from a shoe factory for a lecture two years ago I was able to find only one model the inner border of which deviated sufficiently from the straight to be of use for demonstration purposes.

Raising the height of the heel and putting a relatively rigid sole on the shoe has resulted in a lack of exercise of the toes, and this has been responsible for a great deal of the valgus deformity which is blamed on the shape of the inner border of the shoe. Many people in England wear shoes that are too short for them. This is the chief factor in the causation of deformed feet. Shoes should be made in a sufficient variety of widths to enable everybody to be fitted with footwear of the correct length. This is an expensive and difficult thing to do; it is achieved in America, but American shoes are appreciably more expensive to manufacture and to retail than are our own.—I am, etc.,

Street, Somerset, Jan. 27.

J. NEWMAN HEALES,

SIR,—I have followed with much interest the correspondence on correct footwear, and was especially interested in Dr. Dorothy Mason's letter in the *Journal* of January 22 (p. 203). I have been of the opinion for some time that the heel of a shoe is useless and a cause of much foot trouble. The heel originated as a *point d'appui* for the stirrup when riding. The only use that I can see for it is to provide a thicker part to reduce the wear at the point where most of the weight is taken by the shoe when walking. Now the heel, by displacing the centre of gravity of the body forward, causes a compensatory lordosis which the wearer retains during all his or her (especially her) periods of standing and walking. This cannot be anything but bad, and is in addition to the local damage to the foot. I have worn shoes without heels for about three years, and can testify to their very great comfort. I walk in them without fatigue, and am conscious while wearing them that the foot is working as a whole. Since taking to them my feet have developed such a flexibility that I can pick up a pencil with my toes with ease. These shoes are supplied by Messrs. Charles Baber, Ltd., 304, Regent Street, London, W.1, but they are unfortunately rather more expensive than ordinary shoes. Throughout the correspondence I have seen no allusion to the old type of open sandal; these are also to be had from Messrs. Baber, and are beautifully made. I have a pair, and during last summer I practically lived in them. They can be worn with or without socks,

and are delightful without. These seem to me to be the ideal footwear for the warmer weather, since there is nothing to constrict the feet and they have all the benefit of fresh air. Fresh air is inimical to the growth of fungi, which are a cause of much discomfort, sensory to the sufferer, and olfactory to others. Some might say that sandals fail to give support, but normal structures need no artificial support, and most feet would derive great benefit from the exercise that sandals would permit. Another objection is that they might cause the arches to fall, but has not the conception of flat-foot changed during recent years, and do not our orthopaedists tell us that the trouble with so many feet is that they will not flatten? Satisfactory sandals are also made by Messrs. Clark of Street, Somerset, at a very reasonable price; these can be obtained almost everywhere. There can be little objection to the wearing of sandals in these days when transport is easy and when the streets and roads are so clean and well kept. The subject of correct footwear is one of national importance, and in the drive for physical fitness the Ministry of Health should turn its attention to the correct shoeing of the population. A nation with bad feet cannot be fit.—I am, etc.,

Dartford, Kent, Jan. 23.

F. OLIVER WALKER.

Hydrotherapy for Rheumatoid Arthritis

SIR,—The report of the Health Resorts Conference at Bath contains extraordinary statements to which strong exception should be made. One speaker stated that "it was his considered opinion that no case of rheumatoid arthritis was suitable for a course of hydrological treatment so long as the slightest sign of activity still persisted." This is like waiting until a fire is well under way before sounding the alarm. To another speaker is accredited the statement that "no case of true rheumatoid arthritis in any active phase should ever be treated by hydrotherapy." Unless strongly contradicted these statements will destroy the last hope for thousands of patients. May I point out the treatment pursued at Halcyon Hot Springs, which has been the Mecca for rheumatics for fifty years.

Stretcher cases in the acute stage of rheumatism are immediately put into the pool, where they remain for twenty minutes. This is repeated from two to four times daily. Patients suffering from sciatica and other forms of neuritis may go in from eight to twelve times in the twenty-four hours. One speaker at the conference recommended "a depth of water of about 2½ feet and a temperature of between 99° and 100° F." The pools at Halcyon are 5 ft. deep, and large enough for swimming and exercise, which is insisted upon from the beginning. The temperature of the men's pool is 106°–108° F., and the women's pool is 102° F. These are the temperatures which have been found by experience to be the most effective.

All forms of rheumatism receive the same treatment. For, after all, rheumatoid arthritis is the severe form—the last stage—of the general disease. Every attack of rheumatism, however mild, is treated as a potential case of rheumatoid arthritis, and treated as such from the beginning. Exercise is necessary to maintain the joints in normal physiological activity. A strong indisposition to take exercise is a feature of rheumatoid arthritis which is the cause of endless trouble. Without exercise favourable results are impossible. Patients do better with a physician of the military type who manhandles his patients rather than the fawning type which hears and heeds every whim and fancy. Exercise is firmly insisted upon, and the direful result of neglect is clearly pointed out. We accept no excuses. Daily exercise is directed to stretch altered fibrous tissues and accustom them to movement.

Obituary

SIR JAMES CRICHTON-BROWNE, M.D.,
LL.D., D.Sc., F.R.S.

Formerly Lord Chancellor's Visitor in Lunacy

We deeply regret to announce the death at Dumfries on January 31 of Sir James Crichton-Browne at the advanced age of 97. In his passing from our midst, not only does psychiatry lose an honoured and distinguished leader, but the profession as a whole mourns the loss of an illustrious physician and a wise counsellor and friend. His venerable and commanding presence; the charm of his manner and the richness and force of his oratory; his clinical acumen and his practical sagacity; his unflagging interest in all that appertained to the world of medicine and of literature; and his great goodheartedness, rendered him alike a unique and unforgettable figure in the annals of contemporary medicine.

James Crichton-Browne was born on November 29, 1840, at St. John's Hill, Edinburgh. His father, Dr. W. A. F. Browne, Commissioner in Lunacy in Scotland, had been the first medical superintendent of the Crichton Royal Institution, Dumfries, and was not only an eminent psychiatrist—he was President of the Medico-Psychological Association in 1866—but a man of wide culture and of high scientific attainment. His mother also was highly gifted. Few knew their Shakespeare and their Burns as she did; and fortunate in the possession of an exceptionally good memory, she was in the habit of reciting to her son by heart whole passages with whose beauty she was desirous of impressing him. Many eminent men of letters—Dr. John Brown among others—used to foregather at their table; and thus it was that the son came early to nourish that love of literature and rhetorical skill which later he was to put to so good a use. Educated at Dumfries Academy, and later at Glenalmond, Crichton-Browne entered the University of Edinburgh at the age of 17. It is interesting to note, as witnessing his early bent towards matters psychological, that while still a student he read before the Royal Medical Society a paper entitled "Psychical Diseases of Early Life." He qualified L.R.C.S.Ed. in 1861, and took the M.D., with honours, in 1862. He was elected by his fellow-students President of the Royal Medical Society.

On graduation his interests in cerebral physiology and in psychology were already declared; and his apprenticeship in the study of mental medicine was served successively in the County Asylums of Derby, of Devon, and of Warwick. In 1865 he was appointed superintendent of Newcastle City Asylum, which post he relinquished to become medical director of the West Riding Asylum at Wakefield. There he instigated work which exerted a profound influence upon the development of psychiatry and neurology in this country. At the outset he recog-

nized that, while there was abundant material for investigation in asylums, there were but few facilities for medical officers to undertake research work. He recognized, moreover, that the failure to produce such work was partly due to the absence of any stimulus to the arrangement and elaboration of the material collected, and to the want of a channel of exposition. It was with a view to supplying this deficiency, and of affording an incentive to the utilization of much valuable information buried in case-books, that he projected the *West Riding Asylum Reports*, the early volumes of which have now become psychiatric classics. The first of the series was published in 1871. Crichton-Browne established at Wakefield the first neurological research laboratory in the Kingdom, where Sir David Ferrier was enabled to carry out his experiments on cerebral localization. The *Reports* contain the results of these experiments, as well as many other contributions from Hughlings Jackson, Clifford Allbutt—at that time a physician at Leeds Infirmary—Lauder Brunton, William Turner, and Bevan Lewis, then a medical officer at the asylum and later medical director. For a time Wakefield Asylum was the centre of neurological interest, and many eminent men congregated there and made their contributions at the monthly medical conversaziones which were organized at that institution by its director. The pioneer work thus begun has had far-reaching results, and so far as Wakefield itself is concerned the tradition for research set up by Crichton-Browne has been ably upheld by his distinguished successors, Herbert Major, Bevan Lewis, and Joseph Shaw Bolton.

In 1875 Crichton-Browne was appointed Lord Chancellor's Visitor in Lunacy. Everywhere the appointment was recognized as a fitting tribute to his energy and genius in the study of insanity. To commemorate the occasion a complimentary banquet was held, presided over by Lord Houghton, and fitting acknowledgments were made of Crichton-Browne's arduous labours at the West Riding Asylum and his enthusiasm for lunacy reform. Some two years later he sat with Dr. Hughlings Jackson, Sir John Bucknill, and Sir David Ferrier as member of a committee to consider the establishment of a special journal devoted to neurological research. The following year saw the foundation of *Brain*, which, in spite of many early vicissitudes, lived to uphold the traditions of British neurology and to become later, under the aegis of Hughlings Jackson, the official organ of the Neurological Society, and to occupy, as it still does, a high position in medical literature. Of this journal Crichton-Browne was co-editor. Among his contributions were articles on "The Weight of the Brain and its Component Parts in the Insane" and on "The Nature and Cortical Localization of Muscular Sense."

He was elected President of the Medico-Psychological Association in 1878. His address on this occasion, in which he reviewed the recent developments in psychiatric knowledge, was a striking illustration of his imaginative power and his felicity of diction. In the following year



of Medicine be authorized to discuss with representatives of the Royal College of Physicians and the Royal College of Surgeons the possibility of devising an alternative mode of approach to the M.B., B.S. degrees."

This recommendation met with a rough passage at the Academic and the External Councils, and subsequently at the meeting of the Senate on May 19, 1937. All that the latter body would sanction was "that the Board of the Faculty of Medicine be authorized to discuss with representatives of the Royal College of Physicians and the Royal College of Surgeons the problem submitted to the Senate by the Court—namely, the small number of students in medical schools who take a degree of the University of London." It is significant that whereas in March, 1937, the Faculty Board was in such haste to enter into negotiations with the Colleges that it was ready to commit the blunder of side-tracking the Senate, when the scheme met with the discouragement indicated by the Senate's variation of the Faculty Board's recommendation the Board suddenly lost interest in the matter. Although it was authorized as long ago as May, 1937, to consult with the Royal Colleges no effort to do so has yet been made. Dr. Gray is again inaccurate in his statement concerning my action with regard to the University of London Bill. That Bill became an Act in 1926, not 1927. It is true that I opposed the second reading of that Bill without, however, pressing my opposition to a division. But certain assurances given during the debate by the Chairman of the Departmental Committee which had prepared the Bill, and later, and still more authoritative, assurances given during the committee stage by the Minister in charge of the Bill, prevailed with me in accepting in committee the new position created by these assurances, and I received the thanks of the Minister. Moreover, I refrained from opposing the third reading. I have, not, however, concealed my regret at certain results of the Act, notably the removal from the Senate of the representatives of the London County Council and of the Inns of Court, bodies which had sent to the Senate many outstanding personalities, among whom may be mentioned Sidney Webb, W. J. Collins, Gilbert Warburg (L.C.C.); Moulton, McNaghten, Swinfen-Eady, Russell, McCall, Cozens-Hardy, Atkin, Tomlin. Their elimination is not, I submit, compensated, in the opinion of the great majority of the Senate, by the addition of the Deans.—I am, etc.,

House of Commons, Feb. 1.

E. GRAHAM-LITTLE.

Time for Midwifery

SIR,—A Sunday newspaper has recently published an article on maternal mortality. It was a good article, and said in effect: "It is a year since the maternal mortality report was issued: why has nothing been done?" The public have very good reason for dissatisfaction. The maternal mortality report, 1937, tells us that many women are killed and many more terribly injured in their confinements without due cause, and it sums up the situation very well on page 193: "When due allowance is made for maternal deaths which cannot be averted the fact remains that the present position of midwifery practice in this country cannot be viewed with equanimity." This is no exaggeration; this is true and admitted to be true by all men of honest minds.

Failed forceps cases are still being admitted to our maternity hospitals and cases of eclampsia are not unknown. Gas-and-air analgesia has been in use with great success in some hospitals for over four years, yet I find that in many districts within a hundred miles of

London no serious attempt whatever is being made to make gas and air available for all women. We must face the fact that, as the report says, "inexpert midwifery is a factor of major importance." There is one basic reason for inexpert midwifery and one reason only—want of time.

Since the introduction of the National Health Insurance Act the insurance practitioner with even a moderate panel finds, so great are the demands made on his services, that he simply has not got the time to give to midwifery. There is a solution of our difficulties—a full-time maternity service—and there is no reason why this should not be immediately established on a voluntary basis. In nearly all districts now there are women practitioners, and as women doctors seem to have a special aptitude for midwifery we should say to our women colleagues: "We intend to send you all our midwifery cases, and we shall ask you to respond to the midwives' call for medical aid." Soon they would be doing nothing but maternity work, greatly to the benefit of the patients.

If the medical profession had been willing to co-operate with Mr. Lloyd George we should have obtained a satisfactory National Health Insurance Act, so let us be warned by the fate which overcame us in the past and before it is too late build up a maternity service which will be a credit to our profession.—I am, etc.,

New Barnet, Jan. 28.

JOHN ELAM.

The Radiologist's Range of Service

SIR,—Once again the question of ownership of x-ray negatives has aroused much interest and comment. I am not so much concerned with this problem as with the implications contained in the following sentence from Dr. C. H. C. Dalton's letter (*Journal*, January 22, p. 206): "Every specialist of experience acquires a reasonable knowledge of the work carried out by those of his colleagues with whom he associates, and I am constantly called upon by medical practitioners, particularly in the country, to decide whether or not a bony injury requires the services of a surgeon." (Italics mine.)

All fractures require treatment, and the appropriate treatment for any individual fracture can be determined only by the experienced surgeon who has before him all the facts, clinical and radiological. Years of observation of combined clinical and x-ray results enable him to advise: "This fracture requires reduction"; or: "This fracture will give a perfect result with splintage only if a certain programme be followed," and so on. But a radiologist has neither the special training nor the wide experience which enables him to speak with authority on clinical end-results; and he has no responsibility for the welfare of the patient. Thus it is quite unfair to him and to the patient that he should be asked to express any opinion on the treatment of a fracture. I believe that a radiologist is entitled merely to report the presence or absence of fracture, and the presence or absence of displacement. His position does not entitle him to do more—certainly not to deny the patient the benefit of competent surgical advice.—I am, etc.,

Manchester, Jan. 31.

H. OSMOND CLARKE.

It has been announced in the *Yorkshire Post* that a proposal is under consideration for the provision in Leeds of a new radium institute to meet the needs of the West Riding. The scheme has been put forward by the West Riding County Council, the Leeds City Council, the General Infirmary at Leeds, and the Yorkshire Council of the British Empire Cancer Campaign.

beriberi. The identification of mosquito larvae has become such a matter of course in malaria surveys that his pioneer work in this connexion is almost forgotten, but without it the difficulties of anti-malaria work in the Malay States would have been insuperable.

Almost the whole of the European staff of the Institute was seconded for war service, and Stanton was left to carry on in Malaya. His wisdom and efficiency, his readiness to help, his steadiness and his cheerfulness were of untold value during the years of the war, not only to the Government but to the whole community. In 1917 he investigated a fatal disease which had appeared among the labourers on rubber estates and was causing some alarm among the public. The outbreak was thought at first to be the result of toddy poisoning, but Stanton showed that it was due to infection with the organisms of a glanders-like disease, which he afterwards named melioidosis. His work on this subject was published in conjunction with Dr. William Fletcher. In 1920 he was appointed Director of Government Laboratories in the Malay States. His wisdom and good judgment led all to seek his advice in every kind of difficulty; those who asked never asked in vain, but received strength and good guidance at his hands and left him feeling better armed to face their troubles.

In 1926 Stanton was chosen by the Secretary of State for the Colonies for the newly created post of Chief Medical Adviser in the Colonial Office. His admirable work in this capacity was recognized far and wide, and the present Secretary of State invited him to continue for a further period of three years from April next. He was created C.M.G. in 1929 and K.C.M.G. in June, 1934. The Royal College of Physicians elected him a Fellow in 1926 and awarded him the Bisset Hawkins medal. In 1911 he was awarded the Craigs Research Prize of the London School of Tropical Medicine, and in 1929 the Mary Kingsley Memorial Medal of the Liverpool School of Tropical Medicine. When his old University of Toronto conferred on him the honorary degree of D.Sc. in 1933 Stanton was delighted, and no other distinction he gained during his life gave him more pleasure than this.

Part of Stanton's duties at the Colonial Office was to act as a liaison officer between the Department and various medical bodies outside, and this, from his sound sense of judgment, he was particularly fitted to do. He was chairman of the Colonial Advisory Medical Committee and of the managing committee of the Bureau of Hygiene and Tropical Diseases. He was a member of the board of management of the London School of Hygiene and Tropical Medicine, of the Tropical Medical Research Committee, of the Medical Research Council, and of the British Empire Leprosy Relief Association. He was responsible for advising the Secretary of State on the numerous medical problems that require solution in the fifty or so Crown Colonies, each with its separate government and financial problems. During his tenure of office great progress was made in the medical services of these Colonies. In recent years it has been realized that deficient nutrition was responsible for a great deal of the ill-health of the native peoples of our possessions, and he took an active part in the formation of the Economic Advisory Council Committee on Nutrition in the Colonial Empire. He believed firmly that the welfare of the inhabitants of these territories was dependent on the co-ordination of the medical, agricultural, veterinary, and educational departments, and took active steps to ensure this. Every medical officer in the Colonial Medical Service regarded him as a personal friend, and was always

assured of a welcome in his office on arrival home on leave. They realized how much he always did for them in various ways and how much he has done to promote the health and welfare of millions of people in the Colonial Empire by bringing up the standard of its medical services by quietly fighting innumerable and often very difficult and worrying battles.

In 1930 he married Dr. Elizabeth O'Flynn, M.R.C.P., who survives him. The funeral took place at Golders Green on January 27.

[The photograph reproduced is by Elliott and Fry, Ltd.]

E. J. TOYE, M.D., B.Sc., F.R.C.S.

After forty years of busy life in practice at Bideford, North Devon, Dr. Edwin Josiah Toye passed away on January 25 after a very brief illness. He had a brilliant career at St. Bartholomew's Hospital, taking his B.Sc. in 1892, with honours in physiology, obtaining both the junior and senior scholarships, the gold medal for obstetrics in the M.B., and being adjudged worthy of the gold medal in the B.S. He was ophthalmic house-surgeon under Mr. Vernon and then for a year house-physician at the Metropolitan Hospital. In 1898 he took a locumtenency at Bideford with Drs. Rouse and Gooding. He became Dr. Gooding's assistant after Dr. Rouse's death and later his partner and successor. He struggled single-handed during the war with a growing practice, and later was joined in partnership, first by Dr. C. W. Wilson and then also by Dr. S. C. Wake.

In addition to his routine general practice Toye always maintained his interest in eyes, and was ophthalmic surgeon to the Bideford Hospital, in which he was also senior medical officer for many years up to the day of his death. He also held many posts of responsibility and honour among his colleagues. He was at different times president of the South-Western Branch of the British Medical Association, chairman of the Barnstaple Division, and later president of the Devon and Exeter Medico-Chirurgical Society, and for many years a representative of his Division in the Representative Body of the British Medical Association. He also took part in municipal work, and in 1925 served as mayor of Bideford. During his year of office the famous Bideford Bridge was rebuilt, and Toye's name will go down to posterity engraved on its memorial stone. In the same year the new Bideford and District Hospital was opened. In 1903 he married a widow, Mrs. Keene, who had three children, and he proved himself a devoted husband and stepfather. Mrs. Toye died in 1933. The great and representative congregation which attended his funeral at Bideford Parish Church on January 28 testified to the immense respect and affection in which he was held.

Mr. E. W. Hey Groves writes:

Dr. Toye was my oldest and dearest medical friend. We entered St. Bartholomew's Hospital together in 1890, qualified in the same year, held resident appointments at the same time—he as ophthalmic and I as obstetric house-surgeon—and we have been closely associated in practice in the West of England ever since. It was in 1898, when I was in general practice in Chewton Mendip, that Toye came to stay with me; he then heard of a post at Bideford as a locumtenent, and there he has been in practice ever since. For the last forty years we have met every year, and generally I have gone down to stay with or near him, and have had the pleasure of seeing him

his services to science and to the community were recognized by the University of St. Andrews in conferring on him the degree of LL.D. As President of the Psychological Section of the British Medical Association Meeting at Cambridge in 1880 he delivered an address "A Plea for the Minute Study of Mania," in which he pleaded for a more assiduous study of symptoms in the light of the recently acquired knowledge of cerebral pathology, and expressed the belief that it would be possible eventually to define in cases of insanity the particular parts of the brain involved. In 1884 Crichton-Browne submitted a report on the alleged over-pressure of work in public elementary schools concerning which public interest had been considerably aroused. Mr. Mundella, the Minister for Education, had not anticipated its nature, but the report was deemed so valuable that the House of Commons ordered it to be printed. When in 1886 the honour of knighthood was bestowed on him by Queen Victoria there was widespread satisfaction, both among the medical profession and the general public. At the British Medical Association Meeting at Leeds in 1889 Crichton-Browne gave an address in psychology on "The Hygienic Uses of the Imagination"—a subject affording full scope to his imaginative and literary powers. In that address he argued strenuously for the adoption of measures for the early treatment of mental disorders, and for the wider dissemination among the profession of a knowledge of medical psychology.

"But if the treatment of insanity in its earlier stages—when it is in the green tree and more amenable to control than in the dry—thus devolves on general medical practitioners, and if the management of a considerable proportion of cases of insanity throughout their entire duration is entrusted to them, with or without specialistic assistance, it follows obviously that the study of medical psychology appertains to our profession as a whole and cannot be altogether relegated to any one small branch of it."

It is not possible to do justice here to his multifarious activities in the realm of medical psychology. His services were in constant request both by specialist societies and by the general public. Sir James Crichton-Browne was treasurer and later vice-president of the Royal Institution of Great Britain; chairman of the Council of the National Health Society; a former president of the Neurological Society and of the Medical Society of London. He was elected a Fellow of the Royal Society in 1883. The degree of Doctor of Science was bestowed on him by the University of Leeds and the LL.D. by Aberdeen and Edinburgh.

In 1922 he retired from the office of Lord Chancellor's Visitor in Lunacy, but happily continued to maintain his interest in medicine and in psychology, and to continue his activities in lecturing on these and allied subjects to audiences in various parts of the Kingdom. In 1926 he resigned the treasurership of the Royal Institution after holding it for thirty-seven years with conspicuous success. He had been a member of the Athenaeum for forty-five years, and of the British Medical Association for seventy years. At the age of 89 he unveiled the memorial bas-relief portrait of his old friend Sir Clifford Allbutt in the Cambridge Medical School, and spoke with unabated point and vigour. The centenary celebrations of the British Medical Association in 1932 were graced by a letter from his pen in the *British Medical Journal*, conveying congratulations and good wishes; in this Sir James referred to "the adolescent period in the life of the Association, the seventies and eighties of last century, when I took an active part in its affairs," and paid charming tributes to the work of Ernest Hart, Sir Dawson Williams (Editors of this *Journal*), and their successor.

Sir James Crichton-Browne was twice married. By his first wife, Emily, daughter of the late Dr. Halliday, he had two children, a son and a daughter; the former died last October. His first wife died in 1903, and in 1912 he married Audrey Emily, daughter of the late General Sir E. Bulwer and great-niece of Bulwer Lytton. Mr. Balfour Browne, K.C., the Parliamentary Counsel, was his younger brother, and his nephew is Professor Frank Balfour Browne, president of the Royal Microscopical Society.

SIR THOMAS STANTON, K.C.M.G., M.D., F.R.C.P.

Chief Medical Adviser to the Secretary of State for the Colonies

Sir (Ambrose) Thomas Stanton, who died in London on January 25 after a short illness, was born in Canada on November 14, 1875, and graduated M.D. from Trinity Medical College, Toronto, in 1899. After serving as house-surgeon at the Toronto General Hospital he continued his medical studies in London—at University College and the London Hospital—obtaining the English Conjoint qualifications in 1905 and the D.T.M. and H. of Cambridge in the following year. At the Hospital for Tropical Diseases he acted as house-surgeon to Sir Patrick Manson, and afterwards was registrar. Sir Patrick chose him for the post of demonstrator at the London School of Tropical Medicine in 1905.

Stanton went to the Malay States in the beginning of 1907 to assist Henry Fraser, the director of the Institute for Medical Research at Kuala Lumpur, in an attempt to discover the cause of beriberi. Their earliest observations were made on two groups of coolies employed in building a road through virgin jungle. One of the groups was supplied with polished rice, the other—working some three miles distant—with parboiled rice. During this investigation Stanton lived for the best part of a year in a little thatched hut which stood in a clearing in the jungle at the dead end of the new road, many miles from civilization and its comforts. Here he kept a look out for cases of beriberi among the coolies, and dispatched daily specimens of their food sealed up in wooden boxes to Fraser in Kuala Lumpur. This remote spot, surrounded by high impenetrable jungle, was chosen to eliminate any question of infection, and because there was no opportunity in such a place for the coolies to obtain any food except that which was supplied to them. Stanton's life was terribly lonely and monotonous, but as a result of their observations Fraser and he were able to show that beriberi was a disease of metabolism due to the consumption of a staple diet of rice from which the outer layers had been removed by polishing. They found that these subpericarpal layers contained certain "alcohol-soluble substances, minute in amount but of high physiological value in nutrition," the substances to which Funk, a few years later, gave the name of vitamins. Stanton and Fraser continued their investigations into the prevention and cure of beriberi until the beginning of the war, and in 1924 their numerous papers on this disease were republished in one volume under the title of *Collected Papers on Beriberi*. Stanton was a keen entomologist, and his work on mosquitos was as valuable as his work on



argument or a friendly piece of advice with a "Do you follow me?" Much sympathy will be extended to his widow and six daughters, and to his son, Surgeon Lieutenant R. E. Lauder.

D. F.

JOHN ADAMS, F.R.C.S.

Mr. John Adams died at the age of 86, after a long illness, at his house in Aldersgate Street, E.C., where he had practised for over sixty years. His death removes an honoured and beloved figure from the City of London, where his professional skill and goodness of heart were known to citizens in every walk of life. His father, Richard Adams, was a yeoman farmer of Marlborough, near Salcombe, in South Devon, and throughout life John Adams, in manner, speech, and bearing, was the West Countryman exiled in London, yet loving the City almost as much as his native Devon. At St. Bartholomew's Hospital he was known as a first-rate student and house officer. He had qualified in 1872, and became F.R.C.S. Eng. in 1888. Settling in general practice in Aldersgate Street, he was appointed medical officer to the Royal General Dispensary in Bartholomew Close, and generations of Bart's men knew him as a frequent visitor to the wards, a sound diagnostician, and a kindly friend. He was elected a Governor of the hospital in 1904. During the war he served with the rank of colonel R.A.M.C.T. as honorary surgeon to the Hospital for Officers at Fishmongers' Hall. He was for many years surgeon to the Hospital of the Sisters of the Poor, Paul Street, and surgeon to St. Margaret's Hospital, Kentish Town. As senior surgeon to the Sheffield Street V.D. Hospital for Women, and more particularly as medical officer in charge of the Thavies Inn centre for pregnant women with venereal disease and their newborn children, Mr. Adams did invaluable work, throwing himself heart and soul into his duties there while carrying on a busy private practice. He recorded in the *Proceedings of the Royal Society of Medicine* and in *St. Bartholomew's Hospital Reports* the results of treatment of ante-natal and post-natal syphilis. In recognition of this work he received from the Hunterian Society a special centenary medal for research in general practice; he was also elected president of that society, and in 1920 chairman of the City Division of the British Medical Association, of which he had been a member for fifty-four years.

On January 18 (writes L. A. P.) there passed away at Brighton one of the best beloved of our doctors, ARNOLD WINKELRIED WILLIAMS, at the age of 74, after a long illness, which started last year on a visit to a married daughter in Canada. He received his medical education in Edinburgh, London, Hamburg, Prague, and Vienna, graduating M.B., C.M. with honours at Edinburgh University, and afterwards taking the D.P.H. He settled in Brighton as a dermatologist, and was appointed physician for skin diseases at the Royal Sussex County Hospital and at the Royal Alexander Hospital for Sick Children. Dr. Williams became vice-president of the Dermatological Section of the Royal Society of Medicine; he was also vice-president of the Section of Dermatology when the British Medical Association held its Annual Meeting at Brighton in 1913. He contributed many articles on his specialty to the medical journals. He was buried at Brighton, the funeral service being held at St. Mark's, Kemp Town. The Archdeacon of Westminster (Canon F. L. Donaldson) conducted the service, with the assistance of the vicar, the Rev. F. Keeling Scott. The service was attended by leading representatives of the local medical profession, and many of the officials and members of the committees of the hospital which he had served so faithfully and so long. Dr. Williams had a very charming

personality. It is difficult to imagine that he could have made an enemy. It can truly be said of him he was "beloved by all who knew him"—doctors, patients, friends. His colleagues in Brighton will miss an honest, upright, and learned English gentleman. He leaves a widow and three daughters.

The death of Dr. DAVID FAIRWEATHER on January 24 removes a practitioner long familiar to his patients and colleagues in the north of London. A graduate in arts (1876) and medicine (1879) of the University of Edinburgh he devoted himself from the outset to general practice, for the opportunities and responsibilities of which he cultivated a high regard, and he followed his profession effectively until some twelve months ago, when he elected to retire. He possessed in a high degree the qualities which invite and ensure confidence and obtained in a corresponding degree the affection and trust of his patients, while his standard of professional loyalty engaged the respect and goodwill of his colleagues. His personal interests included various public activities and sport in many forms, and he maintained his interest in the classics and had a rich fund of Scottish traditions and humour. His death means a loss to many circles to which he gave freely from the resources of his long experience and generous friendship. He had been a member of the British Medical Association for forty years.

After a short illness Mr. WILLIAM ALEXANDER MAIR died at Heckmondwike, Yorks., on January 10, at the early age of 39. A native of Port Knockie, Banffshire, he was a medical student at the University of Aberdeen, where he graduated M.B., Ch.B. in 1925. After two years as house-surgeon at the North Riding Infirmary, Middlesbrough, he held the post of medical superintendent of the Burnley Municipal Hospital until 1933, in which year he obtained the F.R.C.S. Ed. He then went into private practice at Heckmondwike, and two years ago was appointed honorary assistant aural surgeon to the Dewsbury Infirmary. Mr. Mair was also police surgeon at Heckmondwike and honorary surgeon to the local division of the St. John Ambulance and Nursing Association.

Dr. GUSTAVUS GEORGE GIDLEY died suddenly at Heyford House, Cullompton, Devon, on January 15. He was born at Gidleigh, Devon, in 1861, and from Queen's College, Taunton, went to King's College, London, and qualified as L.S.A. in 1885, taking the M.R.C.S. and L.R.C.P. diplomas in the following year. He was then in turn house-surgeon at the London Temperance Hospital, clinical assistant at the Royal Devon and Exeter Hospital, resident medical officer at the Morpeth Dispensary, and assistant medical officer at the Northumberland County Asylum. Dr. Gidley practised for a long time at Cullompton, and held various public appointments. He had been a member of the Exeter Division of the British Medical Association for twenty years, and was a past-president of the Devon and Exeter Medico-Chirurgical Society.

Dr. CHARLES HORACE ANDREWS, one of the best-known practitioners in Norwich, died on January 16, at the age of 76. A student of Edinburgh and St. Thomas's, Dr. Andrews took the Scottish triple qualification in 1891, and then indulged his love for foreign travel by serving as a ship surgeon and making several voyages to China, Japan, and the Cape. He took up practice in Norwich in 1895, becoming district medical officer and medical officer and public vaccinator for Norwich. He was also for some time surgeon and accoucheur to the Norwich Maternity Charity, and assistant medical officer and anaesthetist to the Norwich Workhouse Infirmary. His hobby was cycling, which he began in the "penny-farthing" days and continued for many years. He had been a member of the British Medical Association for forty-four years and took an active part in the work of the Division, holding office as chairman in 1922.

assume his rightful position as one of the most successful and most beloved of the practitioners in North Devon. He was the most conscientious and untiring worker, and although he has always had a cardiac lesion (which prevented his being accepted for military service during the war) he never spared himself in his devotion to his patients. He undertook the whole responsibility of a large general practice, and also kept up with his special ophthalmic work. His great knowledge and experience was fortified by constantly keeping in touch with modern progress, and right up to last year he hardly ever failed to go up to St. Bartholomew's for a postgraduate course. He was a pioneer in motoring, driving himself in a 4½-h.p. Benz in the early years of the century, and his own was the first car in North Devon.

Toye never learned to spare himself or to take recreation; his only holidays were the annual meetings of the British Medical Association. But he loved music, and I associate this with him from our student days when we attended Queen's Hall concerts to the last year when he came to Bristol to the opera with me. Our last close association was in 1935, when we travelled round the world on the B.M.A. tour. Toyé's was a character of singular charm. He was always absorbed in the interest of his work and yet he never complained of its drudgery. He was devoted to his patients and unsparing of himself in his work for them. He always seemed to be happy, and he thus made those associated with him happy, too. He was never bad-tempered, and I confidently believe that in all his long life he never made an enemy. His cheery smile, his leonine head covered with thick curly hair, and his brave spirit will long be remembered in the North Devon town which he had made his own.

W. B. MACKAY, C.M.G., M.D.

Consulting Surgeon, Berwick-on-Tweed Infirmary

By the death of Dr. William Bertie Mackay, C.M.G., Berwick-on-Tweed has lost its senior medical practitioner. He was born in Edinburgh in 1863 and studied medicine at the University of Edinburgh and at Charing Cross Hospital, graduating M.B., C.M.Ed. (with honours) in 1884, and taking the M.R.C.S.Eng. in the following year. After a period as resident surgeon at the Edinburgh Royal Infirmary he engaged in postgraduate study in Vienna, Heidelberg, and Paris, and began practice at Berwick in 1887. Dr. Mackay, who proceeded to the M.D. with commendation in 1896, had for many years been surgeon to the Berwick-on-Tweed Infirmary, and was prominently associated with the Territorial movement. During the war he was senior medical officer at the Command Depot, Catterick, and served with the British Expeditionary Force in France and Flanders, attaining the rank of Lieutenant-Colonel, R.A.M.C.(T.), and being thrice mentioned in dispatches. He received the Territorial Decoration, and was a Justice of the Peace for the county and borough of Berwick. He joined the British Medical Association in 1904, and was chairman of the North Northumberland Division in 1923-4.

Dr. R. A. Welsh writes:

Our profession in North Northumberland and Berwickshire has lost one of its best-known and best-loved members by the death of Dr. W. B. Mackay. He was a remarkable man, as his life's record shows: a fine type of general practitioner, a good general surgeon with a sound knowledge of ophthalmic work, an honours graduate of Edinburgh who had studied in London, Vienna, Paris, and elsewhere. Perhaps his greatest interest in life was

the development of Berwick Infirmary, where he laboured for over fifty years and was instrumental in building it up from a very primitive state to one of high efficiency. Apart from his profession his activities were manifold and various, as a short list of them will show. He had been president of the Rotary Club, the local branch of the British Legion, the Operatic Society, the Burns Club, and the Rugby football club. He was Sheriff of Berwick in 1925-6, and was made an Honorary Freeman of the town in recognition of distinguished war service. Forty-nine years ago he became an officer in the old Volunteers, afterwards the Territorials, and remained an officer till his death. Physically he was never robust, and suffered from heart trouble for many years, and underwent a serious abdominal operation not long before the war; but these disabilities did not deter him from joining up and going to France with the Northumberland Fusiliers in April, 1915. He had a distinguished war record, for two of his sons and a daughter also served over-seas. He was medical officer of his old battalion. During active service his health broke down, and he spent many months in hospital seriously ill, but his indomitable spirit and determination to get well carried him through. He got the C.M.G. for gallant service in 1916; was twice mentioned in dispatches, and made lieutenant-colonel in 1919. He returned to his private practice in Berwick and his hospital work, and carried on until six months before his death. He was an attractive personality. He had a cultured mind and a singularly gentle spirit. A striking characteristic was his great courtesy, which was the very essence of his being. Old and young, rich or poor, were all alike to him in this regard.

R. E. LAUDER, M.D., F.R.C.S.Ed.

Many men in the public health service will learn with regret of the passing of Robert Enwraight Lauder, which was announced last week at page 261. For over thirty years medical officer of health for Southampton, he played the chief part in the development of its medical services. He was always alive to recent advances and keen to adopt any measures which would further their application. This was evidenced by the very early introduction of an x-ray unit in the tuberculosis clinic, one of the first in the country. It was seen again in the eagerness with which he welcomed the Act of 1929, for he recognized that by it the local authority could extend its usefulness in the direction of hospital services. The same alertness was shown in every sphere of his administrative work, and the smoothness with which the whole was operated showed not only his mastery of detail but his ability to obtain that co-operation, both inside and outside a department, which is so necessary to success. He was held in high regard by his juniors, to whom he gave every help and encouragement. One other of his activities must be mentioned. He served in the South African War, 1899-1900, in command of a detachment he himself had raised, and on his return he was elected a Freeman of the Borough. At the beginning of the great war he found himself suddenly called upon to undertake many duties in addition to those of health. Much additional hospital accommodation in the area was necessary, and he found it, and from its inception he acted as colonel commandant of one of the large V.A.D. hospitals. During his active career he took a great interest in the work of the Southampton Medical Society and of the Southampton Division of the British Medical Association, and was an ex-president of both bodies. Lauder was a kindly man, and his old colleagues will remember with affection the low rumbling voice which usually ended an

of the Medical Faculty Buildings, Edmund Street, on February 17 and 24 and March 3, at 4 p.m. The first two lectures will be delivered by Sir Henry Dale, C.B.E., M.D., F.R.S., F.R.C.P., director of the National Institute for Medical Research, on February 17 and 24, and the third by Professor Francis R. Fraser, M.D., F.R.C.P., professor of medicine in the University of London and director of the Department of Medicine of the British Postgraduate Medical School, on March 3. Members of the medical profession and students of medicine are invited to attend.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A Comitia of the Royal College of Physicians was held on January 27, with the President, Viscount Dawson of Penn, in the chair.

The following were elected representatives of the College: Dr. A. S. Barnes on the Court of Governors of the University of Birmingham; Dr. J. A. Nixon on the Court of the University of Bristol; Dr. A. Feiling on the Council of the Queen's Institute for District Nursing.

The following were appointed delegates: Dr. G. F. Buchan to the Congress of the Royal Sanitary Institute at Portsmouth, July 11 to 16; Dr. A. Ramsbottom to the Congress of the Royal Institute of Public Health at Blackpool, May 31 to June 4; Professor Roy S. Dobbins to the International Congress of Leprosy at Cairo, March 31; and Dr. J. D. Rolleston to the eleventh International Congress of the History of Medicine to be held at Zagreb, Belgrade, Sarajevo, and Ragusa, September 3 to 11.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Allan William Abramson, M.B.Camb., Cécile Helen Denise Asher, M.D.Lond., Harry Baker, M.B.Manch., Richard Erskine Bonham-Carter, M.B.Camb., Edward Aloysius Joseph Byrne, M.D.Bell., John Houghton Colebatch, M.D.Melb., Seymour Donald Mayneord Court, M.B.Birm., Samuel Barnett Dimson, M.D.Lond., James Findlay Dow, M.B.Camb., William Robert Macfarlane Drew, M.B.Sydney, Captain R.A.M.C., Tom Foulds, L.R.C.P., Thomas Bones Hamilton Haslett, M.D.Bell., James Holmes Hutchison, M.B.Glasg., Martin Cyril Gordon Israels, M.D.Manch., Byron Arnold Ryland Israels, M.D.Sydney, Robert Bews Kerr, M.D.Toronto, Abdel Hamid Mustapha Kersha, M.B.Cairo, Hah Long Lee, M.B.Hong Kong, Robert George Mallory Longridge, L.R.C.P., John Joseph McCann, M.B.Lond., Edward Rowland Alworth Merewether, M.D.Durh., Henry Francis Moore, M.D.Dubl., Noah Morris, M.D.Glasg., Alexander Jeremiah Orenstein, C.M.G., M.D.Jefferson Coll., Andrew Robertson, M.B.Ed., James Charles Shee, M.B.N.U.I., Horace Minton Shelley, F.R.F.P.S., Reginald Norman Tattersall, M.B.Lond., Prem Nath Wahi, M.D.Lucknow, Hugh John Wallace, L.R.C.P., Margaret Isabel Williams, M.B.Manch.

Licences and Diplomas

Licences to practise physic were conferred upon the following 159 candidates (including thirteen women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

H. Acton, C. L. Angell, M. G. Baker, W. H. J. Baker, R. E. Ball, A. D. Barnett, H. C. Barry, C. F. Barwell, A. D. Bateman, C. A. Bathfield, K. M. Bhansali, D. L. Bennett, J. R. Eignall, Joan M. Boissard, V. H. Bowles, W. E. W. Bridger, B. A. M. Brown, C. N. Brown, B. Browncombe, J. H. Bulleid, Jacqueline V. Burch, G. A. Burfield, P. E. G. Burnett, B. Burns, Elizabeth M. Cadbury, D. M. Carding, J. A. Chamberlain, I. C. Chopra, E. Clifford-Jones, S. Cohen, H. Cooper, T. A. Cox, R. V. Coxon, A. Crook, Dorothy L. Crossley, Eveline M. Cumming, S. S. Davidson, E. B. Davies, D. R. Davis, J. J. Davis, M. Dean, J. de Swiet, J. H. Dobree, A. S. Dods, E. G. Dolton, I. G. B. Drybrough-Smith, Avis M. Dyer, P. S. Edgecombe, A. M. Edwards, T. A. W. Edwards, P. G. Epps, C. C. Evill, A. C. Fergusson, J. O. Fielding, W. Fine, E. S. Foote, A. B. Fountain, J. E. Francis, B. J. Frankenberg, A. S. Garrett, P. F. B. Gillett, L. J. Grant, S. J. Green, P. R. B. Grimaldi, S. Grossmark, R. W. Gunderson, M. Halberstadter, J. W. Hallam, R. N. Herson, J. H. Hill, A. M. Hutton, Stella M. Instone, L. A. Ives, S. Jackson, E. L. James, P. H. Hayes, S. M. Jenner, E. C. Jones, James M. Jones, John M. Jones, R. C. Jones, B. A. R. D. Josef, M. Kaufman, J. W. L. Kemp, W. M. Kirkby, H. G. Langley, R. W. Lass, J. D. O'D. Lavertine, R. P. Lawson, A. S. Lee, J. B. Longmore, R. Lyons, J. Mackenzie, F. T. Madge, O. T. Mansfield, K. A. Marandi, Elizabeth C. Marshall, Mary O. Masters, S. W. Maxwell, O. Meerapfel, A. D. Messent, D. H. R. Montgomery, W. E. D. Moore, D. N. B. Morgan, J. N. Morrison, D. V. Morse, B. G. Neuhau, R. G. W. Ollerenshaw, P. J. O'Meara, T. Parkinson, J. N. M. Parry, C. Phillips, A. B. Pollard, K. W. Powell, D. W. Pugh, M. W. Radzan, L. Ray, M. T. Read, R. Rhyddwen, K. S. Richard, H. J. Richards, D. A. Richmond, J. W. Richmond, A. T. M. Roberts, C. A. Roberts, Mary A. Rogerson, E. Rosenberg, R. W. N. L. Ross, T. R. Savage, T. T. Schofield, J. W. Shannon, N. P. Shields,

G. L. B. A. Silva, G. H. A. Simmons, J. R. Sinton, F. M. Smith, H. D. Smith, K. Smith, H. W. Starkey, D. C. Sturdy, A. W. Taylor, K. H. Taylor, R. L. Thomas, A. H. Thomas, K. B. Thornton, A. G. G. Toomey, Ivy M. Tuck, Audrey V. Turner, W. M. L. Turner, N. Vere-Hodge, H. P. Watts, J. M. Wedderspoon, H. F. Whalley, T. E. Whitby, D. J. Wigginton, E. D. Williams, A. R. Wood, Jean R. Young, W. B. Young.

Diplomas in Psychological Medicine and Laryngology and Otolaryngology were conferred jointly with the Royal College of Surgeons of England. The names of the successful candidates were printed in the report of the meeting of the Council of the Royal College of Surgeons published in our issue of January 22 (p. 209).

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons, to W. L. H. L. Bell, V. D.A. Blackburn, R. R. Clipstein, P. N. Gokhale, J. Landon, Caroline A. Meade, Gladys M. G. Spencer, Agnes B. Sutherland, Christina J. Thomson, Patricia S. Warren, J. O. Williams, V. F. F. Winslow.

Diplomas in Tropical Medicine and Hygiene were granted, jointly with the Royal College of Surgeons, to H. Prasad, B. M. Rao, A. C. Seneviratne, D. H. Waldron.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Surgeons, to A. H. L. Baker, A. H. Bruce, Eva G. Byrde, J. C. Buckley, Bessie E. Cook, Ellen B. Cowan, M. H. A. Davison, A. J. S. De Freitas, L. M. De Silva, S. F. Durran, Florence Faulkner, W. B. Gough, G. Gray, J. R. G. Harris, J. K. Hasler, Ursula Y. Im Thurn, Freda C. Kelly, J. O. Moffat, D. A. Prothero, G. R. Rawlings, W. H. Scriven, Captain R.A.M.C., E. W. O. Skinner, G. C. Steel, O. Walker, and to the six candidates whose names were printed in the report of the meeting of the Council of the Royal College of Surgeons published in our issue of January 22 (p. 209).

Lectures

The following lectures will be delivered at the College, Pall Mall East, S.W., all at 5 p.m.

The Milroy Lectures on "The Public Health Aspect of Heart Disease in Childhood" by Dr. B. E. Schlesinger on February 24 and March 1; the Goulstonian Lectures on "Some Deficiencies of Nutrition and their Relation to Disease" by Dr. C. C. Ungley on March 3, 8, and 10; the Lumenian Lectures on "Pain of Central Origin" by Dr. George Riddoch on March 15 and 17; and the Oliver-Sharpey Lectures on "Recent Observations on the Morphology of the Neuron, and on the Changes which it Undergoes in Disease," by Dr. J. G. Greenfield on March 22 and 24.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Special Lectures

A special lecture on "The Prehistoric People of Mount Carmel" will be delivered by Sir Arthur Keith, M.D., F.R.S., F.R.C.S., Master of the Buckton Browne Farm, in the theatre of the College, Lincoln's Inn Fields, W.C., on Monday, February 14, at 5 p.m.

Dr. W. E. Gye, Director of the Imperial Cancer Research Fund, will deliver a special lecture on "Some Recent Work in Experimental Cancer Research" in the theatre of the College on Wednesday, February 16, at 5 p.m.

Fellows and Members of the College are invited to attend the lectures. Students and others who are not Fellows or Members of the College will be admitted on presenting their private visiting cards. Tea will be served before the lecture.

The lecture by Professor P. B. Ascroft on an experimental study of the surgical treatment of arterial hypertension, arranged to be given at the College on February 11, has been postponed.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—N. D. Cousins, T. C. Hallinan, B. M. Hulce, C. K. Westropp.

MEDICINE.—P. H. Beamish, A. W. Frankland, D. H. Fowler, T. C. Hallinan, B. T. Jones, G. E. King-Turner, C. K. Westropp.

FORENSIC MEDICINE.—P. H. Beamish, A. W. Frankland, D. H. Fowler, T. C. Hallinan, C. K. Westropp.

MIDWIFERY.—A. N. Boyle, G. H. L. Bullimore, A. W. Frankland, A. J. Patenall, M. Tombuk, T. G. Viljoen, C. K. Westropp.

The diploma of the Society has been granted to D. H. Fowler, B. T. Jones, and C. K. Westropp.

The Court of the Society has awarded the Gillson Scholarship in Pathology for 1938 to Dr. R. H. S. Thompson of the University of Oxford and Guy's Hospital, who is at present working in the Rockefeller Institute Hospital (corrected announcement).

Medical Notes in Parliament

Both Houses of Parliament resumed on February 1.

The Parliamentary Medical Committee will meet on February 8. An open meeting of M.P.s is arranged under its auspices on February 17, at which Lord Horder will speak about the Empire Rheumatism Council.

The Blind Persons Bill passed through committee in the House of Commons on February 1.

Population (Statistics) Bill

In the House of Commons on February 1 the Population (Statistics) Bill was considered in committee. The object of the Bill is to extend the scope of the particulars which can at present be asked for on the registration of a birth, stillbirth, death, or marriage, and so to provide the statistical evidence needed for practical consideration of the problems of the future population of Great Britain to which the decline in the birth rate has given rise.

Sir KINGSLEY WOOD moved a number of amendments which had been put down in the light of a previous discussion on the Bill. He said that instead of the ordinary census procedure, to which objection had been taken, it had been decided to substitute a limited number of defined but simple matters of which particulars might be required. The person who would supply the particulars would be required to give only the facts within his or her knowledge. If such person had not the knowledge a statement to that effect would relieve that person from any obligations in the matter. Such particulars were to be furnished as from July 1 next.

One amendment would ensure that the information given would be secret and privileged. The particulars to be asked for would supply information about the degree of fertility of a mother, childless wives, and matters requisite for statistical purposes. He understood that there was no objection among members of the House to these particulars being asked for. Certain supplementary lines of investigation could also be made on the information obtained. Particulars furnished of a mother's issue, living or dead or stillborn, would help in the further investigation of the high rate of infantile mortality. Cancer in women had been studied from the point of view of married and unmarried women, and the investigation could now be carried further from the aspect of childless wives and those who had produced children.

He was prepared to accept an amendment to fix the period of operation of the measure at ten years. It might be that during the next few years experience would show how far these matters sufficed, and whether any alteration or modification of the scheme was desirable. Also, before the end of ten years they might have sufficient information on which the whole matter would have to be considered in its larger aspects.

Sir FRANCIS FREMANTLE said that the question was whether the Bill had not been cut down too much. The House had decided to restrict inquiries to the smallest limits. If it was found that there was too much restriction an amending Bill would have to be prepared. The real seriousness of the depopulation question was not understood by the House. They would be running the risk of losing precious years if they did not get the vital statistics which were required.

The amendments moved by Sir Kingsley Wood were agreed to. It was also agreed that registration officers, who were paid on a fee basis, should, after payment of 2s. 6d. an entry for the first twenty entries, be paid at the rate of 1s. 5d. per entry, whether of a birth or a death, instead of 1s. for a birth and 1s. 3d. for a death, as at present.

Mr. O. LEWIS also moved an amendment providing that the Bill should continue in force until June 30, 1948, and no longer, unless Parliament otherwise determined. Sir FRANCIS FREMANTLE said that this was a most astonishing amendment. They might as well abolish the whole registration scheme of the country in ten years' time. This was a very valuable

measure, and it was childish to bring it to an end after ten years.

Sir KINGSLEY WOOD accepted the amendment. He said that following the experience of other countries it might be necessary before the end of ten years to examine the larger questions which would be involved in regard to population.

The amendment was agreed to and the committee stage was concluded.

Deaths and Disablement from Silicosis

On February 1 Sir SAMUEL HOARE, in reply to Mr. J. Griffiths, said that in 1937 there were 643 applicants to the Medical Board for certificates of disablement or suspension under the Various Industries (Silicosis) Scheme from coal miners in Great Britain; 286 certificates were granted. In 1936 there were 674 applications, and 319 certificates were granted. From anthracite mines there were 230 applications in 1937, 132 certificates being granted; and in 1936 the figures were 319 and 182. In 1937 seventy-two deaths were certified as due to the disease, against seventy-seven in 1936. In anthracite mines there were thirty-five deaths in 1937 and thirty-nine in 1936.

Notes in Brief

Sir Kingsley Wood has received reports of water shortage of varying degree from four boroughs, four urban districts, and parts of sixteen rural districts. In seven of these, additional supplies have been provided, and in the remainder the Minister is in communication with the local authorities on the remedial measures required.

Mr. W. S. Morrison stated on February 1 that the technical report of the Committee on Poultry Diseases would be generally available in the course of a week.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Chancellor has received from the Rockefeller Foundation a letter stating that action has been taken to provide to the University of Cambridge up to £8,000 towards support of research in its Department of Experimental Medicine for the five-year period January 1, 1938, to December 31, 1942, the amount available in any one year of the grant not to exceed £1,600. It is intended that these funds shall be used for the salaries of a pathologist and a psychiatrist, and for supplementing the amount which the radiologist receives from Addenbrooke's Hospital.

The Board of Management of the Frank Edward Elmore Fund will shortly award a studentship for research in medicine. These studentships are open to male graduates of any university who were born in any country within the British Empire other than Scotland. The student appointed will work in the Department of Medicine under the direction of the Regius Professor of Physic. The commencing salary will be £300 a year, and the appointment will be for two years in the first instance. Further information may be obtained from the Regius Professor of Physic, Department of Medicine, University of Cambridge, to whom applications, together with three testimonials, a statement of previous appointments, and copies of published papers should be sent not later than February 28.

On Monday, February 14, at 5.15 p.m., Professor J. H. Hutton will give an inaugural lecture on "Anthropology as an Imperial Study" in the theatre of the Arts School.

UNIVERSITY OF LONDON

At a meeting of the Senate, held on January 26, with the Vice-Chancellor in the chair, it was reported that Mr. P. H. Mitchiner, M.D., M.S., F.R.C.S., had been appointed by Convocation, on the election of the graduates in medicine, to be their representative on the Senate for the remainder of the period 1937-41, in place of Dr. W. G. Spencer, resigned.

The William Julius Mickle Fellowship for 1938 was awarded to Dr. Leonard Colebrook.

UNIVERSITY OF BIRMINGHAM

Three William Withering Lectures on chemical transmission of the effects of nerve impulses will be given in the large theatre

EPIDEMIOLOGICAL NOTES

Typhoid Fever

The addition of 54 cases not previously reported, the majority of which originated in other areas but had some connexion with the Croydon outbreak, brings the total for primary and secondary cases to 344, compared with 290 cases recorded last week. Two additional deaths during the week bring the total number to 43 at the time of going to press. Three cases of typhoid fever, two of which were in the same family, have been reported in Chatham during the last fortnight, with one death. Water pollution has been excluded as the source of the outbreak, and it is possible that infection took place in some other area. Since January 20, 14 notified cases of typhoid fever, since confirmed, with three deaths, have been reported in the Bridgwater and Highbidge areas in Somerset. The inhabitants of these areas were advised by broadcast during last week-end to boil all water and milk supplies before use. During the same period 10 cases have been reported in a Pembrokeshire outbreak, which originated at Solva and St. David's. A male adult patient has died from typhoid fever in the Scilly Isles. Despite these fresh outbreaks of typhoid in three different areas the disease is less prevalent in England and Wales than in the previous week, and the figures are much lower than those for the corresponding week last year and than the median value for the last nine years.

Dysentery

Dysentery figures show a considerable drop in England and Wales—200 in the week under review compared with 288 in the previous week—but the incidence is still high compared with the corresponding week last year, when no more than 21 cases were notified. Swindon is the only centre in which a fresh outbreak of any magnitude has appeared; in the previous week only 5 cases were notified, but in the present week an explosive outbreak involving several hundred cases has been reported. The mode of infection and spread of dysentery continues to baffle all investigation; examination of milk and water usually yields negative results, but uncooked vegetables remain a likely source. The characteristic mildness of the disease facilitates spread, as it encourages lack of observance of the elementary rules of personal hygiene.

Influenza

The figures for influenzal pneumonia in England and Wales show an appreciable reduction as compared with those for the preceding week, the figures being 1,321 against 1,647, and very much lower than in the corresponding week last year, when there were 3,135 cases. A similar reduction was observed in the figures for London—117 against 159 for the previous week, and 327 for the corresponding week last year. The figures of deaths from influenza show an even more pronounced decrease as compared with last year; for England and Wales the numbers were 1,137 and 73 respectively, and for the county of London 273 and 12 respectively.

Measles

In Belfast 832 cases of measles were notified during the week under review compared with 567 in the previous week. The Glasgow figures show an appreciable decrease—1,077 against 1,409—while in Edinburgh there was a proportionate decrease—214 against 327. In Manchester 832 cases were reported during the week under review compared with 750 recorded last week. As in the previous week the daily number of measles cases admitted to the L.C.C. fever hospitals varied from 20 to 30, the average being 25; during the same week the average daily admissions for diphtheria and scarlet fever were 29 and 22 respectively. The deaths from measles in England and Wales rose during the week from 44 to 48, but in London there was a decrease of six on the figure of 9 for the previous week.

Medical News

Sir Walter Langdon-Brown will give a lecture on "The Contribution of Adler to General Medicine" before the Medical Society of Individual Psychology, 11, Chandos Street, W., on Thursday, February 10, at 8.30 p.m. Visitors are invited.

At a meeting of the Pharmaceutical Society of Great Britain to be held at 17, Bloomsbury Square, W.C., on Tuesday, February 8, a lecture on "Modern Points of View and Methods in Pharmacognosy" will be given by Dr. R. B. Wasicky, professor of pharmacognosy in the Pharmaceutical Institute of the University of Vienna. Professor Wasicky was awarded the Hanbury Medal last year, and this occasion is being taken to present the medal to him. The chair will be taken by the president at 8.30 p.m.

In our advertisement columns this week the University of Manchester invites applications for the Sir Henry Royce Research Fellowship. The Fellowship, which is open to graduates of a British University only, is for research on either "The Common Cold: Its Nature, Prevention, and Cure" or "Influenza: Its Nature, Prevention, and Cure," and is of the value of £500 per annum tenable for a period of three years. Applications should reach the registrar of the University not later than February 28.

The dinner of the Durham University Society (London) was held at the Florence Restaurant on January 27. The president, Lord Cadman, took the chair. Dr. Nathan Raw proposed the toast of "Alma Mater," and Miss E. Rathbone, M.P., the toast of "The Society." Among the medical graduates attending the dinner were Professor J. W. H. Eyre, Mr. R. Christie Brown, Colonel A. H. Proctor, and Professor G. Grey Turner.

The twentieth anniversary of the death of Lieutenant-Colonel John McCrae, C.A.M.C., consulting physician B.E.F., France, was commemorated on January 29 at the British military cemetery at Wimereux. John McCrae graduated in medicine at the University of Toronto in 1898. He was co-author with the late Professor Adami of a well-known textbook on pathology, and contributed many articles on pathology and clinical medicine to the medical journals. He is best known to the world at large as the author of the rondeau "In Flanders Fields." Among the wreaths laid on his grave last Saturday was one of Flanders poppies.

Dr. Haven Emerson, professor of public health, College of Physicians and Surgeons, Columbia University, New York, was given an honorary doctor's degree at the recent celebration of the centenary of the foundation of the University of Athens.

The fiftieth anniversary of the Institute of Morbid Anatomy at Tokyo has recently been celebrated under the presidency of the rector, Professor Magayo.

Dr. William M. Guilford of Lebanon, Pennsylvania, said to be the oldest living physician in the United States of America and probably in the world, celebrated his 105th birthday on November 26th, 1937. His grandfather lived to be 95 and his father to be 94.

Dr. W. W. Adamson (Lincoln's Inn) and Dr. G. V. Craine and Dr. J. J. O'Donoghue (Gray's Inn) were called to the Bar on January 26.

The December number of *Medical Classics* is devoted to William Withering, a biographical sketch and a bibliography being followed by a reprint of his *Account of the Foxglove*, 1785. This is now one of the scarcer medical classics, the few copies which turn up occasionally on the market fetching approximately £50.

According to recent statistics, in the spring of 1937 there were 55,259 medical practitioners in Germany, of whom 6,713 (12.1 per cent.) were in Berlin. Bavaria came first with 6,760 doctors, the Rhine province came next to Berlin with 6,335, followed by Saxony with 4,030.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 22, 1938. Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	30	4	8	1	—	34	8	10	1	—		
Deaths		4	—	—	—		3	3	—	—		
Diphtheria	1,737	179	252	59	56	1,294	153	240	50	50	1,321	221
Deaths	36	3	4	7	—	34	7	8	4	1		
Dysentery	250	63	150	—	—	21	4	6	—	—		
Deaths												
Encephalitis lethargica, acute	6	—	—	—	—	10	—	2	—	—		
Deaths		—	—	—	—		3					
Enteric (typhoid and paratyphoid) fever	19	4	3	5	3	61	2	4	14	1	27	—
Deaths	1	—	—	1	—	4	—	—	—	—		
Erysipelas			104	10	6			59	5	7		
Deaths		1					1					
Infective enteritis or diarrhoea under 2 years	69	13	7	6	6	33	10	9	8	3		
Deaths												
Measles			1,544		833*			41		1		
Deaths	48	3	14	6	15	6	—	1	3	—		
Ophthalmia neonatorum	100	6	28	—	—	72	10	35	—	—		
Deaths												
Pneumonia, influenzal§	1,321	117	27	3	39	3,135	327	476	102	12	1,787	229
Deaths (from Influenza)	73	12	12	—	2	1,137	273	256	30	50		
Pneumonia, primary			345	19				533	14			
Deaths		33		16	12		37		36	42		
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	—		
Deaths												
Poliomyelitis, acute	8	1	5	—	—	3	—	—	—	—		
Deaths		—					1					
Puerperal fever	7†	7	16	2	—	42	4	17	1	—		
Deaths		1‡					2‡					
Puerperal pyrexia	182	12	30	—	6	147	17	28	—	2		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,459	165	520	114	78	1,671	163	317	79	38	2,273	274
Deaths	—	—	1	2	—	5	1	2	3	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			47		7			576		19		
Deaths	20	2	1	2	1	28	7	33	5	3		
Deaths (0-1 year)	469	90	69	38	31	440	86	108	63	41		
Infant mortality rate (per 1,000 live births)	78	74				70	71					
Deaths (excluding stillbirths)	5,656	1,105	886	254	206	7,764	1,711	1,379	355	302		
Annual death rate (per 1,000 persons living)	13.9	13.9	16.6	17.2	18.3	19.3	21.3	26.8	24.2	28.9		
Live births	6,830	1,343	915	362	220	6,046	1,170	947	306	230		
Annual rate per 1,000 persons living	16.8	16.9	18.7	24.5	19.5	15.1	14.6	19.4	20.9	22.0		
Stillbirths	284	41				308	37					
Rate per 1,000 total births (including stillborn)	40	30				48	31					

* 832 cases in Belfast alone.

† All cases notified as puerperal pyrexia after October 1, 1937.

‡ Deaths from puerperal sepsis.

§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

(i) 122 great towns in 1937
(ii) 12 " " " "
(iii) 9 " " " "

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

101 Auricular Thrombosis in Mitral Stenosis

H. SCHÖNBERG (*Med. Welt*, December 18, 1937, p. 1777) reports two cases of auricular thrombosis in mitral stenosis. The onset of the sclerotic process in the left auricle in the presence of rheumatic valvular changes coincided with the healing of the rheumatic inflammation of the auricle. This and the loss of elasticity of the auricular wall resulted in an extensive auricular thrombosis, which also spread into the vessels and was the cause of secondary aneurysms in the pulmonary veins and of secondary autochthonous thrombosis of the pulmonary arteries.

102 Poradenitis Venerea

H. LÖHE and H. SCHLOSSBERGER (*Med. Klinik*, October 22 and 29, 1937, pp. 1427 and 1471) point out that poradenitis venerea or lymphogranuloma inguinale is identical with Nicolas-Favre disease, climatic bubo, esthiomene of females, and the so-called fourth or sixth venereal disease. Commonest in tropical and subtropical regions, but occurring in all European countries (notably in France), it is almost always transmitted by coitus. Although the causative organism is a filter-passing virus difficult to culture *in vitro*, exact diagnosis is possible by means of Frei's cutaneous allergic reaction; transmission to apes and other species is possible by intracerebral or intraperitoneal injection, and the virus grows *in vivo* in tissues of mesoblastic origin. The primary sore, which is rarely seen, commonly occurs on the prepuce or coronary sulcus, in herpetic form, but may be intra-urethral. Löhe and Schlossberger have found the Frei reaction negative in some cases at this stage. Pyrexia and malaise in the following stage may be very slight; scarlatiniform, erythematous, or urticarial eruptions may occur. Inguinal adenitis follows in a few weeks. Of the two main clinical types encountered the form in which there is chronic adenitis of the superficial and deep inguinal glands, usually with suppuration and often the formation of fistulae, is seen eight times more frequently in men than in women; in women it is more usual to find ano-genito-rectal elephantiasis, often with rectal stenosis. In a very large proportion of cases of the genito-rectal syndrome there is a history or serological evidence of lues, and the Frei reaction is then commonly negative—becoming positive, however, after a few weeks of antisyphilitic medication. Early treatment is important for the prevention of lymphatic obstruction. In addition to rest and hot applications, repeated punctures of softened glands or surgical excision of certain enlarged or suppurating glands is often called for, and cuts short the course of the malady. Löhe and Schlossberger do not advise radical excisions, which promote lymphatic obstruction, and have seen no benefit from x-ray therapy in early cases. Rectal stricture may necessitate a temporary colectomy. Chemotherapeutic measures are of great assistance—antimony tartrate, gold in the form of solganol, and certain organic arsenical compounds containing antimony being the most useful. Recently intravenous injections of Frei antigen have been used successfully in treatment by HELLERSTRÖM and by the writers.

103 Agranulocytosis due to Prontosil

J. L. GOMPERTZ, J. GROEN, and S. J. DE VRIES (*Nederl. Tijdschr. Geneesk.*, December 11, 1937, p. 5932) refer to the fatal cases recorded by Borst and by Young (*British Medical Journal*, 1937, 2, 105) following the use of prontosil, and record a third case in a man aged 63 suffering from pyelitis. Examination of the blood showed

only 300 leucocytes per c.mm., while films showed not a single polymorphonuclear leucocyte, only lymphocytes and a single monocyte. The red cells and blood platelets were normal. In all three cases agranulocytosis developed about the eighteenth day of treatment. In none of the cases was the dose unusually large. In Borst's case the patient was given at first 1.8 grammes and later 2.4 grammes daily. Young's patient had 3 grammes, and in the present case the average dose was 0.9 gramme daily. The writers deprecate the use of prontosil when it is not strictly indicated, and stress the need for careful clinical and haematological supervision of every patient who is taking prontosil, as well as the importance of not continuing the drug for more than ten or twelve days at a time.

104 Prognosis of Lobar Pneumonia

K. HERMAN (*Med. Welt*, December 11, 1937, p. 1748) divides the course of lobar pneumonia into three periods, of which the first supplies no information about the possible course of the disease. The most decisive moment is the time between the second and third periods, which usually corresponds to the fifth to the eighth day. Prognosis is based on the type of the bronchial breathing. In those cases which are moving towards recovery the bronchial breathing either remains the same or may even decrease, sometimes in spite of an accentuation of the other symptoms. This rule applies only to lobar pneumonia, not to the other types of pneumonia or bronchopneumonia, and does not take into consideration possible complications.

Surgery

105 Cavernous Sinus Infections due to Nasal Furuncles

J. STEINMANN (*Schweiz. med. Wschr.*, December 11, 1937, p. 1189) alludes to the high mortality in young people of nasolabial infections extending to the cavernous sinus; to the necessity for abstaining from local surgical intervention, apart from evacuation of a fluctuating abscess; and to the difficulty of venous ligation in this region. Other treatments employed with some success have been the intraspinal injection of ultrafilterable bacteriophage and the intracarotid injection of rivanol. Steinmann records two cases successfully treated by the injection of anti-staphylococcal bacteriophage into the carotid. In the first, a man aged 25 had chemosis, orbital oedema and ocular protrusion pointing to incipient cavernous sinus thrombosis following a staphylococcal furuncle at the root of the nose; three injections of 3, 20, and 20 c.cm. respectively of an autobacteriophage were made into the common carotid artery. The second case was that of a diabetic, aged 68, who had an alar furuncle after an attack of bronchial pneumonia. If bacteriophage injections are being used, no local or general antiseptic treatment and no irradiations with x rays should be given at the same time; it is useless to continue the injections from the same strain should the second or third fail to induce improvement.

106 Deaths from Pulmonary Embolism

V. WESTBERG (*Uppsala Läk.Fören. Förh.*, November 30, 1937, p. 101) has investigated the 104 deaths from pulmonary embolism which occurred in the period 1922 to 1934 in the University Surgical Hospital in Uppsala. He has also studied the thromboses which occurred in this hospital in 1934, definite cases of thrombophlebitis being excluded and only cases of distant thrombosis being considered. As many as seventy-five of the 104 deaths were

Letters, Notes, and Answers

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QUERIES AND ANSWERS

The "Emergency Bag"

"EX-SERVICE" writes: I should be grateful if readers would give their opinion as to what they consider the minimum contents of the general practitioner's "emergency bag."

Incapacitating Diarrhoea

"MEDICO" writes: My own experience may be of use to "Stug" and "Emdee." If my bowels are moved every day a loose and toxic diarrhoea develops, and the more fluid I drink the more am I liable to this. I find it best if my bowels are moved three or four times a week (every other day or so), and I therefore limit my fluid intake to this end—four cups of fluid a day in the winter. I naturally avoid foods with a good deal of roughage—for example, cabbage, lettuce, etc. The condition may be due to a relative lack of power of absorbing water from the colon. During the summer I can drink much more, on account, no doubt, of the increased sweating from the skin. I don't rely on drugs.

After-treatment of Circumcision

Mr. V. R. CLIFTON, Ch.M., writes in reply to "A.B.C." (January 29, p. 264): I have had considerable experience of adult circumcisions, and in about 50 per cent. of the cases sensitivity of the glans penis has been a troublesome post-operative symptom. I have found percainal ointment (Ciba Ltd., 40, Southwark Street, London, S.E.1), which contains 1 per cent. percaine, to be most efficacious in these cases. Its analgesic effect lasts about eight hours, and it should be applied two or three times a day until the glans loses its sensitivity. A smear of this ointment applied to the glans penis before coitus is also most helpful to those patients who complain of premature ejaculation.

Squatting Position in Defaecation

"D. M. M." in reply to "Vis Medicatrix" (*Journal*, January 22, p. 213), reports that several years ago he bought what he thinks may be the "simple device," fitting round the base of the pedestal, which "Vis Medicatrix" asks for. He bought it from P.A.F.R. Co. (Proper Adjustable Foot Rest Co.), Newark-on-Trent, Notts. "D. M. M." still uses it.

Nocturnal Twitching of Lower Limbs

"M.O." writes: With reference to the letter by "Wilts" concerning nocturnal twitchings, I have a patient suffering from what appears to be the same complaint. She is a woman of 40 who has had these twitchings all her life, but only when she is very tired; they usually start when she sits down after

dinner. The only thing that stops them is for the patient to get up and walk about. If she goes to bed they do not keep her awake, but sometimes if she is wakened with a start the twitchings begin again. They are not visible movements, but, as she describes them, "feel like an inward creepiness." Apart from this her health appears to be extremely good.

Income Tax

Employment by Steamship Line

"STEAM" is a British subject. He has accepted an appointment as ship surgeon in a Canadian line, and intends to make his future headquarters in Canada, though he will probably spend about forty-five days a year in the United Kingdom. He has hitherto lived with his mother, but this will no longer hold good.

** The facts are distinctly similar to those in the case of Commissioners of Inland Revenue v. Combe, decided by the High Court in 1932. Mr. Combe, who had been resident in the United Kingdom, left to take up an appointment for three years in New York, but visited the United Kingdom each year on his employer's business. During that time he had no fixed place of abode here, but resided in hotels when in this country. The High Court held that the Commissioners who had discharged the assessment on Mr. Combe had evidence to support their decision, and declined to interfere. We suggest that our correspondent might put forward this case as similar to his own if he is asked to pay United Kingdom tax on his emoluments.

LETTERS, NOTES, ETC.

Uniovular Triplets

Dr. JAMES A. WATERMAN (Colonial Hospital, Port of Spain, Trinidad) sends the following account of a case of uniovular triplets. The mother, who is aged 35, has had eleven pregnancies; all the children except the second and third are alive and normal. The second pregnancy ended in abortion, and the third child died at the age of 11½ months. The grandmother had had fifteen children, including two sets of twins. Labour pains started at 2 a.m. on October 2, 1937. The first membrane ruptured before admission to hospital. A female infant was delivered at 7.50 the same morning, L.O.A.; weight 5 lb. 10 oz., length 18½ inches. The second membrane ruptured at 8.5 a.m.; the infant—a female, footling presentation—weighed 4 lb. 8 oz. and measured 18 inches. The third membrane ruptured, and the patient was delivered at 8.20 a.m. of a female infant, the presentation being a R.O.A.; the weight was 4 lb. 6 oz. and the length 18 inches. The placenta was delivered with membranes complete at 8.30 a.m. There was one placenta, one chorion, and three amnions.

Treatment of Impetigo

Dr. A. W. DAVISON and Dr. T. D. CULBERT (Manchester) write: During 1937 we treated a considerable number of cases of impetigo with mineroleum zinci & ichthammol (Woolley), containing 2½ per cent. ichthylol and zinc oxide. We were so impressed with the results of this treatment in private patients that we prescribed a similar ointment for panel patients. The longest time taken for a complete cure was ten days, and in most cases the lesions cleared up in less than a week. We instructed the patients to apply the ointment night and morning after removing any crusts with cotton-wool soaked in olive oil, and to refrain from washing the face during treatment.

Oxygen Want and Oxygen Therapy

In a leading article on this subject (*Journal*, January 29, p. 235) we stated that "even the simplest tents . . . cost up to about thirty to forty shillings a day to run." The British Oxygen Company Limited now write: "An oxygen tent uses anything from 3 to 7 litres a minute. Allowing for occasional flooding and wastage and for the delivery and collection of cylinders, the cost to a hospital of running a tent, buying directly the appropriate cylinders, should be 15s. a day, and to hospitals which use their oxygen from batteries of cylinders through pipe-lines, considerably less."

The Slough Social Centre

A typist's error in our article on this subject last week (p. 249) made a phrase near the foot of the first column read "skilled medical supervision and national health insurance." It should have read "school medical supervision."

therapy, including neosalvarsan, parenteral chemotherapy, antipyretics, change of climate, and x-ray irradiation of the spleen, has been tried by various authors with greater or less success. Curschmann strongly advocates specific vaccine therapy. He has used polyvalent *Brucella* strains with success for many years. Small doses producing a mild reaction in the patient are better than large doses. He suggests the intramuscular injection of dead polyvalent *Brucella* strains in initial doses of 1 to 5 millions per c.cm., with increasing doses at two- to three-day intervals until the daily dose is 20 millions. It is unnecessary to test the patient's reaction before treatment. Of fifty cases thus treated thirty-six were completely cured, three were improved, five were unaffected, and in six cases the results were not known. Curschmann states that cases treated early give the best results. Even elderly patients may be successfully treated. Cases with grave complications are often improved by specific vaccine therapy, and success has also been obtained in old-standing cases with anaemia and enlargement of the spleen and liver.

Diseases of Children

112 Periodic Paralysis

JAMES B. GILLESPIE (*Arch. Pediat.*, October, 1937, p. 569) describes in detail the case of a boy subject to this rare condition. His walking was normal except for periodic attacks of weakness of the legs, which became useless for ten to twenty minutes at a time. The attacks came on three or four times a day, generally when he was fatigued, the child falling down and being unable to get up. All reflexes were lost during the attacks. The legs only were affected and there was no pain or loss of sensation. The aetiology of the condition is unknown, but the periodicity makes it unlike any other condition.

113 Local Vaccine Treatment of Nasal Suppuration

F. BLOTTA (*Rev. méd. lat.-amer.*, August, 1937, p. 1240) has treated infants and children successfully for suppurative rhinitis and ethmoiditis by the intranasal application of a combination of Besredka antiviral (culture-broth) and Herelle bacteriophage filtrate. A stock preparation was used, and applied on gauze in infants or by retrograde insufflation in children. Such treatment was either effective by itself or found to be of use before and after surgical treatment—for example, removal of adenoids. In maxillary sinus suppuration in adults, when combined with lavages after antral puncture, it occasionally rendered major operative measures unnecessary.

114 Cerebral Tumours

R. O. STERN (*Arch. Dis. Childh.*, October, 1937, p. 291) has investigated 102 cases of cerebral tumour, which were observed during a period of fifteen years in children under the age of 12; over one-half arose during the first five years of life. There was no difference in the sex incidence. Fourteen of the tumours, the existence of which was verified at necropsy, occurred during the first two years of life. An important finding was that tumours were twice as common below the tentorium as above it. A histological study was made of fifty-five tumours, two-thirds of which belonged to the glioma group. Only one solitary tuberculoma was found. There were six examples of malignant gliomata. Glioblastoma multiforme, a tumour which commonly occurs in the cerebral hemispheres of adults, and four ependymal tumours are included in the series. The more benign tumours were found at an earlier age, and only a small proportion of the malignant types were seen in children of less than 5. The hopelessness of most cases was evident, and was due to the situation of the tumour, which all too often offered insuperable difficulties to a surgical approach. The absence of pituitary tumours is surprising, but this

is accounted for by the age of the patients in this series. Pituitary tumours are found more commonly in children over 12 years of age; Cushing reported no less than twenty such cases in a series of 154 cerebral tumours.

115 Antirachitic Action of Irradiated Yeast

H. HOFFMANN-WÜLFING (*Arch. Kinderheilk.*, 1937, 112, 4, 227) has investigated the antirachitic action of irradiated yeast in children. He found that a daily dose of 6 grammes of the irradiated yeast was sufficient to cure active rickets within six weeks; the total dosage of yeast was 250 grammes. Clinical and radiological improvement was already noticeable after three weeks. To possess such antirachitic activity 1 gramme of this yeast must contain at least 2,000 protective antirachitic rat units. It is quite possible that a more active preparation of irradiated yeast may be discovered, but at present the doses of yeast are necessarily very high.

116 Phrenic Evulsion

V. MONACO and L. DI VITO (*Ann. Ist. Carlo Forlanini*, August, 1937, p. 21) record their observations on twenty-one cases of pulmonary tuberculosis in children aged from 2 to 12 years treated by phrenicectomy at the Carlo Forlanini Institute in Rome. In seventeen cases the lesions were confined to one lung, while in the remainder both lungs were involved. Of the unilateral cases thirteen were cured and four showed some improvement, and of the bilateral cases two died and two became worse. The authors come to the conclusion that phrenic evulsion is indicated in unilateral forms of inactive pulmonary tuberculosis with a tendency to sclerosis, and that it may be combined with, or be employed after, the induction of an artificial pneumothorax; it may be used also in cases of haemoptysis when it is impossible to induce an artificial pneumothorax.

Obstetrics and Gynaecology

117 Leucorrhoea and Vitamin Deficiency

STÄHLER (*Dtsch. med. Wschr.*, October 22, 1937, p. 1609) has investigated at the University Maternity Hospital of Frankfurt a.M. the possibility of there being a connexion between leucorrhoea and vitamin deficiency. This study, conducted between April, 1935, and March, 1937, was limited to 1,025 cases of non-specific leucorrhoea, and the dates of onset month by month were noted. No case of leucorrhoea was included in this study if there was some specific cause for the discharge such as cancer, gonorrhoea, polypi, tears of the cervix, etc. When these non-specific cases were classified according to the months in which they began no instructive curve could be drawn, but when the cases were classified according to whether the leucorrhoea was or was not associated with a trichomonas infection divergent monthly curves emerged, the trichomonas cases showing a peak in the summer, the non-trichomonas cases a peak in the winter. During the winter months there were between two and three times (2.6 times) as many cases of non-trichomonas leucorrhoea as in the summer months, while between April and September there were between two and three times (2.4 times) as many cases of trichomonas infection as in the winter months. In co-operation with the Meteorological Institute of Frankfurt, the author has studied the possibility of these observations depending on such factors as humidity, atmospheric pressure, temperature, etc., but the only correlation that could be established concerned the hours of sunshine and ultra-violet radiation, with which true non-specific leucorrhoea was inversely and trichomonas leucorrhoea directly proportional. The author associates this observation with his clinical experience of the good effects of quartz-light treatment on non-trichomonas leucorrhoea. As for the comparatively

post-operative, and forty-nine of the seventy-nine cases of thrombosis were also post-operative. In the period under review there were 19,574 patients operated on and 18,055 not operated on. The mortality from pulmonary embolism was 0.38 per cent. for the first group and only 0.16 per cent. for the second, and for both groups it was 0.28 per cent. In 1934 the morbidity from thrombosis for the patients operated on was 2.63 per cent., whereas it was only 1.79 per cent. for the patients not operated on; for both groups it was 2.24 per cent. In as many as eighty of the 104 cases death was sudden, and only in the remaining twenty-four cases did signs of thrombosis give warning of the fatal embolism. The choice of anaesthetic did not appear to affect the embolism rate, which was 0.38 per cent. for operations below the diaphragm (seventy deaths) and only 0.06 per cent. for operations above the diaphragm. It seemed to be immaterial whether, among the operations below the diaphragm, the peritoneal cavity was opened or not. Most of the deaths occurred between the fourth and tenth days after operation. Not one of the 400 patients suffering from some form or other of thyroid disease died of pulmonary embolism. There was no sex inequality with regard to either thrombosis or fatal pulmonary embolism, but the frequency of both rose with age. The fact that the mortality was twice as high in the private as in the public wards could be traced to the comparatively high age of the patients in the former. The author could not find any marked rise in the frequency of these conditions in the period under review.

107 Urethral Diverticula

J. RIVOIR (*Zbl. Chir.*, November 13, 1937, p. 2612) recommends the examination of the urethra in every case in which there is a persistent urethritis following an operation for the relief of a urethral stricture. In such cases the examination usually reveals local changes above the site of the stricture, commonly diverticula and pseudo-diverticular formations. The condition almost always responds to appropriate local treatment. The author makes use in such cases of electrocoagulation, and claims permanent cures.

108 Congenital Torticollis

J. FOGED (*Ugeskr. Laeg.*, December 9, 1937, p. 1316) has re-examined 117 of 131 patients operated on for congenital torticollis between 1920 and 1935. As many as 111 were operated on in childhood, and nineteen were under the age of 5. Of the 117 re-examined, only six were adults at the time of operation. There were sixty-seven females to fifty males, and sixty-five right-sided to fifty-two left-sided cases. The 117 patients were classified in four groups according as the torticollis was slight (eight cases), moderate (fifty-nine cases), severe and complicated (forty-one cases), or had relapsed after an earlier operation (nine cases). General anaesthesia with ether was always employed, and the operation was an open tenotomy of the sterno-mastoid at the seat of its contracture. Great importance was attached to performing the operation as radically as possible. After over-correction in hospital, exercises after discharge were continued for six months to two years. There were no operative deaths, and the immediate results were, with only one exception, satisfactory. On re-examination from one to sixteen years after leaving hospital the patients were classified in three groups, in the first of which there were 100 patients for whom it could be claimed that the operation had been perfectly successful. In the second group, containing thirteen patients, the results of the operation were partially marred by such flaws as restricted movements of the head, lack of symmetry of the face, slight rotation of the head to the healthy side and flexion towards the diseased side, persistence of some deformity of the spine, a disfiguring operation scar, etc. In the third group were four patients who had relapsed so as to be no better off than

before. The four main lessons the author extracts from this study are that (1) the operation must be as radical as possible, (2) it should not be attempted till the patient is about 4 years old, (3) a position of over-correction of the head should be maintained throughout the patient's stay in hospital, and (4) after-treatment should be prolonged and conscientiously followed.

Therapeutics

109 Hormone Therapy of Cryptorchidism

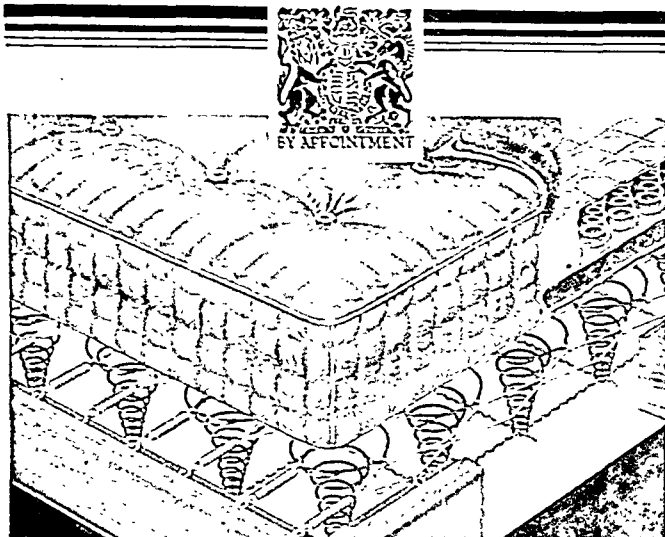
R. ERCOLE and A. FORT (*Ann. Chir.*, Rosario, September, 1937, p. 280) discuss the question of hormone therapy in cryptorchidism. They use the anterior-pituitary-like principle obtained from the urine of pregnant women, as they have found it to be superior to that prepared from the fresh gland. After a brief review of the literature and a short discussion on the mode of action of this treatment and the results obtained by others, the authors describe eight cases of their own (seven children and one adult) which they treated by this method. Five of these cases were completely successful, the testes descending to the bottom of the scrotum. Of the three remaining cases, one ceased to attend after a partial success and two were operated on; but even in these cases the testes descended quite easily after the resection of a few adhesions, and the cord was found to be longer than was necessary for the testes to reach the bottom of the scrotum, which, as the authors point out, is by no means usual in similar cases. They therefore suggest that hormone therapy should be tried in all cases of undescended testis before resorting to surgical measures, though they point out that the treatment is too recent for definite conclusions to be drawn.

110 Bronchial Asthma

W. H. BROWNING (*New Orleans med. surg. J.*, November, 1937, p. 269) has followed up 244 cases of bronchial asthma, analysing the methods of treatment adopted and the results. For immediate treatment he advises adrenaline 1 in 1,000 solution, not more than 0.3 c.cm. being in the arm, from which part absorption can be arrested by means of a tourniquet should immediate untoward effects appear. The value of ephedrine compounds, nitrates, etc., is discussed and the use of nostrums deprecated. The patient should be nursed in a specially prepared room, as nearly allergen-free as possible, and put on a diet described by Rowe. Subsequently a complete examination is made with a view to eliminating organic disease, because it was found that seldom was asthma due solely to extrinsic factors; skin-testing for allergy is then undertaken with a view to desensitization. The analysis of the results of treatment of 244 cases reveals that the earlier the onset of asthma, and the sooner the examination is made after onset, the better the prognosis.

111 Brucella abortus Infection

H. CURSCHMANN (*Fortschr. Ther.*, November, 1937, p. 593) states that the importance of *Brucella abortus* infection has only been realized in Germany since 1927. In all cases of raised temperature the blood should be examined for agglutination with typhoid and paratyphoid bacilli and *Brucella abortus*. Some sera give an agglutination with all three. It is important, therefore, to do the complement-fixation test and the intracutaneous test in all cases of suspected infection by *Brucella abortus*. Not all cases showing positive serological and intracutaneous tests require treatment. Only manifest cases of infection come into consideration. In these early treatment is essential in order to avoid the grave hepato-lial syndrome and the attendant complications. Non-specific



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PROC. ROY. SOC. MED., JULY, 1936, p.1094

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high frequency of trichomonas leucorrhoea in the summer months, it might be due to bathing in public baths, but the author is more inclined to trace it to conditions, favourable to the growth of trichomonas, dependent on much sunshine; and he notes in this connexion that in fifteen cases of trichomonas leucorrhoea the vaginal administration of vitamin D raised the trichomonas count and increased the inflammatory reaction of the vagina.

118 Plastic Replacement of the Endometrium

P. STRASSMANN (*Zbl. Gynäk.*, December 18, 1937, p. 2894) in 1935 reported six cases in which he had performed his operation for replacement of the mucous lining of the totally atretic uterus by utero-cervical implantation of a Fallopian tube. The ampullary part of the tube was fixed in the body of the uterus, the middle part near the internal os, the stump in the cervical canal, and the short fimbrial extremity was left free within the abdominal cavity. He now reports that one of the patients has given birth to a normal living child. The patient, then aged 20, was curetted at home, fourteen days after her first labour, for pyrexia and haemorrhage; thirteen months' amenorrhoea followed. Strassmann then found, after anterior colpotomy, in addition to right adnexal inflammation complete atresia of the uterus; the left tube, after being mobilized, was implanted as described. Regular menstruation began again forty-three days later. Subsequently the patient was divorced, but thirty months after the operation she remarried, and within two months became pregnant. The gestation continued uneventfully to six days before term, and a child weighing 2.5 kg. was delivered spontaneously after a speedy labour. The third stage was complicated by haemorrhage and partial retention of the placenta, which weighed 400 grammes, had more extensive villousities than usual, and was inserted on the anterior, posterior, and lateral walls of the reconstituted cavity. From the successful issue of this gestation in an "endometrium" of tubal derivation Strassmann infers that a similar plastic operation might occasionally be considered in sterility with amenorrhoea in young patients in whom the endometrium, while not destroyed, has ceased to function. Fuch's operation of supra-vaginal amputation of the uterus followed by implantation of the tube into the cervix has been successful in causing a reappearance of "menstruation" in seven cases of complete endometrial destruction; the average age of his patients was 37, that of Strassmann's 25.

119 Gestation after Cotte's Operation

According to M. REEB (*Gynécologie*, November, 1937, p. 617) about a dozen cases of labour after Cotte's operation of resection of the sympathetic fibres of the presacral nerve have been recorded, some by Cotte himself and some by Grisogne. The nerve contains in addition to centripetal nerves efferent sympathetic fibres, from diencephalic centres, which are not only motor to the smooth muscle of the Fallopian tubes, uterus, and vagina, but also regulate the tone of the striated muscles of the pelvic floor, perineum, vulva, and anus. Clinical experience has shown that Cotte's operation does not interfere with micturition, defaecation, or menstruation, or with normal labour. No case of ectopic gestation appears so far to have followed it. Reeb remarks that the abolition of the sympathetically regulated tonus of the striped muscles of the pelvic outlet might be expected to favour the expulsive processes of labour. Such a view is supported by his first case of pregnancy after Cotte's operation. Thirteen months after the operation, which had been performed for vaginismus in a woman aged 35, an uneventful pregnancy terminated spontaneously, with a first stage lasting six hours and a second lasting forty minutes. The muscles of the pelvic floor, perineum, and vulva offered no resistance. Reeb's second patient, a primipara aged 42, became pregnant four years after

resection of the presacral nerve, and gestation continued normally until three weeks before term (when it had to be ended by Caesarean section on account of signs of pregnancy toxæmia, the patient having only one kidney) in spite of the presence of a large interstitial fibroma.

Pathology

120 Vitamin A and Carotin in Human Milk

C. E. NYLUND (*Finska LäkSällsk. Handl.*, September, 1937, p. 733) has employed a colorimetric method under spectrophotometric control for the determination of the vitamin A and carotin content of 583 samples of milk from 357 women. It was found that comparatively low resistance to infections existed among the babies whose mothers' milk contained little vitamin A. In about 20 per cent. of cases the vitamin A content of the mothers' milk was considerably below the average, and in such cases there seemed to be good reason for supplementing breast-feeding at an early stage by carrots and cod-liver oil. The comparative lack of vitamin A in the milk was undoubtedly due to a deficiency of such sources of this vitamin as carrots, spinach, tomatoes, liver, and kidneys in the diet of the mothers. It is therefore desirable that during pregnancy and lactation mothers should be given a dietary sufficiently rich in this vitamin. Much more vitamin A was found in colostrum than in later samples of milk, and the concentration of both carotin and vitamin A in the milk was considerably reduced at the end of the period February to July, but comparatively high in September. No difference could be found in the concentration of vitamin A in the milk of primiparae and multiparae, nor in that of town and country dwellers. But the vitamin A content of the milk was comparatively low in the elderly and the asthenic, whereas it was comparatively high in the young and well-nourished. The milk of mothers developing some post-partum infection was comparatively poor in carotin and vitamin A. Considerably greater fluctuations were found in the amount of carotin than in that of vitamin A. The author doubts if more than two-thirds of the babies in this study received all the vitamin A they needed, and he considers it important that they should drain the breasts empty, as the vitamin content of human milk is highest at the end of a feed.

121 Cerebral Lipoid Reactions in Schizophrenia

H. LEHMANN-FACIUS (*Klin. Wschr.*, November 20, 1937, p. 1646) in a preliminary report states that he has found the cerebral lipoid anti-reaction to give positive results in 94 to 95 per cent. of schizophrenics, whether classified as paranoid, katatonic, or hebephrenic. The psychoses and other conditions almost invariably gave negative tests; cases of organic cerebral disease, as might be expected from the cerebral destructive processes of tumour, multiple sclerosis, etc., gave positive results in 6 per cent. of cases. A similar serological test of the cerebrospinal fluid in general paralysis has been longer known, and consists in the addition of the fluid to primary alcoholic extracts of brain. The positive test, which is characteristic in the schizophrenic, is attained by the use of a somewhat complicated two-part technique. In the first the cerebrospinal fluid, after being shaken up with ether, which is then removed, is mixed with a brain-lipoid extract, balsam of tolu being added: a positive result is shown by the occurrence, after centrifugalization, of a flocculation which resists admixture with normal saline. The second and confirmatory part consists in inhibition of this flocculation by the ethereal portion of the extract of the schizophrenic liquor. The reactions are organ-specific—that is, no flocculation results from admixture of the positive liquor with visceral extracts. It is of diagnostic importance that the test is always negative in manic-depressive psychoses.

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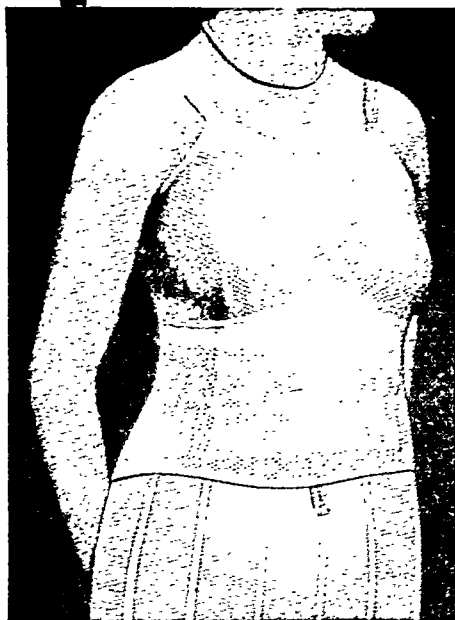
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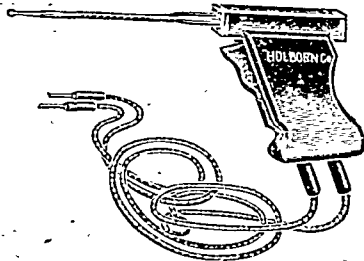
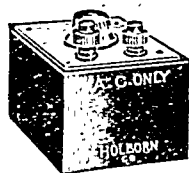


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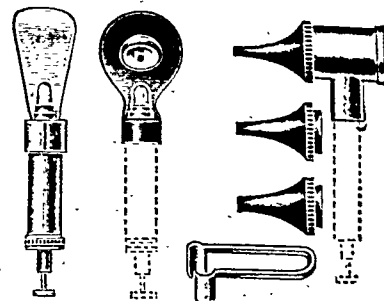


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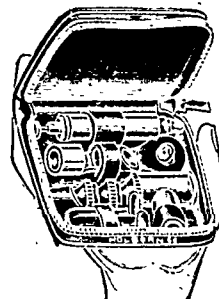
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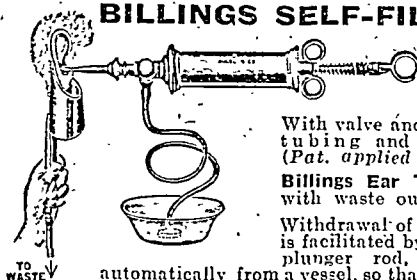
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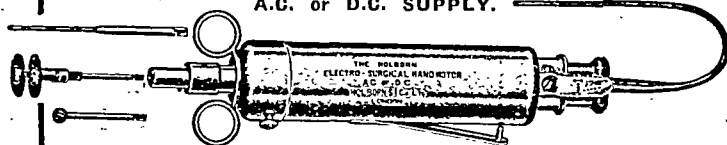


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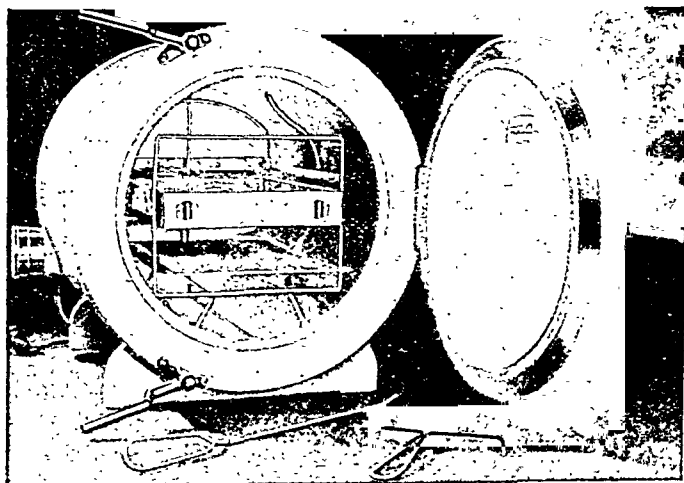
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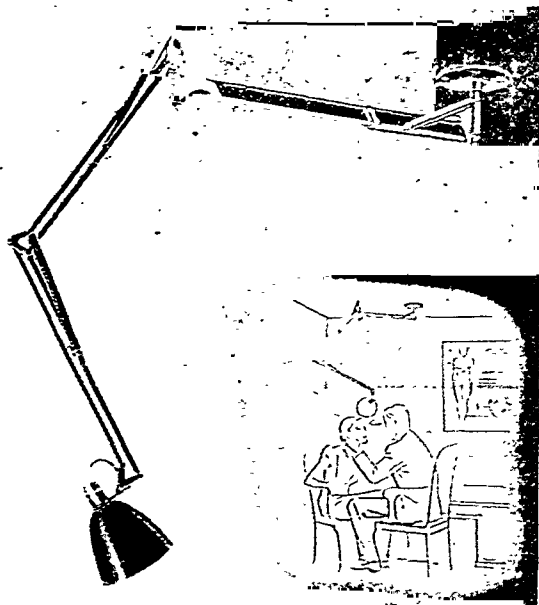
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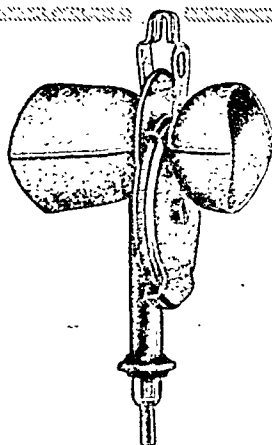
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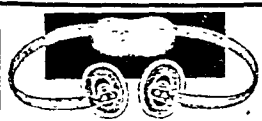
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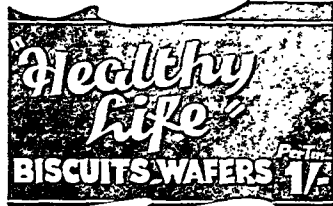
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T. S. RIFFON, M.R.C.S., L.R.C.P. (Medical Superintendent). Telephone and Telegrams: BYRON 1011.

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Telephone: Rodney 2641-2642.

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FOR THE UPPER AND MIDDLE CLASSES ONLY

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Telephone: No. 6207 Barnwood.

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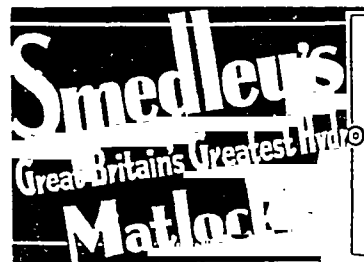
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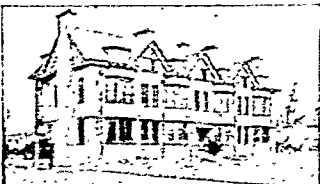
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POSTS OVERSEAS FOR MEDICAL MEN

A register is kept in the School of medical men who are prepared to be considered for posts overseas, and the School is frequently asked to advise plantation and mining companies when such posts fall vacant.

The salaries offered are attractive; conditions of service are governed by standardised forms of contract; and many of the posts offer to medical men a most interesting field in which to practise their profession.

It is desirable that candidates for posts overseas should hold a diploma in tropical medicine and hygiene. The course provided by the London School for the Conjoint Board's Diploma lasts six months and the tuition fee is £40. The course may be taken from October to March or from January to June. There are generally more vacancies in the course commencing in January.

The Director of the Ross Institute is always glad to interview medical men who would like information regarding the possibilities of a career overseas if they will be good enough to make an appointment to call on him. Enquiries may be addressed to

SIR MALCOLM WATSON, Director,
Ross Institute of Tropical Hygiene,
London School of Hygiene & Tropical Medicine,
KEPPEL STREET, GOWER STREET, W.C.1.

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FACULTY OF MEDICINE.

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SESSION 1937-38.

THREE LECTURES

CHEMICAL TRANSMISSION OF THE EFFECTS OF NERVE IMPULSES

will be delivered in the Large Theatre of the Medical Faculty Buildings, Edmund Street, as follows:

(a) Two Lectures by Sir HENRY DALE, C.B.E., F.R.S., M.A., M.D., F.R.C.P. (Director of the National Institute for Medical Research, London), on Thursdays, February 17th and 24th, 4 p.m.

(b) One Lecture by Professor FRANCIS R. FRASER, M.A., M.D., F.R.C.P. (Professor of Medicine, University of London, and Director, Department of Medicine British Postgraduate Medical School), on Thursday, March 3rd, 4 p.m. Members of the Medical Profession and Students of Medicine are invited to attend.

STANLEY BARNES, Dean.

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Commencing salary £200 p.a., rising by two instalments of £12 10s. each to £225 p.a.

Applications, giving full particulars, stating age and qualifications, to be sent to the undersigned on or before February 19th, 1938.

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LONDON COUNTY COUNCIL

Applications invited from Medical Practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

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ASSISTANT MEDICAL OFFICERS (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).
(b) HAMMERSMITH HOSPITAL, Ducane Road, Shepherd's Bush, W.12.—General medical duties, experience in children's diseases desirable.

(c) MILE END HOSPITAL, Bancroft Road, Mile End, E.1.—Experience in obstetrics and anaesthetics essential.
(d) NEW END HOSPITAL, Hampstead, N.W.3.—Duties mainly medical, experience in anaesthetics essential, and in obstetrics desirable.

(e) PADDINGTON HOSPITAL, Harrow Road, W.9.—Medical duties, experience in anaesthetics desirable.
*No accommodation for a woman.

(f) ST. ANDREW'S HOSPITAL, Devons Road, Bow, E.3.—(Two positions): (1) Surgical duties. (2) Anaesthetics, experience in children's diseases desirable.

(g) ST. GILES' HOSPITAL, St. Giles' Road, Camberwell, S.E.5.—Duties mainly medical, experience in anaesthetics desirable.

(h) ST. JAMES' HOSPITAL, Ouseley Road, Balham, S.W.12.—Surgical duties.
Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division, 24, County Hall, S.E.1, returnable by February 16th).

Canvassing disqualifies.

LONDON COUNTY COUNCIL

PUBLIC HEALTH DEPARTMENT.

Applications are invited for a full-time position of ASSISTANT MEDICAL OFFICER (permanent and pensionable). The duties will be chiefly concerned with slum clearance and school medical work. Applicants must hold a diploma or degree in Public Health. Salary £750 a year.

Forms of application (stamped addressed foolscap envelope necessary) from the Medical Officer of Health (S.D.5), The County Hall, Westminster Bridge, London, S.E.1, returnable by February 12th. Canvassing disqualifies.

LONDON COUNTY COUNCIL

Applications invited from registered medical practitioners of at least one year's standing, resident in the neighbourhood, for appointment as TEMPORARY VISITING MEDICAL OFFICER (PART-TIME) at Dunton Farm, near Landon, Essex, for able-bodied men. Salary £150 a year.

Applications forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division 24, County Hall, S.E.1, returnable by February 16th. Canvassing disqualifies.

UNIVERSITY OF ABERDEEN.

LECTURESHIP IN BACTERIOLOGY.

The University Court will shortly proceed to the appointment of a Lecturer in Bacteriology in the University of Aberdeen.

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Persons desirous of being considered for the office are requested to lodge their names with the Secretary to the University on or before February 15th, 1938.

The conditions of appointment and form of application may be obtained from the undersigned.
H. J. BLITCHART,
Secretary to the University of Aberdeen.

The University, Aberdeen

UNIVERSITY OF LONDON.

The Senate invite applications for the UNIVERSITY READERSHIP IN EMBRYOLOGY tenable at University College. Salary £750 a year.

Applications (12 copies) must be received not later than first post on March 4th, 1938, by the Academic Registrar, University of London, W.C.1, from whom further particulars should be obtained.

BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

Department of Medicine

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on

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M.B., B.Ch., F.R.C.S.

on

MARCH 3rd, 10th, 17th, 24th, 31st, and APRIL
7th, 1938, at 4.30 p.m.

Department of Surgery

A COURSE OF THREE LECTURES ON

THE SURGICAL APPLICATION OF ENDOCRINOLOGY WITH SPECIAL REFERENCE TO THE ADRENAL GLANDS

will be given by

Mr. L. R. BROSTER, O.B.E., M.A., D.M.,
F.R.C.S.

on

FEBRUARY 24th, MARCH 3rd and 10th, 1938, at
2.30 p.m.

A COURSE OF FIVE LECTURES ON

DISEASES OF THE BREAST

will be given by

Mr. GEOFFREY KEYNES, M.D., F.R.C.S.

on

MARCH 11th, 18th, 25th, APRIL 1st and 8th, 1938.
at 2.30 p.m.

Department of Pathology

A COURSE OF THREE LECTURES ON

TUMOURS OF THE CENTRAL NERVOUS SYSTEM AND MENINGES

will be given by

Dr. DOROTHY RUSSELL, M.D.

on

FEBRUARY 23rd, MARCH 2nd and 9th, 1938, at
4.30 p.m.

A COURSE OF THREE LECTURES ON

THE THYROID AND ITS SECRETIONS

will be given by

Professor C. R. HARRINGTON, M.A., Ph.D.,
F.R.S.

on

MARCH 16th, 23rd, 30th, 1938, at 4.30 p.m.

Department of Obstetrics and Gynaecology

A COURSE OF THIRTEEN LECTURES ON

PRESENT-DAY GYNAECOLOGY

will be given as follows: THURSDAY afternoons at 3.30 p.m.

Mar. 3rd. The Female Sex Hormones ..	Dr. A. S. PARKES, M.A., Ph.D.	Apr. 21st. Neoplasms of the Ovary ..	Mr. WILFRED SHAW, M.A., M.D., F.R.C.S., F.C.O.G.
" 10th. Dysmenorrhoea	Mr. MALCOLM DONALDSON, F.R.C.S., F.C.O.G.	" 28th. Malignant Neoplasms of Uterus	Mr. VICTOR BONNEY, M.D., M.S., F.R.C.S., F.R.A.C.S.
" 17th. Sterility	Mr. V. B. GREEN-ARMYtage, M.D., F.R.C.P., F.C.O.G.	May 5th. Radiation Therapy in Gynaeco- logy	Miss LOUISA MARTINDALE, C.B.E., M.D., B.S., F.C.O.G., J.P.
" 24th. Irregular Uterine Haemorrhage	Mr. WILFRED SHAW, M.A., M.D., F.R.C.S., F.C.O.G.	" 12th. Gonorrhoea in Women ..	Colonel L. W. HARRISON, D.S.O., F.R.C.P.
" 31st. Hormone Therapy in Gynaeco- logy	Dr. T. N. MACGREGOR, M.D., F.R.C.S., F.C.O.G.	" 19th. Salpingitis	Mr. ALECK BOURNE, M.A., F.R.C.S., F.C.O.G.
Apr. 7th. Genital Prolapse	Professor W. FLETCHER SHAW, M.D., F.C.O.G.	" 26th. Birth Control	Dr. HELENA WRIGHT, M.B., B.S., M.R.C.S., L.R.C.P.
" 14th. Benign Neoplasms of Uterus ..	Mr. L. CARNAC RIVETT, M.C., F.R.C.S., F.C.O.G.		

These lectures are for regular students of the school, but a limited number of tickets are available, without fee, to medical practitioners. Applications for tickets should be addressed to The Dean, British Postgraduate Medical School, Ducane Road, W.12.

DEPARTMENT OF PATHOLOGY

A Laboratory Course on HAEMATOLOGY conducted by Dr. JANET VAUGHAN, D.M., M.R.C.P., will commence on February 21st, 1938.

A Laboratory Course on CHEMICAL PATHOLOGY conducted by Dr. EARL J. KING, M.A., Ph.D., will commence on April 18th, 1938.

The courses are whole-time and each will last for six weeks. Fee £9 9s.—for each Course.

These Courses are part of the Course for the Diploma in Clinical Pathology and only a limited number of students can be admitted. Early application for enrolment should be made to the Dean, British Postgraduate Medical School.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL. MEDICAL SCHOOL

Recognized by the University of London, the Conjoint Board, and other Bodies granting degrees and diplomas in OPHTHALMOLOGY.

The Practice of the Hospital is open to qualified Medical Practitioners and registered Students of Medicine.

Classes are held periodically and include the following subjects: OPERATIVE SURGERY, THE PATHOLOGY AND BACTERIOLOGY OF THE EYE, THE REFRACTION OF THE EYE, THE FUNDUS OCULI, METHODS OF EXAMINATION, MEDICAL OPHTHALMOLOGY, CLINICAL LECTURES.

ORTHOPTIC DEPARTMENT: For Medical Practitioners desirous of taking a practical course in Ocular Muscle Training. Students are also accepted for a year's training in Orthoptics.

The Medical School Prospectus, which contains full information, together with particulars of the CRUISE CLINICAL RESEARCH SCHOLARSHIP and GUTHRIE PRIZE, can be obtained from the DEAN or SECRETARY of the Hospital, High Holborn, W.C.1.

DIPLOMA IN ANAESTHETICS—D.A. DIPLOMA IN CHILD HEALTH—D.C.H.

Courses of Postal and Oral preparation for these examinations may now be commenced

For full details write to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

DIPLOMA OF THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.

The next EXAMINATION for the DIPLOMA (D.C.O.G.) will be held on MARCH 9th (written) and MARCH 23rd (Clinical and Viva Voce).

Application for entrance to the Examination (on the prescribed form obtainable from the Honorary Secretary) must be made not later than Wednesday, February 9th.

58, Queen Anne Street, London, W.1.

UNIVERSITY OF OXFORD

DIPLOMA IN OPHTHALMOLOGY.

The next Examination begins on June 20th, 1938. The two months' Course of Instruction starts on April 25th, 1938. For further information apply to—The Dean of the Medical School, University Museum, Oxford.

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Reader in Ophthalmology.

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BRITISH ASSOCIATION OF RADIOLOGISTS.

Sir WALTER LANGDON-BROWN, M.D., F.R.C.P., will deliver the second SKINNER LECTURE on Friday, February 18th, at 4 p.m., in the Reid-Knox Hall, at 32, Welbeck Street, London, W.1.

Subject: "The Pursuit of Shadow."
The Lecture is open to all members of the medical profession, who are cordially invited.

STAMMERING, SPEECH DEFECTS.
BEHNKE METHOD. Estab. 1880. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. "Pre-eminent success in education and treatment of stammering and other speech defects."—"Times." "Thoroughly physiological principles."—"Lancet." "The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."
Stammering, Cleft Palate Speech, Lispings.
39 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, London, S.W.1.

IRAQ GOVERNMENT

APPOINTMENT OF BRITISH SURGICAL SPECIALISTS.

The Iraq Government invite applications from British Medical and Surgical Specialists (male) for the following vacant appointments.

1. OBSTETRICIAN AND GYNAECOLOGIST.

Duties: To be Professor of Obstetrics and Gynaecology in the Royal College of Medicine, Bagdad, and Chief of the Unit of Obstetrics and Gynaecology in the Royal Hospital, Bagdad.

Salary: Iraq Dinars 150 per mensem.

2. EAR, NOSE, AND THROAT SPECIALIST.

Duties: To be Lecturer on Ear, Nose, and Throat diseases in the Royal College of Medicine, Bagdad, and Chief of one of the Units for these diseases at the Royal Hospital, Bagdad.

Salary: Iraq Dinars 120 per mensem. In special circumstances if it is considered that the candidate's qualifications and experience justify it a salary in excess of this amount, but not exceeding 150 Dinars per mensem, may be granted.

3. GENERAL SURGICAL SPECIALIST.

Duties: To act as Surgical Specialist in any hospital of the Iraq Health Service as required and to assist in the teaching of Surgery in the Royal College of Medicine, Bagdad, if required.

Salary: Iraq Dinars 120 per mensem.

Candidates must be experienced in operative work and must hold a Specialist's diploma in their branch of work, such as F.R.C.S., M.C.O.G., or D.L.O.

Age must not exceed 45 years. Successful candidates will be required to enter into contracts for a period of five years. Consultant practice is allowed provided that it does not interfere with the performance of official duties. The teaching at the Medical College is in the English language.

One Iraq Dinar is equivalent to one Pound Sterling. Salaries will be subject to Iraq Income Tax which is:—150 dinars exempt, the next 150 dinars subject to 6% tax, and the remainder of the income 9%.

Forms of application and copies of the Form of Contract can be obtained from the Iraq Minister, the Royal Iraq Legation, 22, Queen's Gate, London, S.W. 7. Particulars as to the Provident Fund, leave, and passage allowances are given in the Form of Contract.

No application can be considered unless received on the prescribed form not later than February 18th.

UMIATA HOSPITAL BOARD.

SIR HENRY ELLIOT HOSPITAL.

APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited from qualified Registered Medical Practitioners for the above-mentioned post. The salary attached to this position, which is whole-time, is at the rate of £600 per annum, plus free house, water, light and sanitation. A double-storied dwelling-house is shortly to be erected in which the successful applicant will be required to reside, but pending its completion he will be allowed an amount of £10 per month in lieu of quarters and incidental costs.

The successful applicant is to assume duty on July 1st 1938, and to enter into contract of service for three years (which may be renewed), the first year to be on probation.

The Hospital has 154 beds (22 European, 132 Native), but this accommodation will be increased by approximately 60 beds in the near future. Duties include assisting at operations, anaesthetics, radiology, the general ward work of a resident medical officer, lecturing to nurses and the general superintendence of the whole Hospital.

Applicants to state full particulars of:

(1) Their Medical and, in particular, Radiological and Surgical experience.

(2) Nationality, age, and whether married or single.

(3) Whether fully conversant with both English and Afrikaans.

Applications, with copies of three recent testimonials and health certificate, must be lodged with the undersigned not later than noon on March 15th, 1938.

Umtata, C. E. BEVAN, Secretary
Cape Province, South Africa.

BOROUGH OF BARKING.

PUBLIC HEALTH DEPARTMENT.

Applications are invited from Registered Dental Surgeons for the designated appointment of ASSISTANT DENTAL SURGEON.

Salary Scale: £450-£20-£550.

Particulars of duties and application form can be obtained from the undersigned, to whom such form must be returned not later than first post on Saturday, February 12th, 1938.

Town Hall, S. A. JEWERS, Town Clerk.
Barking, Essex.

COUNTY BOROUGH OF OLDHAM.

PUBLIC HEALTH DEPARTMENT.

TEMPORARY ASSISTANT MEDICAL OFFICER.

Applications are invited from registered medical practitioners for the post of Temporary Assistant Medical Officer of Health for the County Borough of Oldham. The duties are mainly in connexion with Diphtheria Immunization, but the officer appointed will be required to undertake such other duties in the Department as the Medical Officer of Health may direct. He will be required to reside in the Borough.

The salary will be at the rate of £500 per annum. Applications, stating age, and giving full particulars regarding training, qualifications and appointments held, should be forwarded to the Medical Officer of Health, Town Hall, Oldham, together with copies of three recent testimonials, so as to reach him not later than Tuesday, February 8th, 1938.

Town Hall, THOMAS ALKER, Town Clerk.
Oldham.
January 20th, 1938.

COUNTY BOROUGH OF WOLVERHAMPTON.

NEW CROSS HOSPITAL (350 Beds).

ASSISTANT MEDICAL OFFICER (RESIDENT).

Applications are invited from single gentlemen, duly qualified, for appointment as Assistant Medical Officer at the above Hospital, which contains Medical, Surgical, Maternity, Children's and Isolation Departments, and is modernly equipped. Experience in anaesthetics, a knowledge of Clinical Pathology, and previous Hospital experience will be deemed additional assets.

Salary will be at the rate of £200 per annum, with apartments, board, attendance, etc. The appointment will be limited to a term not exceeding one year.

Further information as to the duties, etc., may be obtained from the Medical Officer of the Hospital.

Applications, stating age, qualifications and nationality, together with copies of recent testimonials, should be addressed to A. G. ALDRIDGE, Public Assistance Officer, Stafford Street, Wolverhampton.

COUNTY BOROUGH OF BLACKBURN.

LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER to act under the direction and supervision of the Medical Officer of Health, who is also School Medical Officer. The salary is at the rate of £600 per annum, rising by annual increments of £25 to £700 per annum.

The person appointed must have had at least three years' post-graduate experience in the practice of her profession and special experience of midwifery and ante-natal work. Special post-graduate experience in the treatment of venereal diseases of children, and the possession of a registrable degree or diploma in Public Health, will be deemed additional qualifications.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than Saturday, February 12th, 1938, endorsed "Assistant Medical Officer of Health."

Canvassing directly or indirectly will be a disqualification. CHAS. S. ROBINSON, Town Hall, Blackburn. Town Clerk.
January 25th, 1938.

ROYAL DERBY AND DERBYSHIRE NURSING ASSOCIATION.

APPOINTMENT OF HONORARY OBSTETRIC PHYSICIAN TO THE NIGHTINGALE HOME.

The Board of Management invite applications to fill a vacancy on the staff of HONORARY OBSTETRIC PHYSICIANS. The duties include instruction of Pupil-Midwives.

Election will be by the Governors at a Special Meeting to be held on Thursday, February 17th, 1938.

Applications, stating qualifications and experience, with not more than three testimonials, should be sent on or before February 14th to the undersigned, from whom all particulars may be obtained. Canvassing not allowed.

By Order, JOHN COBB, Secretary.
Royal Nursing Institution.
London Road, Derby.
January 29th 1938.

CITY OF LEEDS

ASSISTANT MEDICAL OFFICER

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for maternity and child welfare. Applicants must have had not less than three years' postgraduate experience, including experience in general medicine and surgery and special experience in obstetrics and ante-natal work, and in the treatment of children's diseases and disease of women. Preference will be given to candidates possessing the D.P.H.

Under the present grading scheme of the Council, the commencing salary for the post is £500 per annum and the maximum salary £700, with annual increments of £25, subject to satisfactory service, and the first increment will take effect on April 1st, following the completion of twelve months' service.

The person appointed will be required to pass a medical examination and to contribute to the superannuation fund established under the Local Government and Other Officers' Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the undersigned. Applications, endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10.30 a.m. on Saturday, February 19th, 1938. Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health.

COUNTY BOROUGH OF BLACKBURN

ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited for the post of Assistant Medical Officer of Health (male), whose principal duties will be to act as Clinical Tuberculosis Officer for the Town and Resident Medical Officer of the Corporation Hospital, in which cases of tuberculosis and other infectious diseases are treated.

Applicants must not be less than 24 years of age and, subsequent to qualification, shall (1) have had at least three years' experience in the practice of their profession, (2) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a hospital as Resident Officer in charge of beds occupied by general medical or surgical cases, and (3) have received special training for a period of not less than six months in the diagnosis and treatment of tuberculosis.

Preference will be given to candidates who, in addition to the requirements mentioned above, hold a diploma in Public Health, and who have held a resident post in an Infectious Diseases Hospital. The salary will be £600 per annum, together with board and residence. Married quarters are not available.

A form of application and list of duties may be obtained from the Medical Officer of Health, Public Health Officer, Victoria Street, Blackburn, to whom applications, together with copies of three recent testimonials, endorsed "Assistant Medical Officer of Health," should be sent not later than noon on Saturday, February 19th, 1938.

Canvassing, directly or indirectly, will be a disqualification.

CHAS. S. ROBINSON,
Town Clerk.
January 25th, 1938.

NORFOLK COUNTY COUNCIL.

CLINICAL TUBERCULOSIS OFFICER.

Applications are invited for the appointment of a Clinical Tuberculosis Officer for the western area of the county. Applicants must have had considerable experience of tuberculosis, including dispensary, x-ray diagnosis, and artificial pneumothorax treatment.

Salary £750, rising, on satisfactory service, by annual increments of £25 to £937 10s. 6d. Travelling expenses in accordance with the Council's scale will also be paid.

The officer appointed will be on the staff of the County Medical Officer, must reside at a centre approved by the Council and devote his whole time to the work.

The appointment will be terminable by three months' notice by either side. The post will be a designated one under the Local Government and Other Officers' Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Application forms can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they must be returned not later than February 19th, 1938.

H. C. DAVIES,
Clerk of the Council.
Thorpe Road, Norwich.
January 22nd, 1938.

ADMINISTRATIVE COUNTY OF NORFOLK.

ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH

for
Wells Urban District.
Dorchester Rural District.
Walsingham Rural District.

The Norfolk County Council and the District Councils concerned invite applications from medical practitioners holding a diploma in Public Health, or similar qualification, for the joint whole-time appointment of ASSISTANT COUNTY MEDICAL OFFICER and MEDICAL OFFICER OF HEALTH for the Urban District of Wells-on-the-Sea, and the Rural Districts of Dorchester and Walsingham. Population of area about 37,000, a further urban district (population 3,000) may be added later.

The salary for the combined appointment will be £600 per annum, with travelling expenses in accordance with the County Council's scale. The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the salary will be subject to the statutory deduction for this purpose. The successful applicant will be required to pass a medical examination.

The officer will act under the County Medical Officer as Assistant School Medical Officer, Medical Officer for Infant Welfare Centres, and will be required to perform such other duties as may be assigned to him by the County Council. As regards his duties as Medical Officer of Health he will be subject to the control of the District Councils concerned and be required to live at or near an approved centre in his area.

The appointment will be subject to three months' notice to be given, or received, by the Clerk of the County Council.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they should be returned, accompanied by copies of not more than three recent testimonials, not later than February 19th, 1938.

Canvassing in any form will be a disqualification.

H. C. DAVIES,
Clerk of the County Council.
W. A. WILLIAMSON,
Clerk to the Wells Urban District Council.
J. H. MARSHALL,
Clerk to the Dorchester Rural District Council.
A. E. KERRISON,
Clerk to the Walsingham Rural District Council.
January 31st, 1938.

SURREY COUNTY COUNCIL

ASSISTANT MEDICAL OFFICER

Applications are invited for the appointment of an Assistant Medical Officer (male). Applicants must possess a qualification in Public Health and have had experience in the medical inspection of School Children, in Maternity and Child Welfare, and in the examination and certification of mentally defective children. The officer appointed will be required to undertake such other Public Health duties as may be allocated to him. He will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote his whole time to the work. Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health, and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the staffing regulations of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed forms, and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for the receipt of applications, Wednesday, February 16th, 1938.

Canvassing, directly or indirectly, will disqualify.

DUDLEY AUKLAND,
Clerk of the County Council.
Kingston-upon-Thames.
February 1st, 1938.

THE UNIVERSITY OF LIVERPOOL

The Council invites applications for the following posts:—Two DEVONSTATORSHIPS (ungraded) in PHYSIOLOGY. Salary £200 per annum. The appointments will take effect as from October 1st, 1938.

Applications should be received by the undersigned not later than April 1st, 1938, from whom further particulars may be obtained.

STANLEY DUMBELL,
Registrar.
February, 1938.

METROPOLITAN BOROUGH OF FULHAM

MATERNITY HOME AND CLINIC.

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from unmarried qualified medical practitioners of either sex, with special obstetric experience, for the appointment of Resident Medical Officer and Assistant Medical Officer for Maternity and Child Welfare at the Council's new Maternity Home and Clinic (25 Beds). The officer appointed will also have medical charge of certain ante-natal, post-natal, infant welfare and ultra violet light clinics, and experience in these and the possession of the Diploma in Public Health will be additional qualifications.

The scale of salary will be £550 per annum, rising by annual increments of £25 to £580 per annum, plus gratuity valued for superannuation purposes at £150 per annum. The commencing salary will be within the above scale at a point in accordance with the qualifications and experience of the person appointed as determined by the Council.

Detailed particulars of the terms and conditions of the appointment, together with a form of application, will be sent on receipt of a stamped, addressed, foolscap envelope.

Applications must be delivered to me not later than February 19th. Canvassing is strictly prohibited and will disqualify.

WILFRED TOWNEND,
Town Hall, Fulham, S.W.6. Town Clerk.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

Applications are invited for the post of House Surgeon. The appointment will be for six months from March 15th, 1938, but is terminable at an earlier date by one month's written notice on either side. Salary will be at the rate of £130 per annum with board, residence and laundry. Candidates (male) who must be unmarried and duly registered are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned on or before Wednesday, February 23rd, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

CHILDREN'S HOSPITAL, NOTTINGHAM

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on April 1st.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlemouth Gate, Nottingham, on or before Tuesday, February 15th. Selected candidates will be required to attend at the Hospital for a personal interview.

CHILDREN'S HOSPITAL, NOTTINGHAM

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on April 1st.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlemouth Gate, Nottingham, on or before Tuesday, February 15th. Selected candidates will be required to attend at the Hospital for a personal interview.

EAR AND THROAT HOSPITAL, Birmingham, 3

FIRST HOUSE SURGEON REQUIRED (RESIDENT)

Must be fully qualified and with clinical experience. Salary at the rate of £150 per annum, with full board and residence to commence April 1st.

Appointment for 6 months commencing April 1st.

Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned by February 12th, 1938.

W. H. LOMAS,
Secretary.

EAR AND THROAT HOSPITAL, Birmingham, 3

THIRD HOUSE SURGEON (wanted immediately). Must be qualified and with clinical experience. Salary at the rate of £150 per annum with full board and residence to commence April 1st.

Appointment for 6 months to commence April 1st.

Candidates are eligible for election to Senior posts. Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned by February 12th, 1938.

W. H. LOMAS,
Secretary.

GLOUCESTERSHIRE COUNTY COUNCIL. DEPUTY COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Deputy County Medical Officer of Health (male) at a salary of £750 per annum. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The appointment will be a designated post for the purposes of the Local Government and other Officers' Superannuation Act, 1922, and will be subject to a satisfactory report by the Council's medical adviser.

Applicants must be registered Medical Practitioners, should hold a Diploma in Public Health, and have experience in general public health duties and in the administrative work of a Public Health Department.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than February 14th, 1938.

Canvassing directly or indirectly will be a disqualification.

RICHARD L. MOON,
Clerk of the County Council.

Shire Hall, Gloucester

GLOUCESTERSHIRE COUNTY COUNCIL. ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of Assistant County Medical Officer of Health (male) at a salary of £500 per annum, rising by £25 per annum to £700 per annum. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The appointment will be a designated post for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and will be subject to a satisfactory report by the Council's medical adviser.

Applicants must be registered Medical Practitioners and should hold a Diploma in Public Health. Previous experience in various branches of public health and school medical work is desirable.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than February 14th, 1938.

Canvassing, directly or indirectly, will be a disqualification.

RICHARD L. MOON,
Clerk of the County Council.

Shire Hall,
Gloucester.

CITY OF BIRMINGHAM. SELLEY OAK HOSPITAL (520 Beds.)

JUNIOR MEDICAL OFFICER (male).

Applications are invited from fully-qualified medical practitioners for the whole-time appointment of Junior Medical Officer (male) at the Selley Oak Hospital, Birmingham. The appointment will be for a period of six months in the first instance, but may be extended at the end of that time for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Selley Oak Hospital, to whom applications, stating age, experience and qualifications, with copies of recent testimonials, should be forwarded not later than Wednesday, February 23rd, 1938.

The Council House, Birmingham. F. H. C. WILTSHIRE,
Town Clerk.
February, 1938.

LANCASHIRE COUNTY COUNCIL. JUNIOR ASSISTANT MEDICAL OFFICER. Wrightington Hospital, Appley Bridge.

Applications are invited for the post of Junior Assistant Medical Officer (male, unmarried) for the Wrightington Hospital, which contains 206 beds for non-pulmonary tuberculosis (adults and children) and 20 beds for "combined" pulmonary and non-pulmonary cases. Salary £300 per annum, together with board, residence, and laundry.

The appointment will be for six months or for twelve months, as may be agreed upon. The medical staff consists of medical superintendent, two assistants, two consultant orthopaedic surgeons and other visiting surgeons. There are excellent facilities for reading for M.D.

Forms of application and conditions of appointment obtainable from Central Tuberculosis Officer, County Offices, Preston. Letters to be marked "Wrightington M.O."

Closing date February 17th, 1938
GEORGE ETHERTON,
Clerk of the County Council.
County Offices, Preston

ADMINISTRATIVE COUNTY OF CAMBRIDGE DEPUTY MEDICAL OFFICER OF HEALTH.

The Cambridgeshire County Council invite applications for the post of Deputy Medical Officer of Health for the County from duly qualified practitioners registered in the Medical Register as holders of a diploma in sanitary science, public health or State medicine.

The officer appointed will act under the direction of the Medical Officer of Health for the County (who is also School Medical Officer) in the general administration of public health and in other medical work of the Council, including that of the Education Authority. The duties will be mainly in connexion with school medical inspection, and experience in refraction and diseases of the eye is essential. The officer appointed must not engage in private practice or hold any other appointment.

The salary attached to the post is £600 per annum, rising by increments of £50 to £750 per annum. A car will be provided or an allowance made for travelling, but there will be no subsistence allowance within the County.

The post is subject to superannuation, and the selected candidate will be required to undergo a medical examination. The appointment will be terminable by three months' notice in writing on either side.

A form of application (with any further information desired) can be obtained from the Clerk of the County Council by sending a stamped addressed foolscap envelope. Applications must be received not later than February 28th, 1938.

Shire Hall, Cambridge. ASHLEY TABRUM,
Clerk of the Council.
January 25th, 1938.

BOROUGH OF EALING. RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men (single) with a Public Health qualification for the position of Resident Assistant Medical Officer. A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school children at schools and health centres in the borough of Ealing. The person appointed will reside at the Isolation Hospital, where furnished rooms and board will be provided. He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £350 per annum, rising by £25 per annum to a maximum of £550, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connexion therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from DR. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than February 10th.

Town Hall, Ealing, W.5. R. H. WANKLYN,
Town Clerk.

BOROUGH OF EALING. ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified medical men with a Public Health qualification for the position of Assistant Medical Officer of Health. A candidate must have had at least three years' experience in the practice of his profession. The person appointed will be required to carry out medical inspection of school children and child welfare work, and perform such other duties as may be allotted as Assistant to the Medical Officer of Health and School Medical Officer.

He will be required to devote his whole time to the duties, and will not be allowed to engage in private practice. The salary will be at the rate of £600 per annum, rising by £25 per annum to £700.

A deduction of 5 per cent. will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connexion therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from DR. THOMAS ORR, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than February 10th.

Town Hall, Ealing, W.5. R. H. WANKLYN,
Town Clerk.

DEPARTMENT OF HEALTH FOR SCOTLAND. APPOINTMENT OF REGIONAL MEDICAL OFFICERS.

The Department of Health for Scotland are prepared to receive applications from registered Medical Practitioners (men and women) for two posts of Regional Medical Officers to be employed on combined clinical and administrative duties in connexion with the National Health Insurance Medical Service and otherwise.

Qualifications.

Applicants must be medical practitioners of standing in the profession and with experience in hospital and general practice. They must be not more than 45 years of age on January 1st, 1938. Consideration will be given to extra diplomas in special branches of medicine.

Residence.

Regional Medical Officers are required to reside in such part of Scotland as the Department may determine.

Remuneration.

The rate of remuneration will be £800 by annual increments of £30 to £1,100 per annum.

Duties.

Regional Medical Officers are required to perform such duties as may be assigned to them from time to time by the Department, including:

- (a) Clinical work arising out of questions of incapacity for work or diagnosis and treatment among insured persons;
- (b) Administrative work in connexion with the insurance medical service.

Further particulars and forms of application may be had from the Secretary, Department of Health for Scotland, 125, George Street, Edinburgh, 2. Letters applying for forms of application should have the words "Regional Medical Officer" boldly written in the top left-hand corner of the envelope. Applications should reach the Department not later than February 28th, 1938. Any received after that date will not be considered.

DEPARTMENT OF HEALTH FOR SCOTLAND. APPOINTMENT OF MEDICAL OFFICERS

The Department of Health for Scotland are prepared to receive applications from registered medical practitioners (men and women) for two posts of Medical Officer.

Qualifications.

Applicants must hold the Diploma in Public Health or equivalent qualification, and weight will be given to expert knowledge and experience in relation to general and fever hospital services, food inspection, child and school health, and nutrition. Applicants must be not more than 45 years of age on January 1st, 1938.

Remuneration.

The rate of remuneration will be £750 by annual increments of £30 to £1,200 per annum.

Duties.

Medical Officers are required to devote their full time to the public service and to perform such duties as may be assigned to them by the Department from time to time.

Further particulars and forms of application may be had from the Secretary, Department of Health for Scotland, 125, George Street, Edinburgh, 2. Letters applying for forms of application should have the words "Medical Officer" boldly written on the top left-hand corner of the envelope. Applications should reach the Department not later than February 28th, 1938. Any received after that date will not be considered.

WEST SUSSEX COUNTY MENTAL HOSPITAL.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

The Visiting Committee are desirous of receiving applications from duly registered and qualified Medical Practitioners for the office of Medical Superintendent from candidates whose age does not exceed forty-five.

The accommodation of the Hospital is for 1,045 patients.

The initial salary will be £1,100 a year, rising by two annual increments of £50 each to £1,200, with unfurnished house, the Committee paying rates and taxes, light washing, coals, and garden produce.

The candidate appointed will be required to enter upon his duties on or before June 1st, 1938, and to give up the whole of his time to the duties of his office, and not to attend to, or engage in, any professional or other business or employment except that of the Hospital, and not to have any interest, direct or indirect, in any establishment or house for the reception of any mental or other patients.

Applications, stating age, qualifications and experience, accompanied with copies of testimonials, not exceeding three (and which will not be returned) to be sent to me endorsed "Medical Superintendent" on or before February 23rd, 1938.

Personal canvassing is strictly prohibited.
G. H. D. PETERS,
Clerk to the Committee.

9, West Pallant,
Chichester, Sussex.
January 29th, 1938.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERYSSWYG MEDICAL AID SOCIETY. (Medical Officer.)	MID RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme.)	NEATH AND DISTRICT. (Medical Aid Association.)	PUBLIC HEALTH
LLWYNYPPIA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wyndham Colliery Medical Aid Society.) Workmen's Medical Scheme.	SALOP MENTAL HOSPITAL, SHREWSBURY. (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practices.)	The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

February 2, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

ANCOATS HOSPITAL, MANCHESTER.

CASUALTY OFFICER (lady or gentleman), twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. Washing, etc. The successful applicant will do duty for the Resident Surgical Officer at alternate weekends and other scheduled times.

HOUSE SURGEON required (lady or gentleman), for the Ear, Nose and Throat Department, and to act as House Physician to one of the Honorary Physicians. Appointment for six months from March 1st. Salary £100 per annum, with board, apartments, washing, etc.

HOUSE SURGEON required (lady or gentleman), for the Orthopaedic Department. Appointment for six months from March 1st. Salary £100 per annum, with board, apartments, washing, etc. Applications for the above posts, stating age, qualifications, experience, if any, and full particulars, to be forwarded to the undersigned on or before Wednesday, February 9th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. and Secretary.

DEWSBURY AND DISTRICT GENERAL INFIRMARY, DEWSBURY.

The Senior Post is recognized by the Royal College of Surgeons (England).

Applications are invited for the post of **SENIOR HOUSE SURGEON** (male). Salary £200 per annum, with board, residence and laundry.

Also for the post of **SECOND HOUSE SURGEON** (male). Salary £150 per annum with similar emoluments. The duties are principally those of a House Physician and Casualty Officer. The Infirmary is a new Voluntary Hospital of 100 beds and has the usual Special Departments, with Visiting Consulting Specialists in attendance.

Applications, stating for which post, age, and hospital experience, together with copies of recent testimonials, to be sent as immediately as possible to my Office.

FRED SMITH,
Secretary-Superintendent.

CITY AND COUNTY OF BRISTOL. ASSISTANT MEDICAL OFFICER OF HEALTH.

The Council invite applications for a whole-time Assistant Medical Officer of Health. Are not exceeding 40 years. Salary £500 per annum, rising by annual increments of £50 to £700. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

The duties will consist mainly of giving anaesthetics for Dental Surgeons, but he may also be required to work in any of the Corporation's Institutions, or to carry out any other work under the direction of the Medical Officer of Health.

Applications, which must be on the form provided for this purpose, should be accompanied by not more than three recent testimonials, and must be received by the undersigned not later than Wednesday, February 9th, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Canvassing will disqualify.

Council House,
Bristol, 1
January 21st, 1938
IOSIAH GREEN,
Town Clerk.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL. (220 Surgical and Medical Beds.)

CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.

Applications are invited from fully qualified men for the above post, to commence March 1st, 1938. The appointment is for six months, salary at the rate of £200 per annum, with board, apartments and laundry.

The duties include the post of House Surgeon to the Director of the Fracture Clinic, under whose care the whole of the fractures, both in- and out-patients, are treated.

Candidates for this post should have had special fracture experience.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

M. BOONE,
Superintendent and Secretary.

January 26th, 1938

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.)

Male CASUALTY OFFICER required to commence duty on March 4th, 1938. Salary £200 per annum, with board, residence and laundry. Appointment for six months. Prospects according to qualifications, experience and satisfactory service.

The Hospital is officially recognized for the surgical practice required of non-members before admission to the Final Fellowship Examination of the Royal College of Surgeons of England. The post of Casualty Officer is next in seniority to that of Resident Surgical Officer.

Applications, with copies of three recent testimonials, to be addressed to the undersigned immediately.

H. J. JOHNSON,
General Superintendent and Secretary.

KETTERING AND DISTRICT GENERAL HOSPITAL. (165 Beds.)

Applications are invited for the post of **HOUSE PHYSICIAN**.

Salary £150 per annum, with board, residence and laundry. Candidates must be fully qualified and registered.

The appointment is for six months, with eligibility for a further period.

Applications, stating age, nationality and qualifications, together with copies of three testimonials, to be sent to the undersigned not later than February 12th, 1938.

G. W. JACKSON,
Secretary-Superintendent.

KETTERING AND DISTRICT GENERAL HOSPITAL. (165 Beds.)

CONSULTANT PHYSICIAN

Applications are invited for the above post, and should be sent, together with copies of three testimonials, to the undersigned not later than February 12th, 1938.

G. W. JACKSON,
Secretary-Superintendent.

(Appointments continued on p. 53.)

THE BRITISH MEDICAL JOURNAL

48

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE.

(Under the jurisdiction of the Order of St. John of Jerusalem.)
Ranelagh Road, S.W.1.

Applications are invited for the position of **MEDICAL REGISTRAR** (non-resident). The Institute is a recognised Postgraduate teaching centre in physical medicine, and offers abundant opportunities for experience and research in Physical Medicine, and particularly in the Rheumatic Diseases. The appointment is for one year, and the candidate is eligible for re-election. Salary £200.

The candidate appointed will be required to take up duties on March 1st, 1938. Further particulars may be obtained from the Secretary, to whom applications, with copies of three recent testimonials, must be sent by Friday, February 25th 1938.

MILLER GENERAL HOSPITAL.

Greenwich Road, S.E.10.

Applications are invited for the following posts:
CASUALTY OFFICER (male); part time; afternoon session. Salary £150 per annum, non-resident. Fuller particulars on application.
HOUSE PHYSICIAN (male); unmarried. Salary £100 per annum, resident.
HOUSE SURGEON (male); unmarried. Salary £100 per annum, resident.

The appointments are for six months from April 1st, 1938. There are six Resident Officers. Application forms can be obtained from the Secretary, and must be returned not later than February 18th, 1938.
February 1st, 1938.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Applications are invited for the post of **HONORARY ASSISTANT OBSTETRIC AND GYNAECOLOGICAL SURGEON** at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons of England and Members or Fellows of the British College of Obstetricians. Applications, with copies of three recent testimonials, should be forwarded to the undersigned not later than Thursday, February 24th, 1938.
RAPHAEEL JACKSON, Secretary.

ST. BARTHOLOMEW'S HOSPITAL.

WHOLE-TIME CHIEF ASSISTANT IN THE X-RAY DIAGNOSTIC DEPARTMENT.

Applications are invited for the post of Whole-time Chief Assistant in the X-ray Diagnostic Department of the above Hospital. The salary will be at the rate of from £400 to £500 per annum, and appointment will be made as from March 1st, 1938. Candidates, who must possess a Diploma in Medical Radiology, should send in their applications to the undersigned not later than Saturday, February 19th, 1938.
C. C. CARUS-WILSON, Acting Clerk to the Governors.
January 22nd, 1938.

ST. JOHN'S HOSPITAL, LEVISHAM, S.E.13.

Applications are invited for the post of **MEDICAL REGISTRAR** (male) to attend the Out-patient Department on two half-days a week, namely, Monday afternoon and Thursday morning. Honorarium fifty guineas p.a. Applications with copies of testimonials should reach the undersigned, by February 8th, further information, by February 8th.
J. C. GILBERT, Secretary-Superintendent.

EAST HAM MEMORIAL HOSPITAL.

Shrewsbury Road, E.7. (100 Beds.)

Applications are invited for the post of **HOUSE PHYSICIAN** (male). The appointment is for six months, commencing March 1st. Salary at the rate of £150 per annum, with board, residence and laundry. Applications, stating age, nationality, experience and full particulars, together with copies of three testimonials, should be received by February 10th.

SOUTH LONDON HOSPITAL FOR WOMEN.

Clapham Common, S.W.4.

Applications are invited from medical women as **CLINICAL ASSISTANTS**, for Medical out-patients to attend on Monday afternoons; for Orthopaedic out-patients to attend on Thursday afternoons; and for Gynaecological out-patients to attend on Friday afternoons. Applications with testimonials, to be sent to the Secretary at the Hospital.

WEST LONDON HOSPITAL.

Hammersmith, W.6. (239 Beds.)

Applications are invited for the post of **MEDICAL REGISTRAR** to the Children's Department for a period of one year, eligible for re-election annually for a total period of not more than three years. An honorarium at the rate of £100 a year is attached to the post.

The duties include attendance in the Out-Patient Department on four mornings a week, acting as deputy for the Physician to the Children's Department when required, and such teaching for the West London Hospital Medical School as the Board may approve.

Candidates, who may be male or female, must be registered under the Medical Act, and should have had wide experience in children's work. Applications, with copies only of testimonials, should reach me not later than Thursday, February 17th. Candidates must attend the meeting of the Medical Council at 4.30 p.m. on Friday, February 18th, and prior to that date call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board, but nevertheless should send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, February 22nd, when the election will be made.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL.

Hammersmith Road, W.6. (239 Beds.)

Required March 1st, one **RESIDENT ANAESTHETIST** (male). The appointment is tenable until September 30th, 1938, subject to one month's notice on either side. Salary at the rate of £100 a year, with board, lodgings and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, February 18th. Selected candidates will be required to call upon members of the Medical Staff as directed; to be in attendance at the Medical Council meeting on Friday, February 25th, at 4.30 p.m. and the House Committee meeting at 5 p.m. the same day, when the appointment will be made.
H. A. MADGE, Secretary.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

The following Resident posts will be vacant on March 15th next:
(a) ONE JUNIOR **HOUSE PHYSICIAN**.
(b) TWO JUNIOR **HOUSE SURGEONS**.
Salary at the rate of £90 per annum, board, residence and laundry. Appointments held for six months, but holders are eligible for a further term as Senior. Candidates (male and unmarried) must be fully qualified and registered, and applications (on the prescribed form), together with copies of three recent testimonials, should be sent to the undersigned on or before March 1st, 1938.
J. C. BURDETT, Director and House Governor.
February 1st, 1938.

WEST END HOSPITAL FOR NERVOUS DISEASES.

Out-Patient Dept., 73, Welbeck Street, W.1.

The Committee of Management invites applications for the post of **HONORARY PSYCHOTHERAPIST** for the Out-Patient Department (evening sessions). Further particulars may be obtained from the undersigned, to whom applications, stating experience, and, together with copies of not more than three recent testimonials, should be addressed. Candidates must hold a degree or diploma in Psychological Medicine.
J. P. WETENHALL, Secretary and House Governor.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.

Waterloo Road, S.E.1.

There is a vacancy for an **ANAESTHETIST** (male) at the above hospital. Honorarium £52 per annum. Applications, accompanied by three testimonials, should be sent to the Secretary at the Hospital not later than February 16th.

ST. JOHN'S HOSPITAL, LEVISHAM, S.E.13.

Applications are invited for the resident posts of **HOUSE PHYSICIAN AND CASUALTY OFFICER** (males), tenable for six months from March 1st, 1938. Salary £100 p.a. Applications, with copies of testimonials, should reach the undersigned by February 8th.
J. C. GILBERT, Secretary-Superintendent.

THE HOSPITAL FOR SICK CHILDREN.

Great Ormond Street, London, W.C.1.

A **RESIDENT AURAL REGISTRAR** is required to commence not later than April 1st, 1938. Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, February 21st, 1938, with copies of not more than three testimonials given specially for the purpose. The appointment will be made for one year, but the holder may be re-elected for a further period of one year. Salary £150 per annum, laundry allowance £10, board and residence in the hospital. The duties will be those of a registrar in assistant Aural In-Patients, and of a registrar in assistant Aural Out-Patient Department. Opportunity will be afforded for acquiring operative experience. Candidates must be unmarried and must have held legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, March 2nd, 1938, at 4.45 p.m. precisely. Forms of application and copies of the Rules can be obtained from the undersigned.
HERBERT F. RUTHERFORD, Secretary.
January, 1938.

THE LONDON LOCK HOSPITAL.

283, Harrow Road, W.9.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER** (male) to all departments. Candidates must be doubly qualified and duly registered. The appointment is for six months, commencing March 14th; salary at the rate of £175 p.a., with furnished rooms, full board and laundry. Preference will be given to candidates having previous obstetric experience. Applications, enclosing copies (only) of three recent testimonials, must be in the hands of the undersigned by first post on Friday, March 4th, and from whom any further particulars can be obtained.
J. F. MORTON, Secretary.
February 1st, 1938.

METROPOLITAN HOSPITAL.

Kingsland Road, E.8. (150 Beds.)

Applications are invited for the post of **CASUALTY OFFICER AND RESIDENT ANAESTHETIST** (male). Salary at the rate of £100 per annum, with board, residence and laundry. Duties to commence March 1st. Candidates must possess a registered medical and surgical qualification of the United Kingdom. Form of application may be obtained from the undersigned. Applications must be returned by Friday, February 18th.
FRANK JENNINGS, House Governor and Secretary.

THE WILLEDEN GENERAL HOSPITAL.

Harlesden Road, N.W.10.

The Council of Management invite applications for the appointment of **GYNAECOLOGICAL REGISTRAR**. Candidates must be Fellows of the Royal College of Surgeons of England. Five copies of application, containing the names of three referees (testimonials should not be sent) to be received not later than the first post on Thursday, February 17th, 1938, by the Secretary of the Hospital, from whom a copy of the Regulations may be obtained.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

Applications are invited for the post of **HONORARY MEDICAL REGISTRAR**. Candidates must be Graduates in Medicine of a British University, or be Members of a Royal College of Physicians. Applications, together with copies of three testimonials, to be sent to the undersigned on or before March 1st, 1938.
J. C. BURDETT, Director and House Governor.

THE MARIE CURIE HOSPITAL.

(Centre for Treatment of Cancer in Women by Radium and X-rays)

Applications are invited from qualified medical women for the post of **RESIDENT MEDICAL OFFICER**. Previous hospital experience desirable. Salary £100 per annum. Applications to be sent, with copies of not more than three recent testimonials, to the Secretary, Fitzjohn's Avenue, London, N.W.3, by Wednesday, February 10th.

A LADY DISPENSER BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, or phone (Bayswater 0809) Secretary, 7, Westbourne Park Road, W.2.

CONJOINT MAN, IRISH, AGE 27, SINGLE, slightly disabled, ex-M.P., H.S., requires LIGHT WORK, either permanent or temporary, keen, conscientious; excellent testimonials.—Address, No. 3207, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR WITH GOOD SURGICAL EXPERIENCE required, June, GRENELL MISSION HOSPITAL, NORTH NEWFOUNDLAND, 85 beds, overflow often much greater. Salary about £1000 dollars with travel and living.—Apply by letter, Grenfell Association, 66, Victoria Street, London S.W.1.

DISPENSER-SECRETARY-RECEPTIONIST with thorough knowledge of surgery routine requires post.—Address, No. 3302, B.M.A. House, Tavistock Square, W.C.1.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wire, or phone Temple Bar 5555, The Dispensary's Bureau, 1, London House, 171, Shaftesbury Avenue, London, W.C.2.

EXPERIENCED FULLY TRAINED DISPENSER desires POST with Doctor. Undertake bookkeeping if necessary. Salary low start.—Address, No. 3321, B.M.A. House, Tavistock Square, W.C.1.

LADY, WELL EDUCATED, DESIRES POST AS RECEPTIONIST SECRETARY in London. Experience eight years. Confidential Secretary to professional man. Willing to drive car. Many years' experience.—Address, No. 3315, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER (HALL) 27, SEKS POST with doctor(s) in London or Suburbs. Good testimonials. Well educated with secretarial experience.—Address, No. 3333, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER REQUIRES POST, WEST Country, Gloucestershire preferred. Bookkeeping, care of instruments, dressings, and panel records, considerable experience with two large firms, excellent references.—Address, No. 3425, B.M.A. House, Tavistock Square, W.C.1.

OPPORTUNITY OF GOOD BILLET AND OF rapid advancement to a house and £1000 a year in private mental home. Age about 36, good health. Preliminary interview essential. No replies will be sent unless fullest details, references and testimonials are sent with application.—Address, No. 3202, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone, Victoria 7223), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

YOUNG LADY SECRETARY-RECEPTIONIST desires POST with doctor. Short-hand, typewriting, bookkeeping, thorough knowledge of French. Please apply to—Address, No. 3336, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS

WANTED BY M.B. S.LOND (FOR APRIL or May), PARTNERSHIP, share £1000 or death vacancy. South Midlands preferred. Married. Three years' general practice. House appointments. Interest in anaesthetics. No surgery.—Address, No. 3314, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY BY AN EXPERIENCED OPHTHALMOLOGIST, age 38, married, SHARE in an ophthalmic practice in London suburbs or home counties.—Address, No. 3230, B.M.A. House, Tavistock Square, W.C.1.

E. ENGLAND.—PARTNERSHIP IN favourite part. Panel £200, £2450 p.a. Half-share at 2 years' pur. House 668 p.a.—The Western Medical Agency, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, W.C.2 (Bristol 22649).

HALF-SHARE OLD-ESTABLISHED COUNTRY PRACTICE, South of London. Receipts have never fallen below £3000 during past twenty years. Applicant must be English, and between 30 and 40 years old; good personality and social status essential.—Address, No. 3305, B.M.A. House, Tavistock Square, W.C.1.

KENT, 12 MILES FROM LONDON—THIRD PARTNER wanted to replace partner retiring on October 1st through ill-health. Excellent mixed general practice.—Average gross receipts for the last three years over £6000, increasing, great scope for considerable increase. Charming house and grounds for sale or rent on lease. Good hunting district. Premium two years' purchase.—Address, over 30 3 to 6 months' introduction as desired.—Address, No. 3137, B.M.A. House, Tavistock Square, W.C.1.

LINCOLNSHIRE PARTNERSHIP IN OLD-ESTABLISHED COUNTRY PRACTICE. No opposition. Vendor retiring owing to ill health. Gross partnership receipts £2200. Panel 1109. Scope for considerable increase. Charming house and grounds for sale or rent on lease. Good hunting district. Premium two years' purchase.—Address, Andrew Race, Mingers and Bull, Solicitors, Lincoln.

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In dealing with written enquiries, especially from Overseas, correspondents are, whenever possible, put in direct contact with advertisers in whose products they are interested.

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Advertisement Manager,
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B.M.A. House,
Tavistock Square,
London, W.C.1.

Phone: EUSton 2111.

PARTNER WANTED IN VERY OLD ESTABLISHED COUNTRY PRACTICE in Home Counties. Great scope for increase, rice society, first-class golf, tennis, etc. Not too far from London. House of character, and lovely garden, very suitable for resident patient. Share for disposal about £500 per annum.—Address, No. 3303, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, PRACTICE OR PARTNERSHIP, £500-£1000, with substantial Panel. General class suburb large town. Detached modern house with surgery and garage. Ready cash available.—Address, No. 3325, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MIXED GENERAL PRACTICE OR PARTNERSHIP by Scottish graduate with nine years' Hospital and General Practice experience. Country or Provincial town.—Particulars to: ADAM THOMSON AND ROSS, Advocates, 6, Bon Accord Square, Aberdeen.

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BRANCH PRACTICE FOR SALE, PANEL 400. Private £2 per week. Suitable for doctor in Welling (Kent) or Abbey Wood districts, also Boxley.—Address, No. 3327, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, WITH FIFTEEN YEARS' EXPERIENCE, wants to practice private. MENTAL HOME or PARTNERSHIP in same. Would undertake management or accept post with view to partnership.—Address, No. 3323, B.M.A. House, Tavistock Square, W.C.1.

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Every effort is made to ensure the accuracy of advertisements appearing in the Journal. No recommendation is implied by acceptance and the British Medical Association reserves the right to refuse or interrupt the insertion of any advertisement.

ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1

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WANTED JUNE 1st, 1938, FULLY EXPERIENCED female ASSISTANT, outdoor. Rooms furnished or unfurnished. Car provided. Reply, giving all essential particulars and requirements.—Address, No. 3324, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY.—Indoor and Outdoor ASSISTANTS for Town and Country Practices, with and without view to Partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

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WANTED, YOUNG SINGLE ASSISTANT, outdoor. British general practice. Seaside and Rural, West Wales. £400 and £50 car allowance.—Address, No. 2609, B.M.A. House, Tavistock Square, W.C.1.

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WANTED BY WOMAN DOCTOR IN Midlands INDOOR ASSISTANT. Protestant, own car. Apply stating experience and all essential particulars; send testimonials and photograph.—Address, No. 3420, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, TEMPORARY ASSISTANTSHIP or LOCUMCY by Ban's man; special experience neurology, psychotherapy, ophthalmology, and tropical medicine.—Write, J. J. Kirkdale, Corner, Sydenham, London, S.E.26.

ASSISTANT, MALE, OUTDOOR, REQUIRED early February. Large increasing Practice Channel Islands. Public School and Oxford or Cambridge Graduate preferred. Experienced Anaesthetist essential. Car provided. Salary £400 per annum. Enclose photo and recent testimonials.—Address, No. 3101, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP (PREFERABLY WITH view) wanted by Scotch graduate. Married. Age 37. Ex-H.P. and H.S. Recently retired R.A.M.C. Special experience E.N.T. and Anaesthetics. Drive car. London or South preferred.—Address, No. 3318, B.M.A. House, Tavistock Square, W.C.1.

LADY DOCTOR, M.B., CH.B., REQUIRES ASSISTANTSHIP, preferably indoor. Qualified, two years' good hospital experience. Car if necessary.—Address, No. 3335, B.M.A. House, Tavistock Square, W.C.1.

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APPOINTMENTS.—Contd.

THE ROYAL INFIRMARY, BRADFORD.

HOUSE SURGEON (male) wanted for March 1st. Eight months' appointment. Candidates must be single and legally qualified. Salary £150 per annum, with board, residence and washing. There are 345 beds and Resident Officers.

Applications, stating age, qualifications and previous experience, with copies of recent testimonials, should be sent to the undersigned at once. Dated February 1st, 1938.

H. TRUSSON,
House Governor and Secretary.

EAST SUSSEX COUNTY MENTAL HOSPITAL, HELLINGLY.

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the above post from duly qualified registered medical practitioners (unmarried).

Salary £150 a year, rising by four annual increments of £25 to £450, together with board, lodging, and attendance, valued for superannuation purposes at £90 a year, an additional £50 a year will be paid to any candidate appointed who holds the Diploma in Psychological Medicine, or a similar Diploma.

The appointment is subject to one month's notice on either side, and to the provisions of the Asylums Officers' Superannuation Act, 1929, giving particulars of previous experience, and copies of not more than three recent testimonials, should be addressed to the Medical Superintendent not later than February 17th, 1938.

HULL ROYAL INFIRMARY.

Applications are invited for the post of **SECOND CASUALTY OFFICER** (male) vacant February 12th.

Salary £150 per annum, plus board, residence and laundry.

In addition to carrying out duties in the Casualty Department the officer appointed will act as House Surgeon to one of the Honorary Assistant Surgeons, and will thus obtain Ward and Theatre experience. He will be eligible for promotion to a more senior post when a vacancy occurs.

The appointment will be for a period of six months, but will be terminable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS
House Governor.

January 31st, 1938.

WILSON HOSPITAL, MITCHAM, SURREY. (72 Beds.)

RESIDENT MEDICAL OFFICER, male or female (required from March 31st next. Salary £150 per annum, with board, residence and laundry.

The appointment is for six months, renewable for a further six months at the discretion of the Committee. The Hospital is quite modern and exceptionally well equipped, and carries out work of a character which gives the Resident Medical Officer a considerable amount of experience.

Applications, with copies of three testimonials, stating age, qualifications and experience (particularly anaesthetics), should be sent to the Hon. Secretary, "Greenview," Lower Green, Mitcham, on or before Saturday, February 26th, 1938.

HARTLEPOOLS HOSPITAL, HARTLEPOOL. (96 Beds.)

Applications are invited for the post of **HOUSE SURGEON** (male). Salary £150 p.a. with board, residence and laundry.

The appointment is for six months (commencing February 25th).

Applications, stating nationality, age, qualifications and experience, should be addressed to the undersigned.

NORMAN O. DEANS,
Secretary.

WESTMORLAND SANATORIUM, Grange-over-Sands. (160 Beds.)

Applications are invited for the post of **JUNIOR ASSISTANT**. Salary £100 per annum, with board, lodging and laundry. Candidates should forward their applications, with full particulars and copies of recent testimonials, to the Medical Superintendent as soon as possible.

C. W. WATSON,
Secretary.

SUTTON AND CHEAM HOSPITAL, Sutton, Surrey. (75 Beds.)

Applications are invited for the post of **JUNIOR RESIDENT MEDICAL OFFICER** (male). Salary £100 per annum, with residence, board and laundry. The appointment will be for six months from April 1st next. Applications, giving full particulars as to age and qualifications, together with copies of three recent testimonials, should be sent to the Secretary not later than Monday, February 21st.

MERTHYR GENERAL HOSPITAL. (118 Beds.)

RESIDENT HOUSE SURGEON required for a period of six months at the rate of £150 per annum, with board and laundry. Applications, stating age, nationality, qualifications and accompanied by three (copies only) recent testimonials, should be addressed to the Secretary of the Merthyr General Hospital.

COUNTY BOROUGH OF HUDDERSFIELD. Bradley Wood Sanatorium for Pulmonary and Surgical Tuberculosis.

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the above appointments from registered Medical Practitioners (married or single), who have had special experience in the diagnosis and treatment of tuberculosis. A good knowledge of X-ray work is essential. Salary £600, rising to £750 per annum, plus house fire of rent. The post is designed for the purpose of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to satisfactorily pass a medical examination.

The engagement will be terminable on three months' notice from either side.

Applications should be accompanied by copies of not more than three testimonials, and addressed to **JOHN M. GIBSON, B.A., M.D., D.P.H.**, Medical Superintendent of Hospitals and Medical Officer of Health, so as to reach him not later than February 18th, 1938.

Forms of application are not provided. Town Hall, Huddersfield, February, 1938. SAMUEL PROCTOR, Town Clerk.

COUNTY BOROUGH OF SOUTHERNDON-SEA.

SOUTHERND MUNICIPAL HOSPITAL.

The Health Committee of the Town Council invite applications for the appointment of an **ASSISTANT MEDICAL OFFICER** (Grade 2) at their Municipal Hospital situated at Rochford, Essex (Beds. 475). Salary £250 per annum, with full residential emoluments valued for superannuation purposes at £100 per annum.

The duration of appointment is limited to one year. Applicants must have had previous experience in the administration of Anaesthetics.

Applications, on forms to be obtained from the Medical Superintendent, Southernnd Municipal Hospital, Rochford, Essex, should be returned to him on or before Monday, February 21st, 1938.

Town Clerk's Office, H. J. WOODOOD, Southend-on-Sea. Town Clerk.

DERBYSHIRE ROYAL INFIRMARY, DERBY. (General Hospital, 362 Beds.)

Applications are invited for the following posts:—**HOUSE SURGEON FOR GYNAECOLOGICAL DEPARTMENT.**

HOUSE SURGEON FOR EAR, THROAT AND NOSE DEPARTMENT.
HOUSE SURGEON FOR CASUALTY DEPARTMENT.

(Male, Single). Candidates must be qualified and registered under the Medical Act of 1903. Salary will be £150 per annum, with emoluments, board, and laundry.

Applications, with copies of testimonials, to be sent to the undersigned.

ARTHUR TAYLOR,
Superintendent and Secretary.

THE BIRMINGHAM UNITED HOSPITAL.

THE GENERAL HOSPITAL.

The Board invites applications for the post of **ASSISTANT SURGEON**. Candidates must be Fellows of the Royal College of Surgeons of England. The position is an annual appointment for three years, and then subject to confirmation. An honorarium of £50 per annum will be paid from the date of appointment.

The successful candidate will commence his hospital duties on July 1st next. Upon appointment he will be given leave of absence in order that he may enlarge his experience at other centres, and he will be expected to do this.

Applications, accompanied by diplomas, certificates of registration and testimonials, must be received by first post on February 21st.

A. H. TEANEY,
Joint Secretary.

THE BOLTON ROYAL INFIRMARY. (315 Beds, including two Auxiliary Hospitals.)

Applications are invited from ladies and gentlemen for the post of **HOUSE SURGEON**. Salary £150 per annum, with board, residence, laundry and attendance.

Applications, stating age, nationality and experience, together with copies of testimonials, should be forwarded to the undersigned not later than First post Tuesday, February 23rd.

H. COLLESS,
Acting Secretary.

MANCHESTER ROYAL EYE HOSPITAL.

JUNIOR HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc.

Applications (with copies of testimonials), endorsed "House Surgeon," to be addressed to the Chairman of the Board of Management.

H. R. NORTH,
Gen. Supt. and Secretary.

Date

THE LEEDS VOLUNTARY HOSPITALS COUNCIL.

THE GENERAL INFIRMARY AT LEEDS. (673 Beds.)

The Council invites applications for the post of HONORARY NEUROLOGICAL SURGEON to the above Institution.

Candidates must be Fellows of the Royal College of Surgeons of England.

Information relating to the post will be supplied on reference to the House Governor and Secretary of the General Infirmary at Leeds. Twenty-five copies of application, accompanied by a similar number of copies of not less than three recent testimonials, to be addressed to and received by the undersigned not later than February 25th, 1938. Envelopes to be endorsed "Private—Honorary Staff."

(Signed) S. CLAYTON FRYERS,
Secretary to the Council.

ROYAL EYE HOSPITAL. Pevensey Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith. Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications and Ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement, candidates have to be interviewed by appointment by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE,
Secretary.

SOUTHAMPTON CHILDREN'S HOSPITAL AND DISPENSARY FOR WOMEN.

The Board of Management invite applications for the post of RESIDENT MEDICAL OFFICER (Lady). Six months' appointment. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, accompanied by copies of testimonials, to be sent to the undersigned not later than February 15th. The selected candidate will be required to take up her duties at the beginning of March.

ELLA K. MATTHEWS,
Secretary.

THE DUCHESS OF YORK HOSPITAL FOR BABIES, MANCHESTER, 19. (80 COVS.)

Applications are invited for the post of SENIOR RESIDENT MEDICAL OFFICER. Appointment is for 6 months from April 1st, 1938. Salary £125 per annum, with board, residence and laundry. Previous experience essential.

Also, JUNIOR RESIDENT MEDICAL OFFICER for 6 months from April 1st, 1938. Salary £75 per annum, with board, residence and laundry.

Applications, with copies of testimonials, to be sent to the Secretary by February 14th, 1938.

LOUISE BAILEY,
Secretary.

THE LIVERPOOL EYE, EAR AND THROAT INFIRMARY. Myrtle Street, Liverpool, 7.

Applications are invited for the post of OPHTHALMIC HOUSE SURGEON.

The appointment is tenable for six months, subject to renewal. Applicants must be duly qualified and registered.

Salary £120 per annum. The Hospital is recognized by the Examining Board for the D.O.M.S. Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, should be sent, not later than February 14th, 1938, to the undersigned.

Wm. LEAR,
Secretary.

THE GENERAL HOSPITAL, BIRMINGHAM.

Applications are invited for the post of LOCUM RESIDENT SURGICAL REGISTRAR, for three months, at a salary at the rate of £100 per annum. Candidates must have held a RESIDENT SURGICAL APPOINTMENT.

Applications should reach the undersigned by FEBRUARY 21st.

A. H. LEANEY,
House Governor.

ROYAL LANCASTER INFIRMARY. (140 Beds.)

JUNIOR HOUSE SURGEON (male, British, single) required for March 1st 1938. Salary £130 per annum with board, residence and laundry. The appointment is for six months.

Applications, with copies of testimonials, should be addressed to the Hon. Secretary, Royal Lancaster Infirmary.

THE CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, Withington, Manchester 20.

Applications are invited for the post of RESIDENT MEDICAL OFFICER to the above Hospital and Institute for duty with the Radiotherapy Department to commence April 1st. Appointment is for six months in the first instance, but is renewable. Salary at the rate of £150 per annum, plus residence (private suite, board, etc.).

The appointment offers an excellent opportunity of obtaining experience in Radium and X-ray Therapy. Candidates must have had previous Medical and Surgical experience.

Applications, stating age, qualifications and previous experience, to be received by the undersigned not later than March 1st.

PERCY N. GLASS,
Superintendent.

THE GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester (225 Beds. Five Residents.)

Applications are invited for the post of HOUSE SURGEON (male) to the Ear, Nose and Throat Department. Salary at the rate of £150 per annum, with board, residence and laundry. The Hospital is recognized for the D.L.O. and the F.R.C.S. Final Examinations. The appointment is for six months, which may be extended for similar period by re-election from time to time.

Applications, stating age, qualifications, experience and nationality, with copies of not less than three recent testimonials, should be received by the undersigned not later than Wednesday, February 16th. The elected candidate will be required to enter upon his duties on March 1st.

F. J. SYMONS,
Secretary.

February 3rd, 1938.

THE ROYAL PORTSMOUTH HOSPITAL, PORTSMOUTH.

(Six Resident Medical Officers.)

Applications are invited for the post of HOUSE SURGEON (male) to the Orthopaedic and Fracture Department.

Salary £130 per annum with board, etc. To commence duty on March 1st, 1938. Six months' appointment and eligible on completion of term for extension or other resident posts.

Applications, stating age, nationality and full details, with copies of three testimonials, to be sent to the undersigned on or before February 14th, 1938, from whom all particulars can be obtained.

B. WAGSTAFF,
Secretary.

ARGYLL AND BUTE DISTRICT MENTAL HOSPITAL, Lochgilphead.

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER (male). Commencing salary £300 to £350 per annum, according to previous experience and special qualifications. An additional £50 per annum will be paid if in possession of the D.P.M. Furnished apartments will be provided, with board and laundry. The appointment will be subject to the provisions of the Asylum Officers' Superannuation Act, 1909.

Applications, stating age and experience, accompanied by seven copies of testimonials, to be addressed to the Clerk to the Joint Board of Management, County Offices, Lochgilphead, not later than February 16th, 1938.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL (85 Beds.)

Applications are invited from registered Medical Practitioners for the following appointment:—

SENIOR HOUSE SURGEON (male and unmarried). Salary £150 per annum, with board, apartments, and laundry. Appointment to commence immediately, for a term of six months, renewable. Previous experience is essential, and applicants must have had practical experience in the administration of anaesthetics.

Applications, stating age, nationality, and previous experience, together with copies of testimonials, to be sent to the undersigned.

FRANK H. TOONE,
Secretary.

9, Leicester Road,
Loughborough.

THE GENERAL INFIRMARY AT LEEDS.

RADIO-SURGICAL HOUSE SURGEON (male or female).

Applications are invited for the above post. Salary £50 per annum, with board, residence and laundry. The appointment is for six months, subject to renewal. Candidates must be legally qualified and registered.

Applications, with copies of testimonials, to be sent in at once to the undersigned.

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I.—Clinical aspects of infantile diarrhoea

II.—Chemical changes in the blood in infantile diarrhoea and the effect of intravenous administration of fluid.

III.—Changes in water and chloride content of the tissues in infantile diarrhoea and other conditions.

Studies in anaemia of infancy and childhood. By Leonard G. Parsons, M.D., F.R.C.P., Evelyn M. Hickmans, Ph.D., M.Sc., and Ethel Finch, M.Sc.

Part XI.—The effect of iron deficient diets on the size of the red blood cells in rats and in the production of microcytic hypochromic anaemia in their offspring; a contribution to

the study of congenital iron-deficiency anaemia in the human infant.

Continuous intravenous drip in infants and children. By William C. Black, M.D.

Case reports.

Atrophic cirrhosis of the liver following icterus gravis neonatorum. By Frances Braid, M.D., M.R.C.P., with pathological report by J. H. Ebbs, M.D., D.C.H.

Hypertrophic pyloric stenosis without symptoms. By Leonard Finlay, M.D., F.R.C.P.

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LANCS TOWN.—Old-established mixed Panel and Private PRACTICE, near Manchester. Average cash receipts £2,100 p.a. Panel 2,112. Scope. Good house, 3 reception, 4 bedrooms, garage and garden. Price £1,200, or would rent on lease. Premium—11 years' purchase.—No. 1064.

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YORKSHIRE (N.R.).—Old-established and practically unopposed PRACTICE in delightful country district. Cash receipts last year £970. Panel 420 and appointments £50 p.a. Charming house, 3 reception, 5 bedrooms, 3 Professional rooms, garages and nice garden, electric light. Rent £65 p.a. Sport of all kinds. Premium—2 years' purchase, or near offer.—No. 1065.

MANCHESTER.—Medical Woman's PRACTICE: in present hands 9 years. Cash receipts last year £1,100 approximately. Panel 370. Good detached house, 2 reception, 3 bedrooms, garage and garden. Price £1,050. Premium—11 years' purchase.—No. 1072.

CHESHIRE TOWN.—Very old-established middle-class PRACTICE in pleasant residential town: in present hands 40 years. Cash receipts last year £1,163. Panel 649. Scope for energetic man, as district developing. Very attractive detached house, 2 reception, 6 bedrooms, 3 Professional rooms, garage and nice garden. For sale. Premium—2 years' purchase.—No. 1066.

MANCHESTER.—Old-established mixed-class PRACTICE. Cash receipts last year £1,222. Panel 800. Scope. Good house, 2 reception, 5 bedrooms. Premium—11 years' purchase.—No. 1069.

SUFFOLK.—PARTNERSHIP (after preliminary Assistantship) in Country town. Cash receipts last year £4,458. Panel 2,400, and appointments of £500 p.a. Incoming Partner has extensive home experience: married or single. Good house available. Rent £50 p.a. Cottage Hospital. Premium—1 share—2 years' purchase.—No. 1070.

CENTRAL WALES.—Very old-established unopposed Country PRACTICE: in present hands 13 years. Average cash receipts over £2,000 p.a. Panel returns about £620 p.a. and appointments £285 p.a. Excellent house, 2 reception, 6 bedrooms, 3 Professional rooms, electric light, garage for 2 cars and beautiful garden. Price £1,500. Premium—Practice—£3,500.—No. 1063.

NEAR MANCHESTER.—PARTNERSHIP in very old-established middle-class (non-panel and non-dispensing) PRACTICE in pleasant residential district. Cash receipts about £6,000 p.a. Fees 5/- upwards. Unlimited scope. Appointment. Suitable house available for incoming partner. Premium—1 share—2 years' purchase.—No. 1062.

YORKSHIRE (W.R.).—Very old-established Mixed Panel and Private PRACTICE. Cash receipts £1,200 p.a. Panel 900. Scope. Good detached house, 2 reception, 4 bedrooms, Professional rooms, garage and garden. Price £1,000. Premium—11 years' purchase.—No. 1060.

EASTERN COUNTIES.—Very old-established PRACTICE in agricultural district. Cash receipts £2,600 £2,700 p.a. Panel 2,365. Excellent modern residence, garage and garden to let.—No. 1053.

NORTH-EAST COAST.—Easily worked middle-class (non-panel) PRACTICE. Cash receipts £1,159 p.a. Good scope. Rent of Surgery premises £26 p.a. Premium—£1,000 (to include Surgery fittings, etc.).—No. 1023.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a. Panel 1,000. Scope. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and garden. Price £1,200. Premium—11 years' purchase.—No. 1061.

MIDLAND HEALTH RESORT.—PARTNERSHIP (after preliminary Assistantship of two months) in very old-established mixed-class PRACTICE. Cash receipts last year £3,774. Panel 1,300. Fees 3/6 to 10/6. Incoming partner should be Protestant, and may choose own residence. Possibility of Hospital appointment. Premium—1 share—2 years' purchase. Further share in three years.—No. 1069.

YEAR BUXTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £750 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,500.—No. 993.

LANCS TOWN.—PARTNERSHIP in middle and working-class Practice in clean town, close to country. Cash receipts last year £2,431. Panel 2,115. Nice detached house, 2 reception, 4 bedrooms, garage and garden. Premium—one-half share—2 years' purchase, or near offer.—No. 1015.

NORTH WALES.—Good-class long-established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with 90 small garden, rent or purchase, fresh air. Socially very pleasant. Premium—£1,500.—Vendor retiring.—No. 999.

DERBYSHIRE.—Increasing mixed Panel and Private PRACTICE in well-known Spa. Cash receipts last year £700. Panel 200. Much scope. Good ground floor flat. Rent £50 p.a. Premium, best offer.—No. 1057.

YORKSHIRE (W.R.).—Old-established mixed PRACTICE, averaging £560 p.a. Panel 701. Scope for increase. Good house, with excellent garden, to rent at £30 p.a. Premium—£1,350 (to include drugs and fittings).—No. 1037.

LIVERPOOL.—Well-established PRACTICE in pleasant district. Receipts £800 p.a. Panel 650. Good house, 5 bedrooms, garden and garage. Premium—1 year's purchase.—No. 928.

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SOUTH COAST.—Old-established middle-class PRACTICE in first-rate seaside resort. Average cash receipts £1,200 p.a. Panel 649. Good house, 2 reception, 4 bedrooms, maid's room, 3 Professional rooms, garage and garden. To rent. Premium—£1,000.—No. 1018.

SHEFFIELD.—Well-established mixed Panel and Private PRACTICE. Average cash receipts about £1,100 p.a. Panel 1,323. Good house, 2 reception, 6 bedrooms and nice garden. To rent or purchase. Premium—best offer.—No. 1051.

LINCOLNSHIRE.—PARTNERSHIP in good mixed Practice in pleasant town. Average cash receipts £2,450 p.a. Panel 1,200. Appointments £190 p.a. Scope. Nice house in good condition, 2 reception, 5 bedrooms, garden. Rent £65 p.a. Premium—half-share—2 years' purchase.—No. 1013.

MANCHESTER.—PARTNERSHIP in mixed Panel and Private Practice. Average cash receipts £2,875 p.a. Panel over 2,500. Scope. Excellent house, 3 reception, 4 bedrooms, small garden. Rent £52 p.a. Premium—one-half share—2 years' purchase.—No. 1031.

LANCS TOWN.—Old-established mixed-class PRACTICE in large town. Cash receipts approximately £1,200 p.a. Panel 745. Scope. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and garden. Premium—£1,350.—No. 1010.

BEDFORDSHIRE.—Small Country PRACTICE, capable of great increase. Cash receipts £400 £500 p.a. Panel 150. Good house, with ample accommodation. Garage and garden. Rent £56 p.a., or would sell for £570. Premium £300.—No. 1055.

MIDLANDS.—Old-established mixed Panel and Private (non-dispensing) PRACTICE. Cash receipts approximately £1,900 p.a. Panel 1,950. Scope. Excellent house, with nice garden, garage, etc. Premium—Practice—2 years' purchase.—No. 933.

SCOTTISH BORDER.—Well-established PRACTICE in pleasant country and seaside town. Cash receipts £700 p.a. Panel 620. Good house, nice rooms, nice garden, etc. Premium—11 years' purchase.—No. 1051.

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EAST COAST.—AVERAGE £1,400 P.A. Panel 440. Good class. Visits 5/6 to 21/- Premium £2,450. Large house (6 bed.), good garden and garage. Price £1,550.—7.

HANTS.—COUNTRY. £3/400 P.A. Panel 150. Visits 5/- up. Suit semi-retired man. Premium only £200. House, 5 bed., 1 acre garden, etc. Rent £75, or sell.—8.

LONDON, S.E.—AVERAGE £700 P.A. Panel 600. House, 2 recep., 5 bed., etc. (worth £850). Illness enforces sale. Vendor will accept £1,500 cash for house and practice.—9.

LONDON, S.E.6.—ABOUT £750 P.A. Steadily increasing, nice locality. Panel 650. Club £35 p.a. Ample accom. on rental. Premium £1,300, to include book-debts, drugs, furniture.—10.

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NOTTS.—COUNTRY PARTNER required, preferably woman. Share worth £500 Medium panel. Fees 3/6 to 21/-. Nice compact house to rent.—14.

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MIDLAND CATHEDRAL CITY.—UN-OPPOSED. Nearly £1,100 p.a. Panel 600. Visits fees 5/- to 10/-. Premium only 11 years' purchase. Good £200 p.a. Premium only £1,500 freehold—20.

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26 SEASIDE TOWN, within an hour of London.—Very old-established PRACTICE about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), with large garage and garden, for sale or rent. Good scope. Premium £1,000.

27 BRITISH WEST INDIES.—Increasing PRACTICE in first-rate town. Receipts last year, £1,750. Good house with ample accommodation, garage and good garden, for sale or rent. Ideal climate. Good society and sport. Scope for surgery or V.D. Premium £1,500, to include drugs, etc.

28 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 450 (approx.). Appointments £60. Fees 2/6 to 1/1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

29 S. WALES.—Old-established PRACTICE, £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Premium one year's purchase.

30 INDUSTRIAL TOWN in the WEST OF ENGLAND.—Old-established and steadily increasing PRACTICE, averaging over £1,800 p.a. Panel about 560. House to rent. Premium £1,600.

31 LONDON, S.E.—Medical Woman's PRACTICE doing about £300 p.a., in suburban district. No panel. Plenty of scope. Semi-detached corner house. Price £750 or might be let. Could be increased by one giving more time to practice. Premium one and a-half years' purchase.

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33 W. OF ENGLAND.—Old-established middle-class PRACTICE, about £1,400 p.a., in good town. Selected panel about 300. Visits 5/- to £1 is., medicine extra. Very convenient and well-situated detached non-basement house (7 bedrooms), with nice garden and large garage, to rent. Premium one and a-half years' purchase.

34 EASTERN COUNTIES.—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 2½ acres) with 7 bedrooms, etc., garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.

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36 S. COAST.—PARTNERSHIP in mixed Practice, averaging £2,800 p.a., in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one half-share two years' purchase.

37 W. OF ENGLAND Inland Watering Place.—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.

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45 LONDON, E.—Middle-class PRACTICE over £2,400 p.a., in outlying district. Panel 2,870. House (4 bedrooms), in excellent repair, with garage and garden, for sale. Premium two and a-quarter years' purchase.

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10 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.

11 SURREY.—PARTNERSHIP in Practice, averaging £5,000 p.a., in residential district, about ten miles from London. Panel 3,000. House could be obtained. One-fifth share at two years' purchase. Preliminary Assistantship.

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PRINCIPAL CONTENTS

Study of Somatic Pain	p. 321	Leading Articles	p. 340
Referred Pains from Muscle	325	Annotations	343
Vitamin C Deficiency: an Intradermal Test	328	Correspondence	357
Oblique Osteotomy for Fracture of Neck of Femur	330	Surgery in General Practice: Erysipelas and Cellulitis	346
Estimation of Ascorbic Acid in Urine	333	Reports of Societies	351
Antispasmodics for Infantile Pyloric Stenosis	334	Reviews	337
		Weekly Table of Infectious Diseases	368

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

- Suggestions Relating to the Study of Somatic Pain. Sir THOMAS LEWIS, M.D., F.R.C.P., F.R.S. (Illustrated).....321
- Referred Pains Arising from Muscle. J. H. KELLGREN, M.R.C.P., F.R.C.S. (Illustrated).....325
- Intradermal Test for Vitamin C Deficiency. B. PORTNOY, M.B., Ch.B., and J. F. WILKINSON, M.D., F.R.C.P. (With Chart).....328
- Fracture of Neck of Femur treated by Oblique Osteotomy. T. P. McMURRAY, M.Ch., F.R.C.S. (Illustrated).....330
- Possible Discrepancy in Estimation of Ascorbic Acid in Urine. G. W. T. H. FLEMING, M.R.C.S., and T. E. BURROWS, M.R.C.S.333
- Treatment of Infantile Pyloric Stenosis by Antispasmodics. J. V. BRAITHWAITE, M.D., M.R.C.P.334

SURGICAL SERIES

- Erysipelas and Cellulitis. JOHN HOSFORD, M.S., F.R.C.S.346

CLINICAL MEMORANDA

- Extra-uterine Pregnancy with Several Months' Retention of Dead Foetus. RONALD H. PAYNE, L.R.C.P., L.R.C.S.336
- Modified Cholecystectomy. CECIL F. TUCKER, M.B. (Illustrated).....336

REVIEWS

- Standardization of Vitamins.....337
- Syphilis for the Million.....337
- The Abnormal Personality.....337
- Mellor's Chemistry.....338
- Diseases of Vulva, Vagina, and Cervix in Pregnancy.....338
- Tuberculosis for Nurses.....338
- Notes on Books.....339

GENERAL ARTICLES AND NEWS

- Treatment of Infantile Paralysis by Sister Kenny's Method: Report from Queensland.....350
- Nova et Vetera:
Sir Hans Sloane.....349
Philemon Holland.....349
Alexander Skene.....349
- SCIENCE AND INDUSTRY.....348
- MEDICAL NOTES IN PARLIAMENT—
Foot-and-Mouth Disease.....367
The Blind Persons Bill.....367
Pasteurized Milk and Tuberculous Infection.....367
- PREPARATIONS AND APPLIANCES.....339
- UNIVERSITIES AND COLLEGES.....366
- MEDICAL NEWS.....369

LEADING ARTICLES

- Pain and Disease.....340
- London Water in 1935.....341

ANNOTATIONS

- Control of Infectious Diseases.....343
- Diagnosis of Vitamin A Deficiency.....343
- Industrial Welfare the World Over.....344
- The Time of Ovulation.....344
- Results of Sanatorium Treatment.....345
- Laura Bridgman.....345

SUPPLEMENT

Sir Henry Brackenbury's Visit to New Zealand. Report to Council

- INSURANCE MEDICAL SERVICE WEEK BY WEEK
- CORRESPONDENCE
- POSTGRADUATE NEWS
- DIARY OF SOCIETIES AND LECTURES
- MEETINGS OF BRANCHES AND DIVISIONS
- Association Notices: Vacancies and Appointments: Diary

REPORTS OF SOCIETIES

- ROYAL SOCIETY OF MEDICINE:
Treatment of Acute Streptococcal Infections with Sulphanilamide.....351
- SOCIETY OF MEDICAL OFFICERS OF HEALTH:
The Enteric Diseases.....352
- ASSOCIATION OF CLINICAL PATHOLOGISTS:
Annual Scientific Meeting.....353
- LIVERPOOL MEDICAL INSTITUTION:
Endocrines for Cryptorchidism.....354
- SOUTHERN MEDICAL SOCIETY OF GLASGOW: Paget's Disease.....355
- SHEFFIELD MEDICAL WOMEN'S FEDERATION: Child Guidance.....356

THE SERVICES

- Parkes Memorial Prize, 1937.....365
- Naval Compassionate Fund.....365
- Deaths in the Services.....365

EPIDEMIOLOGY SECTION

- TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS.....368
- EPIDEMIOLOGICAL NOTES.....369

CORRESPONDENCE

- Use and Abuse of Antiseptics. LAWRENCE P. GARROD, M.D.357
- Oxygen Want and Oxygen Therapy. JOHN A. RYLE, M.D.358
- The Danger of the Stercolith. SEYMOUR BARLING, F.R.C.S.358
- Bovine Tuberculosis in Britain. HALLIDAY SUTHERLAND, M.D.358
- Tuberculosis in Infants. NORMAN B. CAPON, M.D.359
- Trauma and Progressive Muscular Atrophy. R. G. ABERCROMBIE, M.D.; G. F. WALKER, M.D.; D. STANLEY-JONES, F.R.C.S.359
- Acute Appendicitis. A. IAN L. MITLAND, F.R.C.S.ED.360
- Throat Carriers in Midwifery Practice. JAMES COOK, M.D.361
- Cauterization of the Cervix. E. LAWTON MOSS, F.C.O.G.361
- Pelvimetry. A. ORLEY, M.D.361
- Contraceptives and Fertility. Secretary, National Birth Control Association.....362
- Temporary Sterilization by X Rays. E. SHIRLEY JONES, M.R.C.S.362
- Coughing in Public. RUBY O. STERN, M.D.362
- Correct Footwear. G. L. KERR PRINGLE, M.D.362
- Technique of Blood Transfusion. The Radiologist's Range of Service. GEORGE B. BATTEN, M.D.363
- The Problem of the Final M.B. B.S.Lond. STANLEY COLYER, M.D.363

LOCAL NEWS

- ENGLAND AND WALES—
Liverpool Cancer Inquiry.....356
Clinic for Rheumatic Disease.....356
Chadwick Public Lectures.....357
- SCOTLAND—
Edinburgh Public Dispensary.....357
West of Scotland Neuro-Psychiatric Research Institute.....357
Aberdeen Health Services.....357

OBITUARY

- Charles Arthur Parker, F.R.C.S.ED.364
- Robert Watson, M.D.364
- Graves Stoker, F.R.C.S.I.364
- George Hanna Russell, M.D.364
- John Rusk, M.B., B.Ch.364
- E. W. S. Rowland, M.R.C.S.364
- Charles Parker Stewart, M.D.365
- G. J. W. Tierney, M.B., F.R.C.S.I.365
- John Matheson, M.D.365
- Henry Harvey Norton, M.R.C.S.365

LETTERS AND ANSWERS

- "Cracking Skin".....370
- Treatment of Ascites.....370
- Fomites.....370
- Rehabilitation after Injuries.....370
- Law and Theories of Evolution.....370

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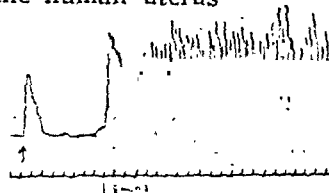
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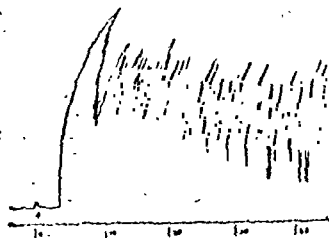
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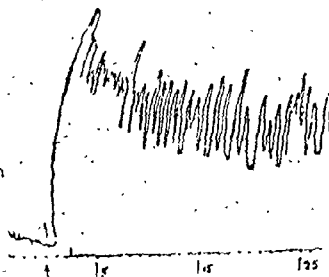
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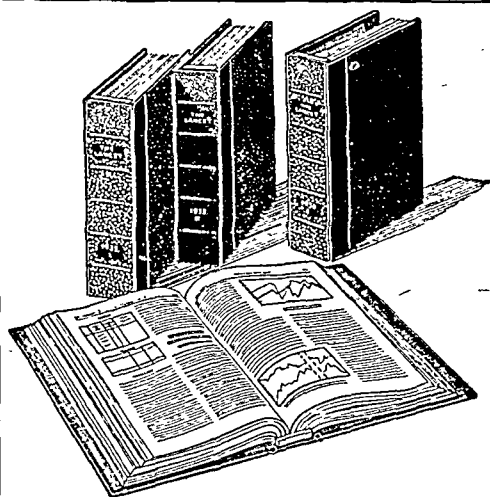
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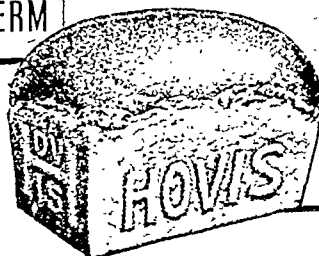
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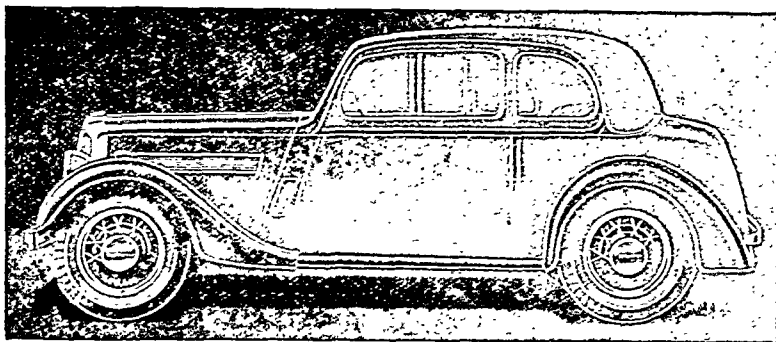


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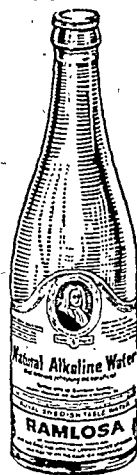
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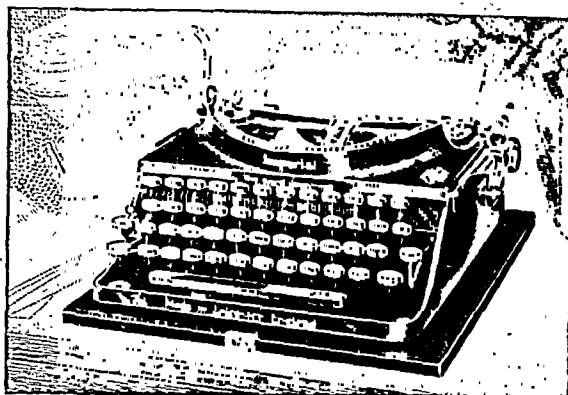
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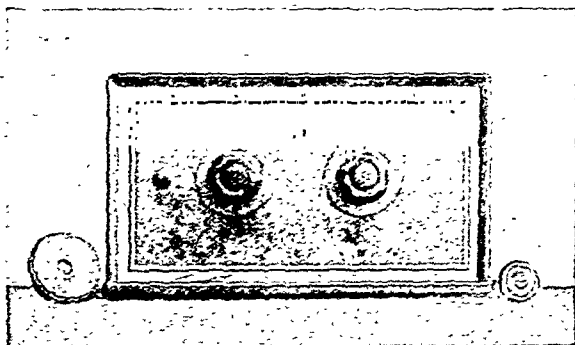
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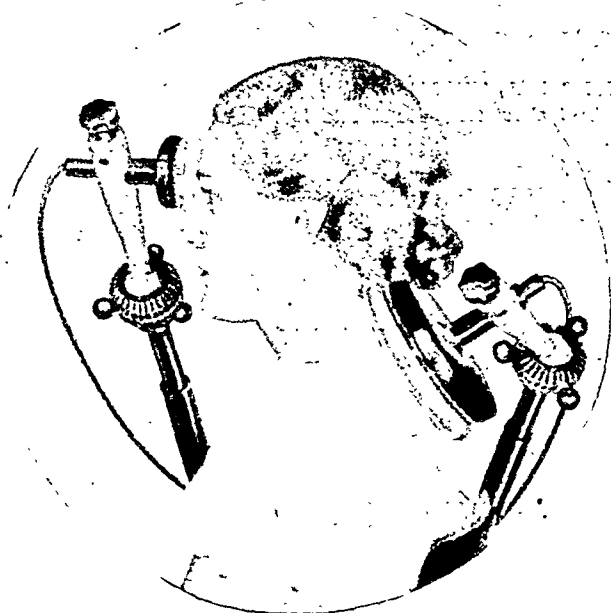
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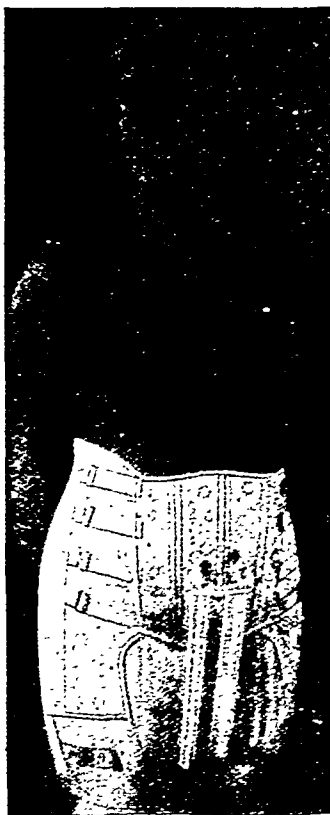
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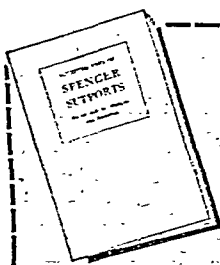
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DESOUTTER

CASE RECORDS

The value of artificial limbs for children

THE child who attends school on crutches or a Pylon is a cripple, and as such he is necessarily separated from his fellows and develops a crippled mental attitude. His physical growth is seriously interfered with, particularly in cases where only one crutch is used. Here the full weight of the body is borne on one leg at every step, and the Pelvis is tilted downwards on the unsupported side. Scoliosis inevitably results. In addition, the shoulders are hunched, the chest contracted, and the free use of the arms impeded. At the same time the muscles of the stump atrophy, and there is abduction and flexion with loss of mobility.

The use of a Pylon does not give much better results. The lack of a correctly articulated foot means loss of support, and the difficulty of balancing on a Peg-end results in the body being thrown sideways at every step. The absence of a knee joint forces the patient to swing the Pylon from the hip in a circular movement, and once this habit is formed it is impossible to teach a patient to walk correctly on a fully articulated limb.

Of the number of children who have passed through our hands some were so young when fitted that they actually took their first steps on artificial limbs, and were thus spared the misery and loneliness of a cripple. A child learns to use a limb so quickly and well that in a very short time he is no longer regarded as a cripple but begins to live the life of a normal child. He is able to join freely in the work and play of other children, both at home and at school, even participating in school games; in fact, it would be difficult to exaggerate the improvement in health and happiness of a child after the fitting of a limb.

It is almost inconceivable that after seeing both sides of the picture there can be any hesitation in providing artificial limbs for amputated children.

Case No. 7641. 1929

Amputation: double Symes. Cause: Deformed feet with absence of fibulas (congenital).

The limbs were amputated when the child was six years old, and both stumps were fully end-bearing. As is common in these cases, there was excessive lateral movement of the knee joints, particularly in the left leg, which showed marked Genu Valgum when the patient was bearing his own weight. (See Fig. No. 1)

After careful consideration it was decided to construct a pair of light metal limbs with extensible shins to allow for growth, and the stumps being fully end-bearing the sockets were fitted loosely, leaving

room for expansion. At the same time the Genu Valgum deformity of the left leg was corrected. (See Fig. 2)

The child made very rapid progress and was soon able to walk quite naturally, run and jump, ride a two-wheeled bicycle, and take part in most of the school games. The improvement in his health, mental and physical, has been most striking. A second pair of limbs was made 2½ years later, and Fig. Nos. 3 and 4 show the child at the age of 11, when a third pair of limbs was made. Comparison with Fig. No. 1 will show the increase in the size of the stumps and the muscular development of the thighs. There is practically no Scoliosis or Lordosis.



FIG. 1



FIG. 2



FIG. 3

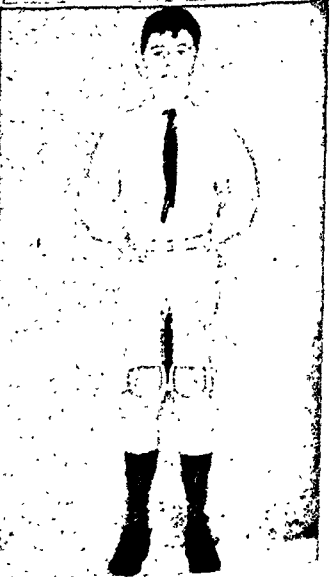


FIG. 4

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reports (*Journ. Amer. Med. Assoc.*, December 18, 1937, p.2054 and *Lancet*, January 29, 1938, p.252) and it has been shown that nicotinic acid is a precursor of the 'pellagra-preventing' factor which is elaborated after the ingestion of this substance.

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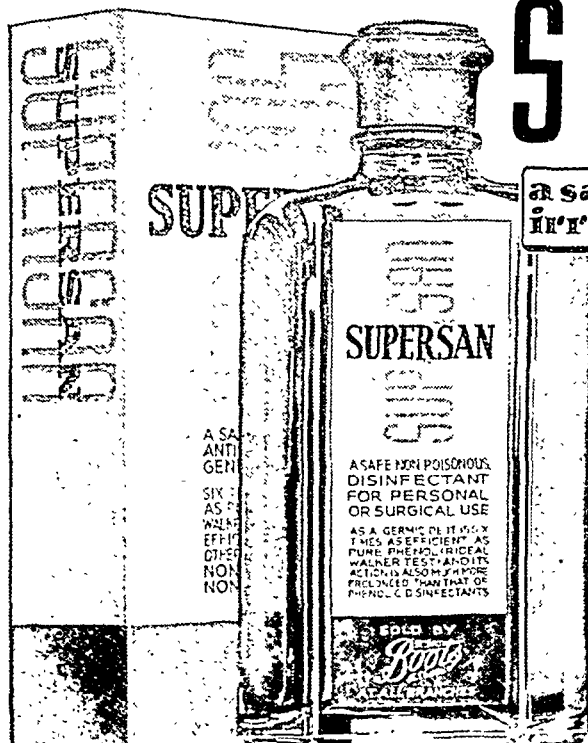
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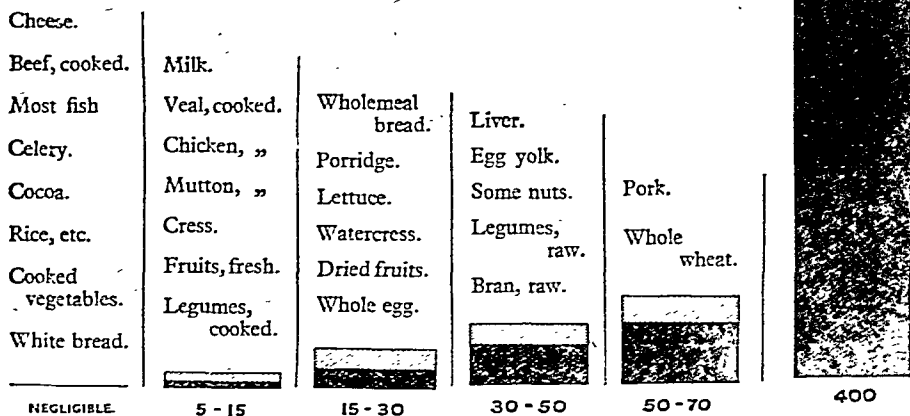
An editorial statement in the B.M.J., 16th Oct, 1937, page 753, that "Vitamin B₁ deficiency [is] an outstanding fault in the diet of many millions of people" gives added weight to the result of a large scale investigation in which 90.1% out of 2,000 patients showed improvement in health when their diets were supplemented with Bemax.

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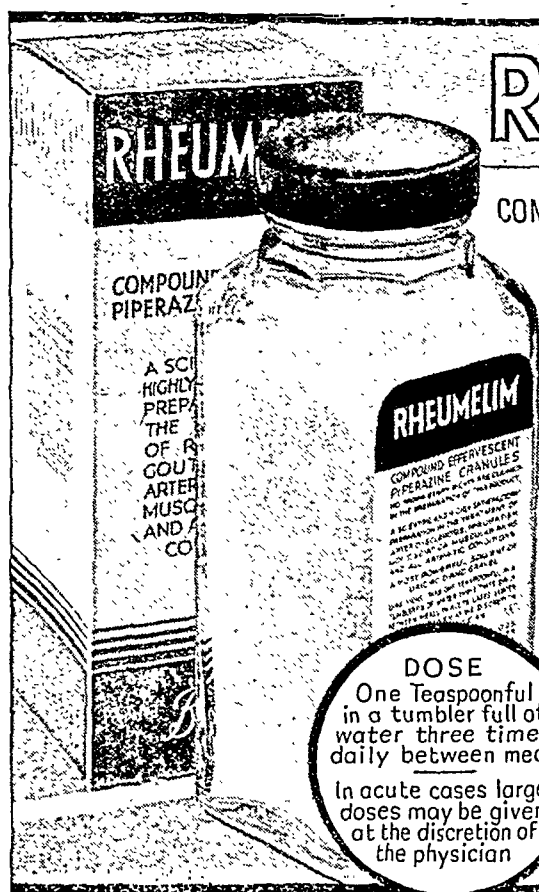
Biochemical J., 1935, and other sources



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Eley, R. C., *N.E. Journ. Med.*, Aug., 1935, 213, 195.



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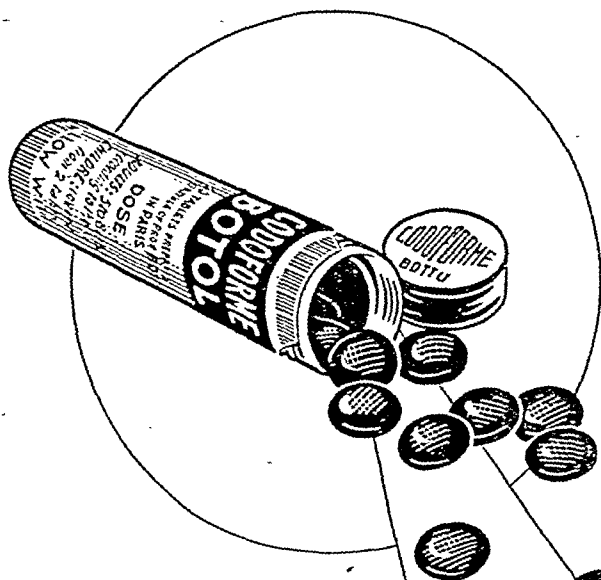
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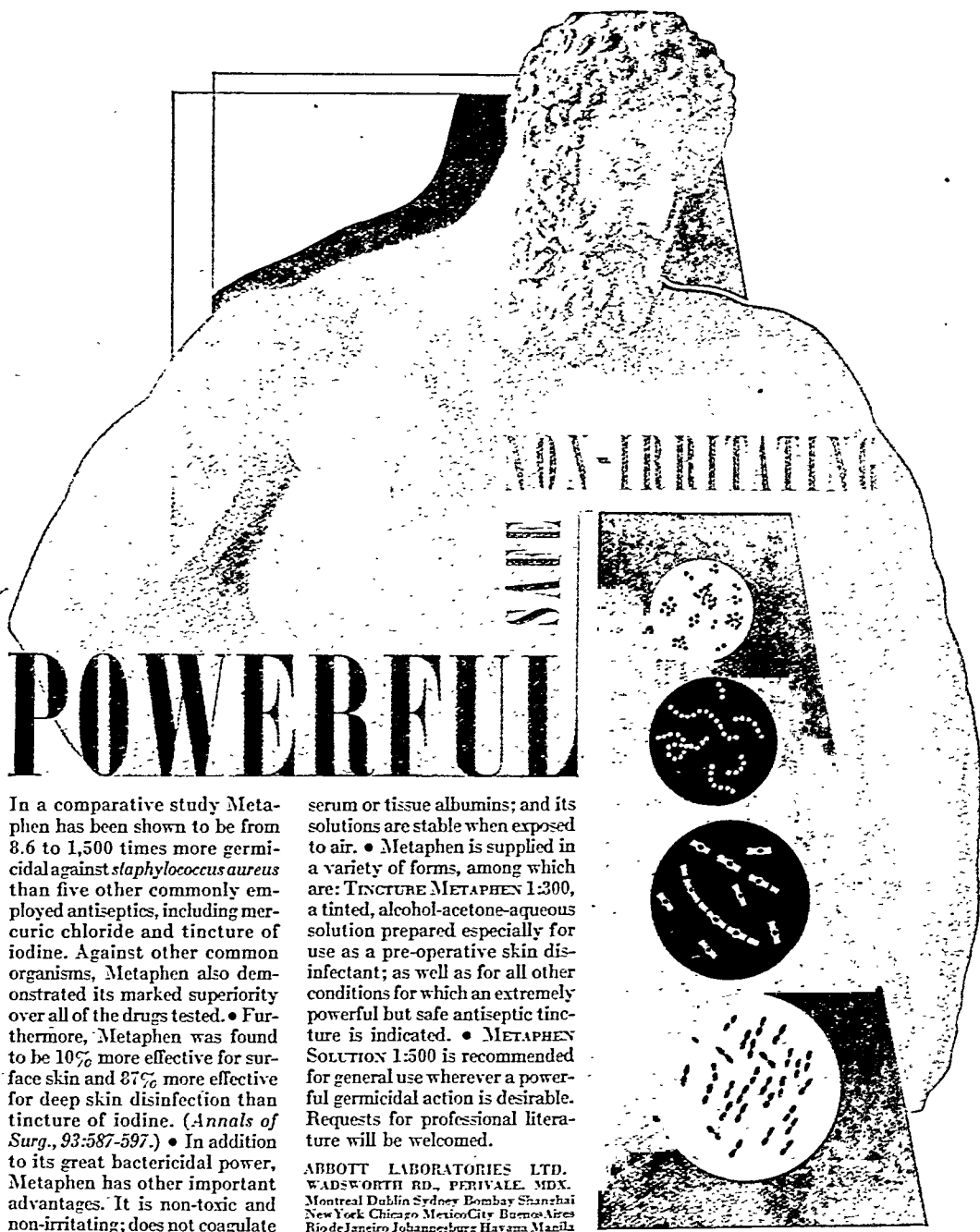
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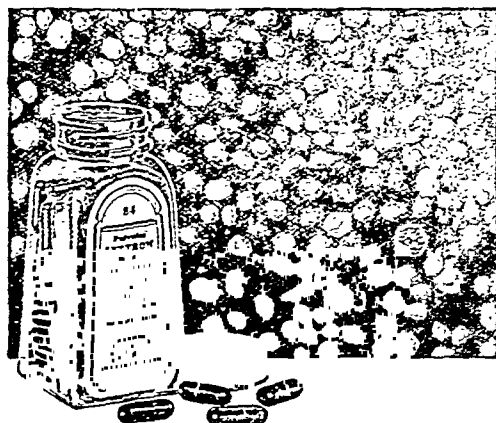


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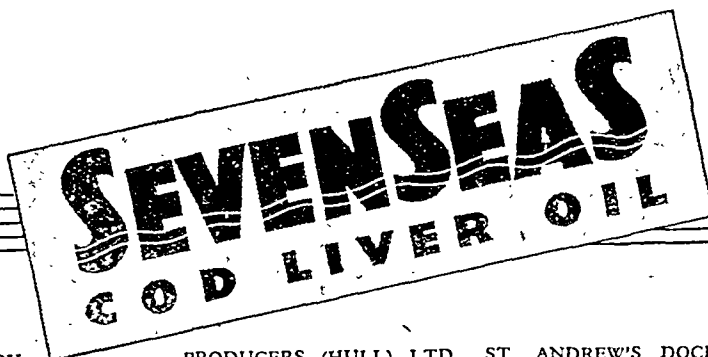
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 12 1938

SUGGESTIONS RELATING TO THE STUDY OF SOMATIC PAIN*

BY

SIR THOMAS LEWIS, M.D., F.R.C.P., F.R.S.

(From the Department of Clinical Research, University College Hospital Medical School)

It is my purpose in this paper briefly to outline certain aspects of pain from the standpoint of investigation, and to suggest the use, or the more extended use, of the experimental method of studying pain. I shall deal particularly with descriptions and identifications of different varieties of pain, and almost exclusively with that derived from somatic structures.

Preliminary Consideration of Some Gaps in our Knowledge

It has long been manifest that a history of pain—as it is related, with the full circumstances in which pain is felt, by an observant subject—may be itself diagnostic of a given disease or of disturbance of given tissue. I believe time will show this method to possess a longer reach than we have suspected; but before its full worth can be attained descriptions of pain must be made more accurate.

It must be obvious to anyone who has given thought to the matter that most descriptions of pains—as these are supplied to us by those who suffer from them in words purely of their own choice—fail to convey sufficiently precise ideas of the sensations experienced and therefore do not adequately identify them. One reason for inaccuracy and inadequacy of description is the difficulty of calling up exact memories of what has been felt some time previously. It is certain that the closer the description is to the event the more accurate it becomes, and that the description is most accurate when given at the time pain occurs and deliberately revised when it recurs. Another reason is the difficulty of finding right words of description and apposite illustrations; to do this requires a degree of observational and didactic skill, and of experience, which very few possess.

To be complete a description of pain experienced must at least comprise a statement of severity, of kind or quality, of relation to time, of locality, and of the circumstances in which it is felt. I shall attempt to deal with these separate aspects of pain neither exhaustively nor even equally, but only so far as will serve to make clear such relevant observations and ideas as I have to offer, and to bring different features into perspective.

SEVERITY

The general level of a pain's severity is recognized to be of clinical value; few pains, however, can be properly described as agonizing, and most of these are known to be derived from the viscera. It is widely believed that the intensity of pain in patients can be evaluated by those possessing intimate knowledge and sound judgment of human types and motives: but it is clear that in very many

individual instances intensity cannot be gauged accurately either from the patient's account of it or from associated reactions. I am inclined to doubt if much, or even anything, would be gained by attempting to set up standards of pain severity with which spontaneous pain could be compared: and so I shall not speak further of the measurement of pain's intensity.

DURATION: TIME-INTENSITY CURVE

It is obvious that the diagnostic importance of a pain's duration rests on the time relation of the pain period and of its causal mechanism. This is well understood.

A feature of pain to which much too little attention has been given is what I may call the curve of pain intensity. It is of importance both because it is capable usually of accurate description and because it has a number of very significant associations. The curve portrays the manner in which pain starts, the rapidity of its culmination, the duration and smoothness at its height, and the manner of its decline. Pain may come and go in a flash, as when the skin of the face is pricked: it may rise to a plateau and last with little fluctuation for a long time before diminishing and vanishing, as when the skin has been burnt or in the attack of angina pectoris; it may be felt in rhythmic pulses, as in inflammation of dental pulp or in pulsating headache—an instance of more obscure derivation but one to which Pickering (1933) has made important and interesting contributions: it may be experienced as longer and less rhythmic phases, as in intestinal colic. All such variations must possess precise significances, related to the organ in which pain arises and to the manner of its origin. This is still largely an unexplored field, but a promising one for graphic record and other investigation.

LOCALIZATION

We know that the seat of origin of pain may be located by patients sometimes with precision, and that the general region from which it comes may be indicated clearly. The value of pain-localization as pointing to the seat of mischief is universally recognized; but accuracy in describing locality in which pain is felt begins to decline from the instant pain ceases. Localization should therefore be effected as far as possible while pain is felt: and it may be advantageous in the case of patients to test how closely the subject can localize appropriate pain when it is induced from a known region experimentally. There is another comment, and one which I think more important, that I would like to make in speaking of the localization of somatic pain. It is too generally assumed that somatic pain locates the seat of mischief. It locates the seat of mischief with great precision when this is the

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the skin. Pain quite indistinguishable from this arises out of injuries resulting from continued friction, abrasions, crushes, freezing, ultra-violet burns, and irritant substances. And here it is important to note that it is identical in quality with, though it is usually less in intensity than, the pain previously discussed—namely, that which occurs during the actual period of stimulation. A series of minute scratches, closely set, gives rise after an interval of time to a very definite continuous pain: it has precisely the same qualities as the pain which follows a burn or which occurs after chloroform has been held on the skin. Comparison should be made of two forms of stimulation, applied symmetrically and simultaneously to two arms; the result is then convincing in the sense indicated. This and similar observations establish the fact that pain of only one *quality* can be provoked from skin. When we speak of "smarting," "burning," or "stinging" we are using terms that lack precise distinction. Some think it convenient to say that smarting is less intense than burning, others describe smarting and stinging as pain which begins with relative suddenness or does not continue long at full intensity. In the last instance the pain produced by the stings of insects or of plants clearly guides the definition. There are many variations in the curve of pain intensity, but there is no variation in the quality of pain originating in skin. The quality is the same however the pain is produced, whether from stimulation of nerve endings or of nerve fibres. While anaesthetizing by hypodermic injection a small cutaneous nerve, previously and accurately located, it is not very unusual for the needle point to touch the nerve; a burning pain is then felt in the area of the nerve's distribution which in quality is indistinguishable from that produced by injury of the skin itself.

Muscle Pain

The second example of pain I shall consider is that derived from muscle. Experiments in which pain is deliberately provoked from skin are easy to devise and to control. To test deeper-lying structures it has been necessary to use different methods. If the circulation to a limb is stopped and a group of muscles is exercised voluntarily, or if a single muscle is forced to contract by direct electrical stimulation, after a time pain is produced in the limb. This pain, as Pickering, Rothschild, and I (1931) proved, is derived from the muscle, and we put forward abundant evidence to show that it is due to a chemical or physico-chemical pain factor arising in muscular metabolism. This pain is disagreeable, it is rather diffuse and difficult to locate, it is continuous, and it is thought by most to waver a little in its intensity; its quality is indescribable, but the pain is distinctive. It is impossible to confuse pain from skin and pain from muscle.

When convinced that pain derived from skin has a constant quality or tone I turned to muscle and tested this to see if pain originating from it possessed similar constancy. I first used isotonic acid solution (a phosphoric acid and disodium hydrogen phosphate mixture of pH 5.0 to 6.5), injecting 0.3 c.cm. through a fine needle into a dorsal muscle of the forearm and comparing the resulting pain with that produced simultaneously in the symmetrical muscle by working this under ischaemic conditions. The two pains were indistinguishable. I subsequently used hypertonic solutions (4 to 5 per cent. sodium chloride), injecting a similar quantity of this, or alternatively of 0.5 per cent. potassium chloride with enough sodium chloride to render the solution isotonic; these injections also gave identical pain. Pain can be pro-

voked mechanically by squeezing muscle firmly between finger and thumb: it can easily be elicited by light pressure over muscle that has been much used the day before. Similar pressure exerted upon the more superficial tissues is without effect: pain so induced is again found to be indistinguishable from that provoked by the same muscle by working it under ischaemic conditions. As an experimental method of producing muscle pain the injection of a minute quantity of a salt solution is the most satisfactory; it is very simple, harmless, and the stimulus is confined to a small mass of muscle. We have seen in the case of skin that pain, though it is of one kind, may be provoked for an instant or for indefinitely long periods. I have not succeeded in provoking very brief pain from muscle: once it appears in the field of consciousness it seems always to last at least a few seconds.

We have in this instance of muscle a second example of tissue from which pain of only one kind can be provoked: muscle pain, when it has been experienced often enough, can usually be recognized as such; it is pain most uniformly described as "aching" pain.

In these observations I have noted that muscle pain is referred to a distance. Thus pain arising from the lower part of the triceps is often referred down the inner side of the forearm to the little finger: from the trapezius it is usually referred to the occiput. I have been fortunate in interesting Dr. Kellgren in this matter. In a long series of very careful researches carried out in my laboratory he has formulated some very striking principles underlying the reference of pain from muscle—principles which appear to have an important practical bearing.

Web, Tendon, and Periosteal Pain

Thunberg (1902) distinguished a form of pain which he called "dull" pain ("dumpf Schmerz") and which was probably derived from subcutaneous tissues: as he points out, pain of this quality is readily produced by tightly squeezing the short web of skin between two adjacent fingers. The quality of two pains is a little less easy to compare if they are derived from unsymmetrical structures. Despite this fact I believe that pain derived from squeezing the web and from squeezing tendons, such as the tendo Achillis or that of the biceps flexor cruris, can be recognized to be of one quality. Here it may be said that pain from a tendon has exactly the same quality whether induced by pressure or by the injection into it of a small quantity of hypertonic salt solution or of buffered acid solution. In the same class as pain from tendon I would place also pain derived from the periosteum. In eliciting the latter I anaesthetize a little piece of skin over the tibia and carry a needle through this until it impinges on the bone. Each time the needle is jabbed against the tibia a disagreeable diffuse pain is produced which lasts at its height for an appreciable time. Similar pain is provoked but is longer-lasting if a small amount of hypertonic saline is injected while the needle point is against the bone. This pain, presumably arising from periosteum, is similar to if not indistinguishable from web and tendon pain. If a joint is strained in rough walking, pain is felt subsequently at each movement of the joint; it is an intermittent and rather short-lasting pain, but its quality is the same as that here described. When I have provoked pain from the periosteum it has been located with much accuracy. Head and Rivers (1908) found deep pain from pressure on the dorsum of the hand, when the skin had lost all sensation, to be accurately located. But reference sometimes occurs. Thus I have noticed that pain from saline injections confined to the subcutaneous tissue on the dorsum of the

skin or an exposed mucous membrane; but there is much less evidence that it does so when deeper somatic structures, such as subcutaneous tissue, muscle, etc., are concerned. There are already a few well-recognized examples—for instance, the reference of pain from diaphragm to tip of shoulder or from hip-joint to knee—which illustrate how faulty the location of disease by pain may be. But my point is that such examples have come to be regarded as exceptional and that too little experimental work has been done on pain derived from these deeper structures.

QUALITY

One of the least-studied features of pain, and one to which I shall give more space, is its kind or quality. A direct description is no more possible than it is in the case of sense of colour: here we use the device of exemplification or association, as when we talk of "blood-red" or "orange"; and the frequent descriptions and comparisons of everyday life enable us to attain a high degree of accuracy in conveying by this method the idea of particular colours or tints. In describing the kind or quality of pain we are likewise restricted to exemplification, but in this connexion experience is infrequent and limited and the art of description is unpractised and unchecked. It is my view that experience may be supplied and practice obtained in the recognition of pains of different qualities and the naming of them. Common parlance has acquired a few striking terms, as when we speak of pain as "burning" or as "pricking," quite distinctly meaning to associate such pains with those provoked by burns or pricks. Here are two instances achieving unusual accuracy. But many terms in use and of like origin, such as tearing, boring, cutting, stabbing, and crushing, owing to the comparative infrequency of corresponding physical damages, convey as between two persons no exact ideas. The common device of describing pain in terms linking it with various forms of injury has little scientific and, apart from a very few examples, little practical value. This method of description has been almost sterile, because, as already indicated, experience of the relevant kinds of injury is uncommon and thus the terms cannot recall the appropriate sensations, and for other reasons. Thus it is obviously not clear that a constant type of pain is produced by an act of crushing or of tearing, and it is known that one kind of pain can follow both a crush and a burn. Another defect of current terminology is that it is often uncertain whether a term is used to convey an idea of the quality of pain or to illustrate the sequence of events as portrayed in the curve of pain intensity. The erroneous impressions which arise and are conveyed by the use of such terminology are indeed very numerous and serious, as will become clearer later in my attempt to analyse and define various types of pain. In illustrating and in leading up to certain suggestions and generalizations, I propose to consider pain, and especially the quality of pain, provoked from three somatic structures—namely, skin, muscle, and tendon (or web, etc.).

Skin Pain

When pain is derived from skin its localization is very accurate; it varies in intensity and in its duration, it may change from moment to moment, but it does not vary in quality or tone. Though this idea has been expressed by previous workers (Becher, 1915; Alrutz, 1909) and is summed up in the term "bright" pain ("hell Schmerz") of German writers, it is not apparent that it has been at all generally acknowledged. It is of so much importance if true that it deserves to be brought to the point

of demonstration. Pain can be provoked by injuring the skin in a large number of different ways, as by pricking with a sharp point, by pinching tiny folds of skin, by pulling on hairs, by burning, by the passage of electrical current, and by the application of irritant poisons. The quality of pain evoked in these several ways from skin can in fact be demonstrated to be unvarying, in that when the tests are properly applied the subject is unable to decide the manner in which pain is produced. A fine wire is bent at an acute angle and heated electrically; the angle is brought into quite transient contact with the skin, or, alternatively, the skin is pricked by a needle. A blindfolded subject cannot detect which of these two forms of stimulation is employed (Lewis and Hess, 1933). Similarly, a quick tug upon a single hair or the make-and-break shock of a galvanic current may be used. All these will be described as pricking pain without distinction. Naturally it is necessary that the subject should not be allowed to receive associated sensory (but unpainful) stimuli that are peculiar to the form of stimulation. Thus if the contact of the hot wire is maintained unduly its warmth may be felt in addition to pain, and the form of stimulation will then be detected at once. When a hair is to be pulled it should first be isolated so that it may be grasped and pulled without warning, which simple contact with this or neighbouring hairs will give; and counter-pressure should be exerted around its base so that when the hair is pulled the skin is not lifted. Similar counter-pressure should be exerted when needle-prick, hot-wire contact, or galvanic shock is compared with this form of stimulation. The greater the precaution taken to eliminate supplementary sensory stimuli, or to reduce these to uniformity in comparing different forms of painful stimuli, the more successful will be the tests. The subject tested is soon aware that it is impossible to distinguish the different pain stimuli and that, where the form of stimulus is recognized, the recognition depends upon a non-painful accompanying sensation. The stimuli just discussed are all brief ones, and their effects are all called "pricking."

A prolonged stimulus gives rise to pain described as "burning"; and this is always so, whether the pain arises from heat or not. The bent wire is carried just through a small cork and thus applied to the skin, and enough current is now led through the wire to heat it; a needle point is sunk in a similar cork, and from it a galvanic current of appropriate strength is turned into the skin; an isolated hair is pulled and held tense through a small slit in a cork held around it and in contact with the skin; or a tiny fold of skin is caught up in sharp-edged forceps and pinched in similar circumstances: the subject cannot differentiate. All these forms of stimulus give rise to pain that is described without distinction as "burning" pain. It is recognized as such, not because of its peculiar quality, but because it is a cutaneous pain that continues; it is called "burning" from association. The hot stimulus applied briefly causes what is termed "pricking" pain; prolong the same stimulus and it is called "burning." The initial pull on a hair causes a "pricking" pain, but if the hair is held tense the quality of the pain, though quite unchanged, is now called "burning." The difference between "pricking" and "burning" pain is not one of quality or tone, it is purely one of duration.

So far pain arising from and ending with brief or short stimulation of the skin has been discussed; but it may also continue as an after-effect of injury. The most widely recognized pain of this kind is that continuing for some time after contact with an object hot enough visibly to injure.

She was a stout woman in good general health. All movements of the right shoulder were painful, and abduction and internal rotation were limited. The elbow, wrist, and hand joints appeared normal and there was no wasting and no sensory changes in the skin. A radiograph showed no bony abnormality in the shoulder or neck. Tender spots were found in the deltoid and supraspinatus and at the back of the shoulder over the *latissimus dorsi* or *teres minor*. These spots were infiltrated with 18 c.cm. novocain. There was a momentary increase of pain in the arm, forearm, or thumb during the injection of the different spots. When all the spots were anaesthetized the pain in the arm was abolished and the patient could move her shoulder painlessly through a full range. One week later there had been no return of pain in the arm, though it still felt heavy and weak.

Case IV

A police constable, aged 45, who had knocked his right elbow six weeks earlier, and since then had suffered from aching pain in the forearm and over the back of the hand.

He was a healthy muscular man. His elbow and wrist movements were full and painless, but gripping with the right hand was painful and weak. Extension of the fingers against resistance was also very painful. A tender spot was found in the belly of the extensor digitorum communis, and the tip of the external epicondyle was tender. The tender muscle was infiltrated with 5 c.cm. novocain. This abolished the pain, and his right grip was now strong and painless. One week later there had been no return of pain and his right grip was strong; the epicondyle was still tender.

Case V

A potato porter, aged 62, had suffered from lumbago on and off for forty years, but had been in more or less constant pain for the last year. Ten days previously he had had a great increase of pain, and since then this had been continuous; he obtained no relief in any position, and all movements were painful. The pain was felt over the left sacro-iliac joint and the left buttock.

This patient was an old but muscular man. He had great difficulty in moving because of pain, and he held his back quite rigid. Straight knee leg-raising: right to 65 degrees, left to 40 degrees, both limited by pain in left buttock. A tender place was found in the left erector spinae opposite the first, second, and third lumbar spines. This place was infiltrated with 30 c.cm. novocain. The pain was abolished; he could then move about painlessly and had fair mobility in his back. Straight knee leg-raising to 75 degrees on both sides. One week later he had had little pain since the injection and was free from pain except after prolonged sitting. Straight knee leg-raising to 80 degrees on both sides.

Case VI

A van driver, aged 33, had suffered for a year from aching pain in the right calf of gradual onset. For the last six months this had been getting worse, and had spread to the thigh and hip; it was a continuous ache, aggravated by walking or sitting down.

The patient was a thin man who appeared in good general health. In standing his weight was on his left leg, with his pelvis lower on the right side and with a lumbar scoliosis. He had a full and painless range of movement in the right hip, knee, and ankle, but there

was some stiffness of the lumbo-sacral spine. Straight knee leg-raising to 80 degrees on left side and 40 degrees on right (limited by pain in leg). The right ankle-jerk was absent, but there were no sensory changes in the skin of the right leg.

Two tender spots were found—one in the right gluteus medius and the other in the right sacral erector spinae. Pressure on the sacral spot gave pain in the calf. The sacral tender spot was infiltrated with 40 c.cm. novocain. During the injection there was a momentary increase of pain in the calf. When this spot was anaesthetized the pain in the calf was abolished, but there was still some pain in the hip. Straight knee leg-raising to 75 degrees on right side, 80 degrees on left. The scoliosis was less obvious on standing. One week later he had been free from pain for two days, after which there had been some return of pain in the calf. The erector spinae was still tender, and the novocain infiltration was repeated. One month later he had had no pain in the calf since the second injection, but still had pain in the thigh and hip. He had no scoliosis on standing, but the right ankle-jerk was still absent.

Case VII

A baker of 36, who for seven months had suffered on and off from pain in both hips and legs. For the last week he had had a continuous aching pain in the left knee and in the outside of the left thigh and calf.

He was a muscular man who appeared in good general health and had a normal posture. He had limitation of abduction and rotation in both hips, but only the left was painful; there was full and painless movement in both knees and back. Straight knee leg-raising to 75 degrees on both sides. His knee- and ankle-jerks were present, and there were no sensory changes in the skin. Radiographs showed bilateral coxa vara, with very slight osteo-arthritis changes. Tender spots were found in the left gluteus medius and tensor fasciae femoris. These spots were infiltrated with 70 c.cm. novocain. During injection there was a momentary increase of pain in the knee. When the infiltration was complete the pain in the knee was abolished, but there was still slight pain in the hip. There was no change in the range of movement. One week later he had been free from pain for six days, though the night after the injection he had had much pain. The movements of both hips were still limited, though painless.

Case VIII

A clerk, aged 17, who had suffered from pain in his right foot for three weeks. This was not of sudden onset, and he had had no injury. The pain was felt under the metatarsal heads and in the outside of the foot and ankle. He had pain with each step and walked with a gross limp.

He appeared in good general health. His ankle and foot movements were full and only slightly painful. Radiographs showed no bony abnormality in the right foot. There was tenderness of the third interosseous space. The tender space was infiltrated with 3 c.cm. novocain. During the injection his pain was reproduced momentarily. Then it was abolished, and he could walk normally with complete comfort. Three weeks later he had been quite well except for two days following the injection, when he had had slight pain.

I am indebted to Dr. Bauwens of St. Thomas's Hospital, and to the casualty officers of University College Hospital, for allowing me to publish cases seen in their departments.

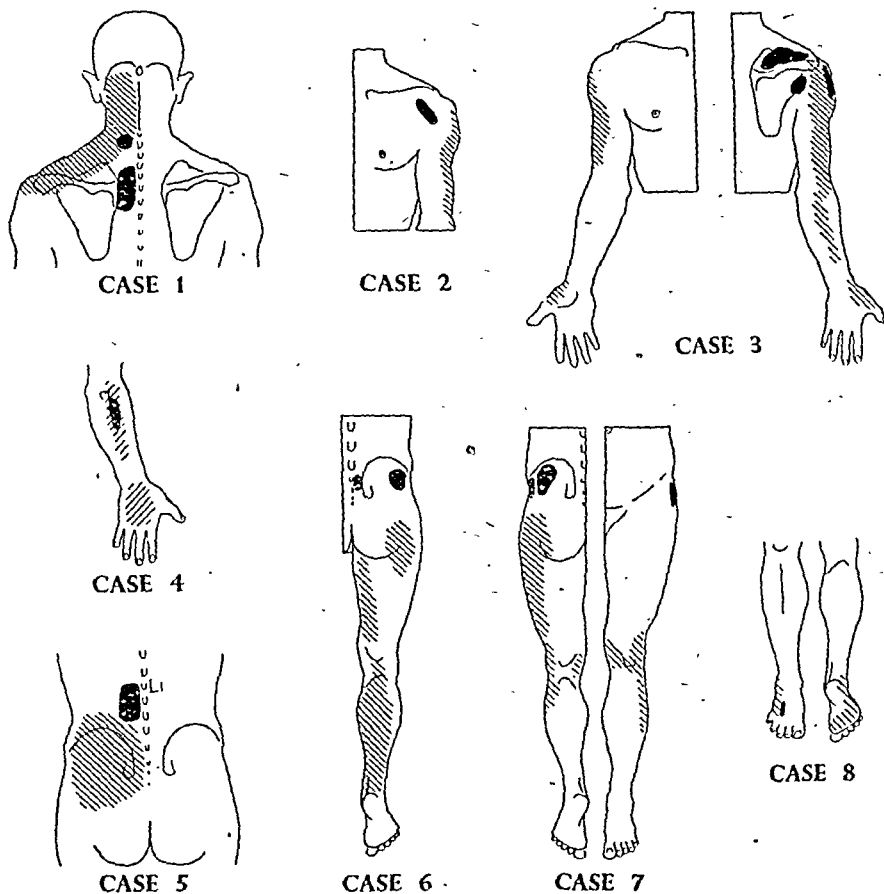
that novocain injection may be of therapeutic value in these cases, though the reason for its permanent effect is at present uncertain, and is under investigation.

The injection of local anaesthetics is of course a well-known therapeutic measure which has claimed occasional successes in these complaints, as indeed have most forms of local therapy. The uncertain results obtained with local therapy are not surprising when one considers that without an accurate knowledge of the distribution of muscular pains the therapy must often be applied to areas of referred pain and tenderness instead of to the source of the pain. It remains to be seen how much a further knowledge of muscular pain will help in the treatment of these very difficult cases.

(trapezius or rhomboids). The tender spots were infiltrated with 16 c.cm. novocain. This abolished the pain and he could move his head and neck painlessly through an almost normal range. One week later he was quite free from symptoms and had a full range of movement in the neck, though, he had had some pain for two days after the injection.

Case II

A housewife, aged 35, who for two weeks had suffered from an aching pain felt down the outside of the left arm from the shoulder-tip to the elbow. The pain was continuous and aggravated by use of the arm, and she also had sudden stabs of pain when moving the abducted arm.



Showing the distribution of pain (hatching) and tender spots (black) in eight cases in which the pain was abolished by anaesthetizing the tender spots with novocain.

Case I

A builder, aged 41, who had suffered for six months from pain in the left side of his neck. This came on gradually while he was doing overhead work to which he was unaccustomed. The pain was a continuous ache felt over the left side of the neck from the shoulder-tip to the occiput. The pain was aggravated by any use of the left arm; his neck felt stiff, and he had sudden exacerbations of pain on attempting to move his head. For the two weeks before he was seen the pain had been worse and had kept him awake at night.

He was a muscular man who appeared in fair general health. He held his head flexed to the right, and all neck movements were greatly limited by pain. He had a full range of passive movement in the left shoulder, but active movements were painful. Two tender spots were found—one in the erector spinae at the root of the neck, and the other by the vertebral border of the scapula

She was a stout woman who appeared in good general health. Her shoulder movements were full, except extension and internal rotation, which were limited by pain. A tender spot was found in the deltoid near its anterior border. This spot was infiltrated with 10 c.cm. novocain. During injection the pain in the arm was momentarily increased; then it was abolished, and at once internal rotation and extension of the shoulder became full and painless.

Case III

A housewife, aged 50, who for six months had suffered from pain in the right arm. This was of gradual onset and there was no history of trauma. Lately the right hand had felt weak and she had had some numbness and tingling of the fingers. The pain was a continuous ache felt from the shoulder-tip down the outside of the arm, the back of the forearm, and in the thumb.

acid values of 1.32 to 2 mg. per 100 c.cm. (Table I, column 2). It will be noted that in the twenty-one proved "unsaturated" patients (column 1) the dye was decolorized in 3 to 29 minutes (average 16.9), sixteen requiring 10 or more minutes. When entirely saturated these same patients showed complete decolorization of the dye in 0.5 to 6 minutes (average 2.3 minutes). By reference to the table it will be seen that the five unsaturated patients having decolorization times of 9, 9, 9, 4, and 3 minutes showed marked reduction to 1, 2, 1, 2, and 0.5 minutes respectively after saturation with ascorbic acid.

In the intermediate "partially saturated" subgroup (having blood ascorbic acid values of 0.72 to 1.3 mg. per 100 c.cm.) the times for decolorization slightly overlapped the other two subgroups, having a range of 3 to 13 (average 7.5 minutes)—two being longer than 10 minutes and five less than 7 minutes.

The second group (sixty-eight cases) has been examined from the dietetic point of view and correlated with the skin test; since full ascorbic acid determinations were not made these observations are not so useful as those obtained in the first group. Nevertheless the patients showed similar results (Table II). Thus:

TABLE II.—Group II (68 Cases)

(a) 18 Cases	(b) 37 Cases		(c) 13 Cases
7	16	8	33
6	14	8	22
5	14	8	21
4	14	8	21
4	12	8	19
4	11	7	19
3	11	7	18
3	11	7	11
3	11	7	11
3	11	7	11
3	10	7	10
3	10	7	10
3	10	6	4
3	10	6	
3	10	6	
3	10	6	
3	10	6	
3	9	5	
3	9	5	
3	9	3	
2	8	3	
Mean 3.4	Mean 8.8	Mean 16.1	

(a) In eighteen patients taking full mixed diets including large amounts of fresh fruit and vegetables daily the decolorization times were 2 to 7 minutes (average 3.4 minutes), and compare well with the corresponding results in Group I (0.5 to 6 minutes).

(b) Thirty-seven patients had been having fair diets—that is, ordinary diets without extra fruit, and apparently not deficient in vitamin C. These had decolorization times of 3 to 16 minutes (average 8.8 minutes).

(c) Thirteen patients had been on very deficient diets without any fresh fruit, vegetables, or vitamin-C-containing foods. These included scorbutic patients, and patients with gastric or duodenal ulcers taking strict diets without added ascorbic acid. Twelve of these patients had decolorization times between 10 and 33 minutes, and one gave a low decolorization time of 4 minutes; these times correspond very well with those obtained in the unsaturated patients of Group I, where the range was 3 to 29 minutes, with two low times of 4 and 3 minutes respectively.

With such a short series of cases it is difficult to reach definite conclusions, but it will be seen that a prolonged decolorization time (certainly greater than ten minutes) apparently parallels a deficiency of vitamin C. This does not necessarily mean that the skin test is a direct measure of the ascorbic acid content of the tissues, since

other reducing substances, such as glutathione, will also cause a reduction of the dye. Nevertheless Rotter's skin test may furnish a useful rapid clinical test for vitamin C subnutrition, and is worth further study. The relation between the reduced ascorbic acid content of the blood and the skin decolorization time as determined by this method is shown in the diagram.

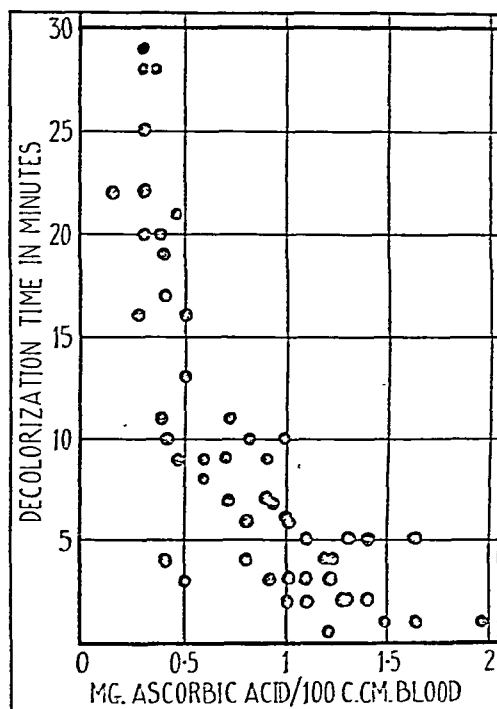


Diagram showing the correlation between the decolorization time and blood ascorbic acid.

Summary

A suggested intradermal test for vitamin C subnutrition using 2:6-dichlorophenolindophenol has been examined in a series of 103 patients.

Prolongation of the decolorization time appears to run parallel to the degree of vitamin C content of the tissues, although other reducing substances in the skin may be concerned in the decolorization phenomenon.

The method may be of value as a rapid clinical test for vitamin C deficiency. A decolorization time of less than five minutes indicates tissue saturation with vitamin C, while ten minutes or longer is in favour of a deficiency.

We wish to thank the honorary physicians of the Manchester Royal Infirmary for permission to use their cases and Roche Products Limited for the generous supplies of redoxon ascorbic acid. The work was carried out with the help of grants from the Medical Research Council and the Dickinson Research Scholarship Trust (B.P.).

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INTRADERMAL TEST FOR VITAMIN C DEFICIENCY

BY

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AND

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In a recent communication Rotter (1937) of Budapest suggested a skin test for the estimation of the vitamin C nutrition of the body. This test depended upon the fact that 2:6-dichlorophenolindophenol is decolorized by the tissues at a rate depending upon the ascorbic acid content. Rotter had noted that when small quantities of the dye were injected into the soles of guinea-pigs decolorization took place much more rapidly in healthy animals than in those with scurvy. He suggested that this disappearance of the dye was due to reduction by the ascorbic acid and not to resorption, since methylene-blue, simultaneously injected, remained unchanged. Similar results were obtained when a solution of the dye was administered intradermally to patients on vitamin-C-rich and vitamin-C-free diets. Rotter concluded from his experiments that the time for decolorization was an indication of the saturation or otherwise of the individual with regard to vitamin C. In "saturated" cases the dye disappeared in less than five minutes, in "normal" cases in five to ten minutes, and in "deficient" cases the dye took longer than ten minutes for decolorization.

The extreme simplicity of this method as a rough indication of the vitamin C content of the tissues is obvious and, if correct, would have considerable advantages over the present methods, which, although relatively simple, are not always convenient, require much more time, and may lay themselves open to errors if the technique is not carefully controlled. Accordingly, during the course of some other investigations, we have taken the opportunity of trying Rotter's skin test in convenient groups of cases.

Method

The method employed was that used by Dr. Rotter, who kindly supplied us with some further details. The requisites are a sterile solution of 2:6-dichlorophenolindophenol, a 1-c.cm. tuberculin syringe graduated in hundredths, and an intradermal needle.

Technique

The dye solution contains 2 mg. of the solid 2:6-dichlorophenolindophenol in 4.9 c.cm. of distilled water. This solution was found to be bacteriologically sterile. Nevertheless, since we have always sterilized our solution by passage through a Seitz filter, the pad of which was found to adsorb 20 to 30 per cent. of the dye, we have made up the solution as follows: the dye is dissolved in the proportion of 4 mg. to 4.9 c.cm. of distilled water; the sterile filtrate is standardized by removing an aliquot amount with a sterile pipette and titrating it against a freshly standardized solution of ascorbic acid (standardized against N/100 iodine solution). The filtrate is then diluted

appropriately with sterile water to its correct strength (2 mg. in 4.9 c.cm.). This dye solution is freshly prepared every three to four weeks, since its strength begins to deteriorate after that time. Sterilization of the solution by autoclaving causes a 3 to 5 per cent. loss.

The site chosen for injection is the skin of the forearm in an area free from hair and small superficial veins, since the latter may cause confusion as they are the same colour as the dye. The skin is cleaned with ether and stretched, the needle is inserted intradermally, and 0.01 c.cm. of the solution injected immediately under the epithelium, a wheal 2 mm. in diameter being raised. The times of injection and of complete disappearance of the dye colour are noted. In order to minimize any error which may arise in the size of the wheal four wheals are raised and the average time for decolorization is taken in each patient.

Results

Tests have been made on a series of 103 patients who were under observation for other purposes, and seventeen of these were re-examined after complete saturation with ascorbic acid.

Group I.—This group consisted of thirty-five patients on whom (i) full and repeated ascorbic acid determina-

TABLE I.—*Group I (35 Cases): Times Required for Complete Decolorization in Cases having had Full Vitamin C Determinations*

Before Treatment: Unsaturated	After Treatment: Complete Saturation	Partially Saturated
Blood Vitamin C: 0.27–0.52 mg./100 c.cm.	Blood Vitamin C: 1.32–2.0 mg./100 c.cm.	Blood Vitamin C: 0.72–1.3 mg./100 c.cm.
Mins.	Mins.	Mins.
29	2	13
28	5	11
28	3	10
25		10
22		9
22	2	9
21	3	8
21	2	7
20		7
19		6
17	2	5
16	4	4
16	6	4
16	1	3
11	1	
10	3	
9	1	
9	2	
9	1	
4	2	
3	0.5	
Mean 16.9	2.3	7.5

tions had been made by the "saturation" test of Abbasy *et al.* (1935), and (ii) direct determinations of the ascorbic acid content of the blood according to Pijoan and Klemperer's modification of the method of Farmer and Abt (1935), or by blood tolerance tests, details of which will shortly be published.

Group II.—This group comprised sixty-eight patients who did not have these full vitamin C tests but whose dietetic histories could be accurately assessed.

The patients in Group I were divided into three subgroups according to their degrees of vitamin C saturation as determined by the urinary vitamin C excretion test and by the ascorbic acid content of the blood. The normal blood ascorbic acid value as determined by Pijoan and Klemperer (1937) is 0.65 to 2 mg. per 100 c.cm.

In the unsaturated subgroup of patients before treatment the level of blood vitamin C was 0.27 to 0.52 mg. per 100 c.cm., and after complete saturation with ascorbic acid these patients when re-examined had blood ascorbic

and of these apparent successes about one-quarter develop a disintegration of the head of the femur at any period up to four or five years following the operation.

Drawbacks of the Whitman and Smith-Petersen Methods

The advantages of these two methods are evident. By their use the end-results of treatment of this type of fracture have been greatly improved; but neither method is without risk, and their true value can only be appreciated by realizing their disadvantages, which in Whitman's method are: (1) the frequency with which non-union follows on even the most careful treatment; (2) the risks to these elderly patients which follow on prolonged fixation in the very uncomfortable position of abduction and hyperextension; (3) the rigidity of the joints which is caused by the fixation and twisting of the limb over a long period. The disadvantages of the insertion of a metal pin are: (1) the risks of failure to insert the pin in the ideal position, and the very definite risk of non-union; (2) the occurrence of fragmentation in the head of the femur following an apparently successful operation; (3) the very definite risk of infection in the hands of non-experts in the method.

Treatment by Oblique Osteotomy

With these considerations in mind it was natural that one should look for some method which would allow uninterrupted apposition of the fractured surfaces without the disadvantages that have been enumerated. In 1936 I published an article on the treatment of non-union following fractures of the neck of the femur by means of an oblique division of the shaft, which is cut through at the level of the lower border of the upper fragment. Following the osteotomy the shaft of the femur is displaced inwards to such a position that its upper end rests against the lower surface of the head of the femur and the cotyloid ligament of the acetabulum. Following the osteotomy and the displacement, fixation of the whole area is maintained for three and a half months in a plaster-of-Paris case extending from the lower ribs to the foot, with the thigh and legs in the neutral position. No tension is applied to any joint, the knee being kept slightly flexed with the foot at right angles, so that the danger of rigidity following the fixation disappears, or is at least greatly diminished. After the first eight weeks the portion of the case which encloses the ankle and foot may be removed in order that the patient can exercise and retain the muscle control.

In the article mentioned I gave the detailed end-results of twenty-seven cases of non-union of the neck of the femur which had been treated by this type of osteotomy, and showed that, so long as the operation was performed as described, a satisfactory result was to be expected in every instance. The essentials for success were summarized under the following three headings:

1. Correct position of the transferred shaft of the femur under the femoral head and lower border of the cotyloid ligament.
2. Fixation following operation for a period long enough to ensure union at the site of the osteotomy, without which the hip remains flail and very painful.
3. The fixation of the limb in the plaster case in the neutral position, or in very slight abduction, in order to prevent the development of a knock-knee deformity following the removal of plaster.

Recent Transcervical Fractures

Since the time of publication of that article the operation has met with such uniform success in the treatment

of non-union that I have been encouraged to use it in the treatment of four recent transcervical fractures. The number of cases so treated is small, because I was anxious to study the final results and to discover any unsuspected complications that might follow on the use of this line of treatment in recent fractures. In each of these four cases all treatment has ceased for at least nine months, and it is therefore possible to reach a decision in regard to the value of the method. The results have been entirely satisfactory, firm bony union having occurred in each case at the original fracture and at the line of osteotomy. As a result of the operation the patients are all able to stand and walk without a limp, and with a hip-joint which is perfectly stable in every direction. In no case is there any trace of absorption or disintegration of the head of the femur—in fact, the application of pressure from the trochanteric fragment against the head of the femur has prevented even temporary "decalcification," which is so commonly seen. In one instance, in a patient in whom definite signs of creaking in the knee were already present, fixation in plaster led to a temporary stiffness of the joint, which responded to physiotherapy in three months. The only real disadvantages that I can find are a shortening of about one-half to three-quarters of an inch and a loss of the power of adduction of the thigh across the middle line of the body. The limb can be abducted fully, and adducted freely and easily to the middle line of the body, but the extreme normal adduction across the middle line is lost, a loss which is of no great importance.

Operative Technique

The details of the treatment are as follows. If shortening is already present when the patient is seen for the first time, full length of the limb should be restored by traction applied by means of adhesive strapping to the

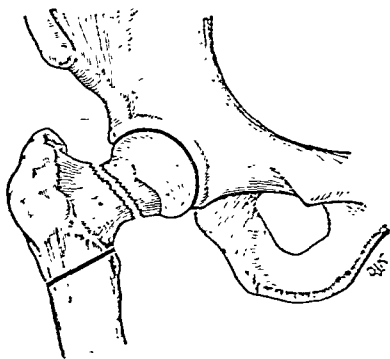


FIG. 1.—Fracture of the neck of the femur, showing line of osteotomy.

thigh and leg. Two or three days are quite sufficient to produce the necessary correction, and if there is at the same time a tendency to eversion of the limb this may also be corrected by the use of sandbags and by pressure on the outer side of the bent knee. When full length has been obtained the operation is carried out: an incision five inches in length is made along the outer border of the femoral shaft, extending downwards from the tip of the great trochanter. The muscles attached to this portion of the bone are completely raised from the anterior aspect, so that the lesser trochanter and lower border of the neck of the femur can be clearly seen. When the exact position of these different bony points has been decided an oblique osteotomy is made in the shaft of the femur,

FRACTURE OF THE NECK OF THE FEMUR TREATED BY OBLIQUE OSTEOTOMY

BY

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No single surgical problem has received greater consideration during the past ten years than that of fracture of the neck of the femur. The difficulties met with in the treatment of fractures in this region were recognized by and mentioned in the writings of the earliest surgical authorities. To them the problem of obtaining bony union appeared to be insoluble, and their conclusions can best be summarized in the statement, "Fractures of the neck of the femur always result in non-union."

With the advance in the technique of radiography it was discovered that fractures of this part of the thigh-bone did not always occur at the same level, and that the prognosis as regards union depended on the site at which the line of fracture appeared. Thus, even with inadequate treatment, fractures of the base of the neck close to or impinging on the great trochanter almost invariably resulted in sound bony union, with or without deformity.

Fractures occurring nearer the head of the femur—the so-called transcervical or subcapital fractures—on the other hand, did not show this power of union, and as a result of the treatment, or rather want of treatment, which was common at that time non-union was to be expected in every instance. This attitude of defeatism and submission to the apparently inevitable was practically universal until the writings of Royal Whitman stimulated interest in the subject, and indicated that the problem, although difficult, was far from insoluble. By his work he proved that the uniformly bad results previously obtained were inevitable, as the popular treatment by sandbags and weights did not produce even approximate apposition of the broken surfaces, which is essential to the union of a fracture in any region. He also showed that these broken surfaces could be brought together by manipulation of the leg and hip, and that when this reduction of the displacement had been completed bony union was to be expected in a very large percentage of cases if fixation of the fractured surfaces was maintained for a sufficient period.

The Whitman Method

The technique of manipulative reduction as used by Whitman consisted in extension of the limb, followed by abduction to the fullest degree and complete internal rotation of the whole limb, after which he believed, on the evidence of a single x-ray photograph taken in the antero-posterior plane, that the fractured surfaces must be in apposition. The method of retention of the fractured surfaces consisted in the application of a plaster case extending from the thoracic wall to the toes of the affected side, the whole limb being fully abducted and internally rotated with the hip fixed in hyperextension.

Following his writings the treatment of the fracture was revolutionized, and the results were vastly improved, so that in the hands of a careful surgeon bony union was obtained in 50 per cent. to 60 per cent. of fractures, even of the transcervical type. Although this method was such a great advance on any previous form of treatment,

it had several serious drawbacks. Probably the greatest of these was the unavoidable fixation of the limb in a most uncomfortable position of extreme abduction with hyperextension at the hip-joint—a position preventing any attempt at sitting up and rendering the patient liable to the development of complications, of which the most serious was hypostatic pneumonia. The second great disadvantage of this method was the rigidity that so frequently followed prolonged fixation of joints in which some arthritic changes were probably already present. The third objection to the method was the very grave one that, even when carried out exactly according to the author's technique, non-union resulted in at least 40 per cent. of the cases.

The Smith-Petersen Operation

The next real step forward came from Smith-Petersen, who based his treatment on the belief that union of this fracture can only occur when, correct apposition of the fractured surfaces having been obtained, movement is prevented until union is complete. In order to obtain the necessary reduction and fixation he devised a method of treatment in which, by open operation, the fractured surfaces were brought into apposition and secured by means of a triradiate steel pin, which was inserted through the great trochanter, along the neck, and into the proximal fragment. This method, which has been modified in several details, has been used very extensively, and its enthusiastic disciples have claimed for it results far beyond those put forward by its originator.

The advantages of such a method are obvious. First, if the fragments can be securely held by such a pin, then fixation in plaster-of-Paris, with its great disadvantages, becomes unnecessary. Secondly, if the presence of a mass of metal does not counteract the advantages obtained by accurate apposition, then such a method, when correctly employed, should result in union in every instance. The method has, however, several disadvantages which may not be quite so obvious. Thus even in the most expert hands the operation is a serious one, involving considerable shock to the patient, and not always resulting in the placing of the pin in the desired position. If such a mishap should occur the operation may appear to be successful, but later, when walking is resumed, the small friable upper fragment cannot hold the pin, which cuts out through its upper border, leaving the patient more disabled than before. Another very serious drawback to the method, and one that has only recently been generally recognized, is the disintegration of the small proximal fragment which follows the operation in a certain percentage of patients in whom the pinning has apparently been successful.

This condition of disintegration—or, as it has been described, aseptic necrosis of the head of the femur occurring after apparently firm bony union—has been reported by Henderson to have taken place in 25 per cent. of his successful results. It is difficult to give an explanation of this complication, which may appear within a few months of the operation or at any time within the next two or three years. Probably it results from the presence of a large metallic mass, which causes a further diminution of the blood supply to an area of bone that is normally poorly nourished.

The results of the operation of pinning for fracture of the neck of the femur may therefore be summarized as follows. Disregarding the small percentage of patients who succumb to the operation on account of immediate or delayed shock, or from complications, bony union is to be expected in 70 per cent. to 80 per cent. of cases.

union is firm, and the shortening is slightly less than half an inch.

Case 3.—A woman aged 55 had a transcervical fracture of the neck of the femur. She was operated on three days later by oblique osteotomy and fixed in plaster for three and a half months. She is now walking well without pain and with perfect stability. There is good union of all three fragments.

Case 4.—A woman aged 54 sustained a transcervical fracture of the neck of the femur. She was operated on six days later by oblique osteotomy. After three and a half months' fixation in plaster union was complete in all three fragments. The patient is now apparently normal, without disability or pain, although there was temporary stiffness in the knee-joint for three months. This was cured by massage and voluntary movements, and did not prevent the patient from walking at any time.

A POSSIBLE DISCREPANCY IN THE ESTIMATION OF ASCORBIC ACID IN URINE

BY

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Tests have recently been evolved for the estimation of ascorbic acid in urine, and these have been used for the diagnosis of latent and subclinical scurvy. The main difficulty in their clinical application lies in the collection of specimens of urine passed during the night and early morning, since it is recognized that ascorbic acid is rapidly oxidized on standing, even when kept in dark tightly stoppered bottles; and because ascorbic acid is not excreted at a uniform rate a twenty-four-hours test at least is essential. It has been shown by Borsook *et al.* (1937) that in an alkaline medium ascorbic acid can be oxidized into dehydroascorbic acid, and further still, into 2:3-diketogulonic acid; but this latter reaction is not reversible, so that the passage of H_2S through the solution, although it converts the dehydroascorbic acid back to ascorbic acid, does not touch the diketogulonic acid, which is lost. The irreversible change from dehydroascorbic acid begins at a pH of about 4 and increases as the pH rises. In order to overcome this difficulty preservatives have been added to the urine in the form of acetic acid and sulphuric acid.

Although some workers appear to be aware of the destruction of ascorbic acid by sulphuric acid, it has seemed worth while to us to publish this paper. Youmans *et al.* (1936) used 10 per cent. 2N sulphuric acid as a preservative, and Mack and Tressler (1937) mention using 5 per cent. sulphuric acid for the inhibition of the oxidase present in vegetable juices.

The Relative Efficiency of Acetic and Sulphuric Acids

Before proceeding with the clinical application of these tests it occurred to us to examine the relative efficiency of these two acids. The micro-method of Birch *et al.* (1933) was used, with the exception of a teat pipette in place of a micro-burette. For this purpose specimens of fresh urine were employed, samples of each being tested by both methods, the urine being kept in dark bottles throughout the experiment. Control experiments with the same specimens of urine to which nothing was added were carried out simultaneously. It was found that at the end of twenty-four hours the readings of the two tests corresponded closely with a loss of 15 per cent. to 21 per

cent. of the reducing substance, the controls showing 26 per cent. to 31 per cent. loss. At the end of forty-eight hours the loss with sulphuric acid only increased by 2 per cent. or 3 per cent.; the loss with acetic acid rose to about 50 per cent., while the loss with untreated urine varied from 80 per cent. to 100 per cent.

With a view to still further checking these results the tests were repeated, but using solutions of ascorbic acid in water instead of urine, the concentration of ascorbic acid being kept similar to that usually found in urines so far tested. These tests showed that during the first five minutes the loss with solutions of 1 per cent. sulphuric acid was 20 per cent., with acetic acid 5 per cent., and with water 15 per cent. (In dealing with the aqueous solutions the acid necessary for the test was added at the moment of titration.) After twenty-four hours the loss with acetic acid varied from 27 per cent. to 36 per cent., while that occurring with sulphuric acid and unacidified solutions was in every case 100 per cent. Tests with sulphuric acid in higher concentrations up to 20 per cent. gave a correspondingly greater loss of ascorbic acid in the same time.

From these results it is clear that sulphuric acid tends to destroy rather than preserve ascorbic acid in aqueous solutions.

Reasons for Apparent Difference in Action

To account for the apparent difference in the action of sulphuric acid on ascorbic acid in aqueous solutions and those containing urine it was necessary to postulate one of three possibilities: (i) there was some reducing substance in the urine apart from ascorbic acid which was preserved by sulphuric acid; (ii) the urine in conjunction with sulphuric acid had a preservative action on ascorbic acid; (iii) the substance tested for was not ascorbic acid. In order to elucidate this problem two other tests were performed.

1. A known quantity of ascorbic acid was added to fresh urine in which the amount of reducing substance had been previously estimated, and the above tests were repeated on the resulting solutions.

2. Urine was allowed to stand until tests for the reducing substance were negative. To this were added known quantities of ascorbic acid, and the above tests again repeated, using samples of the same specimens of urine for each; in each case controls with the same amount of ascorbic acid in water, 1 per cent. sulphuric acid, and 5 per cent. acetic acid were carried out.

From these experiments the following results emerged:

In the experiment with urine containing a measured quantity of titrable substance the loss during the first five minutes with unacidified solutions and those acidified with 5 per cent. acetic acid was never more than 3 per cent., and the former always exceeded the latter by at least 1 per cent.

In the case of the solution acidified with 1 per cent. sulphuric acid the loss varied from 12 per cent. to 19 per cent. so that there appears to be an immediate destruction of ascorbic acid on the addition of sulphuric acid, the readings being only slightly lower than those obtained with ascorbic acid in water acidified with 1 per cent. sulphuric acid.

It was next found that during the following twenty-four hours the loss of titrable substance proceeded more slowly in sulphuric acid solutions than in aqueous solutions (28 per cent. compared with 45 per cent.) and only slightly more rapidly than in the case of acetic acid, which gave about 22 per cent. loss in the twenty-four hours subsequent to the first five minutes.

In the tests in which ascorbic acid was added to urine kept until all titrable substance had disappeared the results followed very closely those obtained with ascorbic acid in solution in water, sulphuric acid, and acetic acid.

as in Fig. 1, its lower border on the outer margin being slightly below the level of the lower border of the lesser trochanter, while it terminates on the inner side between this bony prominence and the lower aspect of the neck. After completing the osteotomy the limb is rotated by grasping the knee and twisting the thigh inwards and outwards, so that there may be no locking between any bony projections on the cut surfaces, which might obstruct the inward displacement. The shaft of the femur is now displaced inwards, partly by abduction of the limb, which enables the two cut surfaces to slide on each other, and finally by digital pressure on the upper and outer aspect of the lower fragment so that there may be no doubt as to its complete inward displacement. This displacement constitutes the essential part in the operation. It must be complete, so that the upper end of the lower fragment lies directly under the head of the bone (Fig. 2).

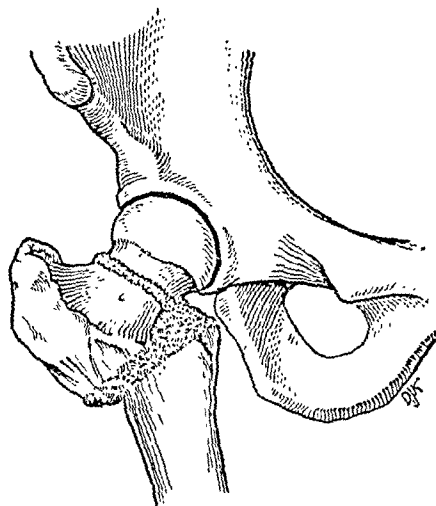


FIG. 2.—After displacement inwards of the shaft of the femur, showing the tilting of the head and of the trochanteric fragment.

If the surgeon is satisfied with any lesser displacement, then the essential point of the operation is lost, and the osteotomy will simply result in a pushing upwards of the trochanteric fragment.

The displacement being completed the position of full abduction may now be altered and the limb brought down to a position of not more than 20 degrees abduction. This alteration from the angle of full abduction is a most important step in the operation. If it is not carried out the presence of the femoral shaft in the abducted position prevents the rotation inwards of the upper fragment under the head of the femur—a position which is essential for the promotion of bony union in the original fracture, as shown in Fig. 2. After displacement of the shaft inwards the upper divided fragment, consisting of the great trochanter and base of the neck of the femur, must rotate inwards at its lower border on account of the common muscular attachments of the two fragments. Because of their close apposition the rotation of the trochanteric fragment produces a similar rotation of the head of the femur, so that the line of the cervical fracture, which was originally more or less vertical, is now almost transverse, and so long as this position is maintained muscular pull simply produces greater pressure between the broken surfaces. There is therefore a true coaptation of the broken surfaces in the original fracture, and this apposition cannot be altered because the shaft of the femur, lying in its new position, acts as a rigid strut.

No suturing, pinning, or wiring is necessary to retain the fragments in place, as the normal muscle tension keeps

the shaft of the femur in its new position. Fixation is obtained by the application of a plaster spica, extending from the lower ribs to the middle of the foot, which is held in the neutral position, the hip- and knee-joints being kept in slight flexion. After three and a half months' fixation the plaster case is removed, and the patient is treated for two weeks by non-weight-bearing exercises, which help to restore the muscle power that has been diminished by the fixation in plaster. No splint or surgical apparatus is then necessary or advisable, and walking can be resumed with complete confidence, as this period of fixation is always sufficient to obtain firm bony union between the two divided fragments of the shaft of the femur.

The operation is a simple procedure, giving but little shock to the patient, and can be performed successfully by any competent surgeon without the help of repeated x-ray photographs or an elaborate team of assistants. It has one outstanding advantage over the other two methods; when failure results from treatment by pinning or by Whitman's method of plaster fixation, the patient is left with an unstable weak hip, which must remain as a permanent disability or require some other extensive surgical procedure. If this operation by osteotomy does not succeed in producing a bony union at the original fracture in the neck of the femur it leaves a hip-joint that is perfectly stable, on which the patient can walk without discomfort and without pain, and with only one-half to three-quarters of an inch shortening. This point, of course, is of the very greatest importance, because these elderly patients should not be subjected to operations of which the results are doubtful, and the essential feature of this method is that the whole treatment is restricted to one surgical procedure.

The after-treatment by fixation in plaster might be considered as being open to the same objections as those of Whitman's method, and as one likely to be followed by troublesome rigidity, especially of the knee-joint; but this objection does not hold, as in this case there is no torsion of the limb and consequently no continued strain on the joint, which lies comfortably in slight flexion in its plaster case. In addition the avoidance of the position of hyperextension at the hip-joint is of the greatest help in diminishing the shock and the possibility of post-operative complications.

Illustrative Cases

The details of the cases treated are as follows.

Case 1.—A man aged 38 sustained a transcervical fracture of the femur, which was treated by rest in bed for five weeks. On examination there was half an inch shortening with considerable eversion of the limb. The position was corrected in four days by a weight extension, and after confirming it by radiographs an oblique osteotomy was performed. After three and a half months' fixation the plaster case was removed when fresh radiographs showed that bony union had occurred between all three fragments of the femur. The man can now walk five miles without any discomfort, and can ride a horse and swim with ease.

Case 2.—A man aged 45 who suffered from complete paralysis of both legs following an attack of infectious paralysis at 20 years of age. He had been able, with the use of crutches, to get about his garden and to work in the field, and the x-ray photographs showed that all the bones of the lower limbs were smaller and thinner than normal. Following a transcervical fracture two days previously there was three-quarters of an inch shortening of the affected leg, with some eversion. Full length and position were readily obtained by gentle pull, and the osteotomy was completed as described. The patient can now do all he could before his accident.

than British, possibly because in this country a greater distinction is drawn between pyloric stenosis and pyloric spasm, with the result that only the more severe cases are included in any given series.

As soon as Svendsgaard's paper was published treatment by eumydrine was started in the Children's Hospital of the Leicester Royal Infirmary, and has since been adopted as the routine treatment. Although the results have not been as brilliant as Svendsgaard's, they compare favourably with those of surgical treatment, and there is reason to believe that they will become progressively better. Svendsgaard's routine has been closely followed in this series—that is to say, the patients are given subcutaneous saline until diuresis demonstrates that dehydration has been overcome, then 5 c.cm. of a freshly prepared 1 in 10,000 aqueous solution (0.5 mg.) of eumydrine is administered orally half an hour before feeding. The children are breast-fed if possible: for the bottle-fed half-cream dried milk is used. Twenty-one babies have received this treatment. Three were nursed in a private hospital and eighteen in the Children's Hospital. (One baby who was admitted with pyloric stenosis during this period is not included in this series. He was premature, bottle-fed, and febrile. Eumydrine was tried for a few days, and although there was some improvement in regard to the vomiting the child was so ill that it was thought that surgical measures would give him the best chance. Rammstedt's operation therefore being performed. The child died from respiratory infection soon after.)

The three patients in the private hospital all recovered. Of the eighteen in the Children's Hospital three died, and in three eumydrine was apparently ineffective: two of these last were cured surgically, and one by means of syntropan (see below). The total mortality, therefore, was three out of twenty-one patients, or 14.3 per cent. Surgical statistics for the four previous years show a mortality of 23 per cent., ranging from no deaths in eight cases in 1933 to five deaths in twelve cases in 1932.

Of the deaths two occurred from secondary infection (pneumonia) after the pyloric stenosis had apparently been cured. In one of these cases arrangements had actually been made to discharge the patient, when he developed his fatal infection. Since the occurrence of these deaths each child has been nursed in a cubicle, and from that time secondary infection has been unknown in the eumydrine series. The other child died suddenly while taking a breast-feed. This may have been due to alkalosis, and now each patient receives 2 grains of ammonium chloride thrice daily while the vomiting continues.

Seventeen of these twenty-one babies were bottle-fed, so that a high mortality rate was to be expected; the figure of 14.3 per cent. cannot therefore be regarded as unsatisfactory, particularly when the individual fatalities are considered. The average duration of treatment was five and a half weeks, the shortest being two and a half weeks and the longest twelve weeks. Both the last-mentioned were private cases: the one which lasted twelve weeks developed mercism, which greatly prolonged his stay in hospital.

Treatment by Syntropan

As considerable success was experienced from the treatment of infantile pyloric stenosis by eumydrine, of atropine methyl nitrate, it was thought possible that equally good or even better results might follow the use of syntropan, the acid phosphate of dimethyl-dimethylaminopropanol ester of tropic acid, since that compound was stated to

be effective in the treatment of sea-sickness. The first baby to be treated by this drug was one in which eumydrine had apparently failed. After a month's treatment he had not gained weight and was still vomiting. He was then given 10 mg. of syntropan suspended in 2 c.cm. of water orally before each feed. Vomiting practically stopped immediately, but there was a little regurgitation for three weeks, during which time he gained over a pound in weight. He was discharged cured a month after the beginning of treatment by syntropan.

The hopes of success anticipated from this case, however, have not been realized in two subsequent patients. One of these, although the vomiting diminished and the bowels became more regular, developed pneumonia and died six days after admission, in spite of being nursed under conditions of isolation: the other did not respond to syntropan, and after four days of vomiting was treated by eumydrine. This apparently relieved the pyloric stenosis, and he lost all his symptoms and began to gain weight rapidly. Suddenly, however, he developed a temperature of 103° F. and died in a few hours from lobar pneumonia.

Conclusion

The standard of diagnosis adopted was radiological. Although in the great majority of cases visible peristalsis, projectile vomiting, and a palpable pyloric tumour formed a diagnostic triad, in a few cases the pyloric tumour was not felt. At first only these cases were radiographed, but later all were examined radiologically as a routine, as this presents the best method of differentiating pyloric stenosis from pyloric spasm and eliminates any personal factor. I do not myself consider this necessary, since it seems illogical to make two diseases of two conditions of identical age incidence and symptomatology, which are cured by the identical treatment, and which are differentiated only by one physical sign. But in view of the fetish made of the palpable pyloric tumour by many clinicians, radiological diagnosis was considered desirable for the purpose of recording cases.

The efficacy of eumydrine in the treatment of pyloric stenosis has been confirmed, and in the few cases in which it is not successful it is possible that treatment with some other tropic acid derivative such as syntropan will succeed. Further observations are being carried out regarding the place of this and other drugs in the treatment of the condition. Already, however, it is apparent that the problem in the medical treatment of infantile pyloric stenosis is not so much the failure of the antispasmodic as the liability of the patient to secondary infection.

Acknowledgments are due to Messrs. Bayers and to Roche Products Ltd. for the supply of eumydrine and syntropan respectively.

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In the December number of *Colorado Medicine* H. J. Corper pays a graceful tribute to the Viennese pathologist Anton Ghon (1866-1936), who twenty-five years ago described what has since been called the "Ghon tubercle." This periodical, beginning with the January, 1938, issue, has changed its title to *Rocky Mountain Medical Journal*, and at the same time has become the official journal of the Utah State Medical Association.

These results would appear to throw doubt not only on the efficiency of sulphuric acid as a preservative for ascorbic acid but also on the nature of the reducing substance in the urine as measured by these tests. In any case an explanation is obviously required to account for the fact that ascorbic acid in the presence of urine and sulphuric acid is destroyed, while the reducing substance in urine, as measured by these tests and presumed to be ascorbic acid, is preserved by sulphuric acid of the same strength. Incidentally it may be pointed out that the loss of reducing substance in lemon juice when kept for twenty-four hours in 1 per cent. sulphuric acid is 100 per cent.

Table showing Loss of Reducing Substance in Tests with Sulphuric and Acetic Acids

	Loss of Reducing Substance	
	First Five Minutes	Subsequent 24 Hours
Ascorbic acid in water	10	100
" " 1% sulphuric acid	20	100
" " 5% acetic acid	5	29
Reducing substance in urine		31
" " " +1% sulphuric acid ..		16
" " " +5% acetic acid ..		19
Ascorbic acid and tested urine .. .	2	45
" " " " + sulphuric acid ..	16	28
" " " " + acetic acid ..	1	22
Ascorbic acid and non-reducing urine .. .		100
" " " " + sulphuric acid		89
" " " " + acetic acid ..		31

A Possible Difficulty due to Catalysis

It was suggested to us that a possible difficulty in this work is due to catalysis of the oxidation of ascorbic acid by traces of copper present either (a) in ordinary distilled water or (b) in the sulphuric acid. Stotz *et al.* (1937) also state that the sensitivity of ascorbic acid to aerobic oxidation when copper is present as a catalyst is perhaps its most striking characteristic *in vitro*. Lyman, Schultze, and King (1937) point out that the instability of ascorbic acid in weakly acid solutions is due to the copper content of the solution, and that by its strict elimination ascorbic acid solutions are stable below a pH of 7.6. These authors used metaphosphoric acid, which inhibits the copper-catalysed oxidation of ascorbic acid by decreasing the amount of copper effective in the catalysis.

However, if the copper is present in the sulphuric acid the question still remains as to why there is a difference in the rate of destruction of the reducing substance in fresh urine in the presence of sulphuric acid (? + copper) and the rate of destruction of ascorbic acid which has been added to fresh urine in the presence of the same reagent. It also fails to account for the fact that there is an immediate (five minutes) loss of ascorbic acid in fresh urine with sulphuric acid (? + copper) of about 16 per cent., while the loss in the same time with acetic acid is only 1 per cent. (The catalysis should be inhibited by fresh urine.) The only distilled water employed in these two tests is that used to dissolve the dye, and this would be present equally in all these tests. With regard

to the occurrence of copper in the distilled water used in the other tests, if it is present it would appear to make the test unreliable for clinical purposes—at any rate, where sulphuric acid is used.

Van Eekelen (1936) has pointed out that ergothioneine and thiosulphates both reduce 2:6-dichlorophenolindophenol and that these substances must be removed by precipitation with mercuric acetate. In view of the fact that even with acetic acid there is a destruction of ascorbic acid on keeping, it is quite obvious that the results obtained will be of very doubtful value, unless the titration is carried out immediately after voiding. Although to do this may appear clinically tedious, it is scientifically sound, for examination of twenty-four hours' urine is necessary.

Summary

Sulphuric acid, which was still being used to "preserve" ascorbic acid in twenty-four-hour specimens of urine at the time of writing, has been shown to destroy ascorbic acid even when used in a concentration of 1 per cent.; with stronger solutions the destructive effect is greater still.

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TREATMENT OF INFANTILE PYLORIC STENOSIS BY ANTISPASMODICS

BY

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The majority of observers regard infantile pyloric stenosis as essentially a disorder of the neuro-muscular apparatus of the gastric outlet, rather than as the result of a hypertrophy of the pyloric muscle of unknown origin. It might have been expected, therefore, that this condition would respond well to medical treatment, but until recently experience has shown that this is not the case. Parsons (1933) states that only 20 per cent. of patients recover if treated medically, whereas a recovery rate of 80 per cent. can be anticipated if Rammstedt's operation is performed. Thompson and Gaisford (1935) in a review of 209 surgical cases find that the death rate was 14.4 per cent. Recently, it is true, Harris and Keynes (1937) have reported thirty-six cases treated surgically with only one fatality (2.8 per cent.), but these figures are exceptional in this country. As a rule surgical treatment may be expected to cure few patients out of five with this complaint, while with the older methods of medical treatment the majority of cases ended fatally.

Treatment by Eumydrine

In December, 1935, Svensgaard published the results of treating congenital pyloric stenosis with eumydrine, or atropine methyl nitrate. Only two of sixty-one patients died, giving the remarkably low mortality rate of 3.3 per cent. (or 1.6 per cent. if one death attributed to pyelonephritis is omitted). In this connexion, however, it must be remembered that foreign statistics are invariably based

Reviews

STANDARDIZATION OF VITAMINS

The Biological Standardization of the Vitamins. By Katharine H. Coward, D.Sc. (Pp. 228; 44 figures; 29 tables. 12s. 6d.) London: Baillière, Tindall and Cox. 1938.

For the purpose of her monograph Dr. Katharine Coward set out to gather together information that may be "of service to those workers who are engaged in the determination of the vitamin potency of food, of special preparations for therapeutic purposes, or of products obtained in the course of investigation of the chemical nature of the vitamins." In this task she has succeeded admirably. The book does not attempt to be a review of methods which are still in the process of elaboration. She has confined herself to those vitamins in which methods have been fully worked out and which she knows to be of value. In the preface she states: "I have drawn largely from my own experience, but I have been fully aware that in many laboratories the technique must be quite as good as my own and more suitable to the local conditions than my own could be. I have therefore dwelt largely on the principles which should underlie biological determination of the vitamins, giving details of my own or other techniques only as I myself know them to be good." In effect she has confined herself entirely to vitamins A, B₁, C, and D.

The first half of the book is given up to general principles, to a consideration of the animals suitable for biological standardization and the conditions under which they should be kept. Then she considers separately the various methods available for standardization of the four vitamins mentioned. This is followed by a chapter on the interdependence of the vitamins, in which Dr. Coward shows that in standardizing any given vitamin it is essential that the content of other vitamins in the animals' diet should be optimal. She finds that excess of other vitamins does not affect the conditions of standardization, and therefore it is wiser to err on the side of generosity. In the second half of the book she devotes some space to an admirably brief and simple examination of statistical methods designed to show how much the results are affected by variations between individual animals. Finally she considers statistically each of the methods she has described from the point of view of the accuracy obtainable. In each case Dr. Coward gives several different methods. Thus, for vitamin B₁ she describes four methods—namely, the cure of retracted neck in pigeons, the growth test in rats; the cure of convulsions in rats, and the cure of bradycardia in rats.

In the appendix there is a brief account of the second conference of the League of Nations Commission on Vitamin Standardization, and a table showing the vitamin content of some foods, expressed in international units per gramme. The book is carefully written, concise, and very clear, and should be well received.

SYPHILIS FOR THE MILLION

Ten Million Americans Have It! By S. William Becker, M.S., M.D. (Pp. 220; 6s. net.) Philadelphia. London. Montreal, New York: J. B. Lippincott Company. 1937.

The lay public is extraordinarily ignorant about venereal disease, and has very little idea of the prevalence of syphilis: a perusal of *Ten Million Americans Have It!* by Dr. S. William Becker, will cause it to open its eyes—

as it is meant to do. This book is written primarily for the layman, but many medical practitioners will find much information in it which they did not possess before. Few people realize the ravages of syphilis, and still fewer have any idea of the extent of its prevalence.

America is becoming "syphilis-conscious," and a campaign is in motion to bring home to people the importance of the disease, the necessity for treatment, and the means of eradicating it. Dr. Becker's book puts the matter in such a way that the layman can understand how widespread the disease is, how it is acquired, what its effects are, how it may be treated, and how eventually it may be stamped out; in this respect it fills a gap, for no publication of this sort has appeared for many years. The author knows his subject, since he is associate professor of dermatology and syphilology in the University of Chicago, and though a large part of the work is technical any ordinary person will be able to grasp his meaning.

Such a well-written monograph is almost above criticism, but is it a fact that "the majority of patients with syphilis will go through the early stages of the disease without suspecting its presence" (p. 118); and will three injections of neoarsphenamine in five days always prevent the development of the disease if given from eight to forty-eight hours after exposure to infection (pp. 146-7)? We hope that this excellent book will have a wide circulation here as well as in America, and so make plain to the public the dangers of venereal disease and the necessity for taking all possible steps to stamp it out.

THE ABNORMAL PERSONALITY

An Introduction to Abnormal Psychology. By V. E. Fisher. Revised edition. (Pp. 533. 12s. 6d. net.) New York: The Macmillan Company. 1937.

A second edition of this book has appeared after seven years; much of it has been rewritten, though the general plan has been retained. After remarking how commonly we meet with abnormal persons and how often we may detect the abnormal psychological reaction in ourselves and in each other, the author adopts the wise plan of proceeding from the normal to the abnormal. He points out that the personality is the sum total of all aspects of the individual and of all the mechanisms of which he is made up and which he employs, and deals not only with the average normal but with variations encountered. He discusses introversion-extroversion at some length as well as other psychological variants, and also biological variants such as those described by Kretschmer. He then proceeds to discuss the adjustment of the personality to life, and contends that if this adjustment is to be satisfactory the individual must direct his interests and efforts towards future ends: he must achieve by his efforts a reasonable satisfaction of his own desires: his overt activities must be in reasonable accord with the dictates and demands of his group; and his inclinations must tend towards the perpetuation and future welfare of the race. The different methods of reaction to difficulties are next discussed: satisfactory methods, such as overt or implicit trial and error and inhibitory reactions; less satisfactory methods, such as compensations, rationalizations, and overreactions; still less adjustive methods, such as perseverations, negativism, regressions, and infantile reactions; and finally unsatisfactory reactions such as repression, self-repudiation, projection, and what the author calls undoing.

This leads naturally to the psychoneuroses, which the author describes under the headings of neurasthenia; anxiety neuroses: phobias, obsessions, and compulsions; hysteria; and multiple personalities. To Dr. Fisher the term "neurasthenia" has a connotation different from that

Clinical Memoranda

Extra-uterine Pregnancy with Several Months' Retention of Dead Foetus

A case of what appeared to be a full-term ovarian pregnancy is here reported.

CASE RECORD

On April 27, 1937, the patient, a mestiza or half-caste, was admitted to the Urco Mission Clinic suffering from a large abdominal swelling and complaining of general ill-health. Abdominal and vaginal examination showed the presence of a hard globular slightly movable tumour arising in the pelvis, corresponding in size to that of a full-term uterus, but independent of the uterus, which was of normal dimensions and pushed to the right. The cervix was hard and easily reached.

The patient was a widow aged 30, having lost her husband in April of the previous year, and she worked as a cook. Menstruation began when 12 years of age: cycle 3/28, with normal loss. A 3-para, her first pregnancy ended in the seventh month, the second and third normally at full term. Her youngest child was 3 years of age. There were no abortions. In January, 1936, she had a normal period, beginning on the 8th. In February she menstruated from the 1st to the 20th, and in the middle of this period began to suffer from nausea and vomiting at any hour of the day. The vomiting was not excessive, but continued almost daily until June. On May 15 she first noticed quickening, and movements continued up to November. There was amenorrhoea from March to the beginning of November. In September she suffered from a severe attack of pain, which lasted for nearly a week and which she imagined to be labour pains. Following this she began to complain of "general ill-feeling" and spasmodic abdominal pains that came and went for two months. There had been secretion in the breast throughout all this period, for she had only weaned her 3-year-old child in April. In November, during the first week, the abdominal pains increased in severity, and this condition was accompanied by a moderate loss of blood during fifteen days. In the first week each of December, January, and February she had a normal four-day period. During this time the abdominal swelling had not increased in size, but there was a progressive deterioration in health, with constipation and insomnia.

On May 1, 1937, I opened the patient's abdomen under spinal anaesthesia through a median subumbilical incision. The omentum was moderately adherent to the anterior and superior surfaces of the tumour wall and was easily separated with the fingers. The tumour had a pedicle, four inches wide and one and a half inches long, consisting of a double layer of thickened peritoneum with a few moderate-sized vessels, and with what appeared to be the cord-like left tube stretched across it. The pedicle was ligatured and cut without difficulty and the tumour lifted out. A little free serous fluid was present in the pelvis. The uterus, right ovary, and tube were normal; the left ovary could not be found. The abdominal wall was closed in layers.

The tumour consisted of a sac completely pressed about a fully developed female child. There were no anatomical deformities. The fibrous wall of the sac had a uniform thickness of 3 mm., except for a thickened portion having a diameter of five inches which served as the placenta and into which the eighteen-inch cord had a battledore-type insertion. The inner wall was lined by a thin and a thick membrane. A little dark gelatinous liquor amnii was present, while a great quantity of yellow meconium covered the surface of the child. The sac and "placenta" weighed three-quarters of a pound and the foetus 7½ lb.

The foetal tissues had a plasticine-like consistency that received and retained digital impression. Skin—cream-coloured—and patches of lanugo were present over the right shoulder and over the lower lumbar region. The hair of the foetus

was black and long, and that on the side of the scalp which had received the pressure of the sac wall separated off with slight rubbing. The eyeballs were markedly shrunken and were hidden deep in their sockets. The mucous membrane of the mouth was grey. The nails reached well beyond the finger-tips. The chest wall was collapsed; the anus and vaginal opening were widely patent; the intestines were dark grey in colour and empty. The heart was shrunken and contained a little dark, thick semi-gelatinous fluid.

On May 29 the patient was discharged well. Four months afterwards she reported an abortion in the third month.

RONALD H. PAYNE, L.R.C.P. & S.,
Superintendent, Urco Clinic.

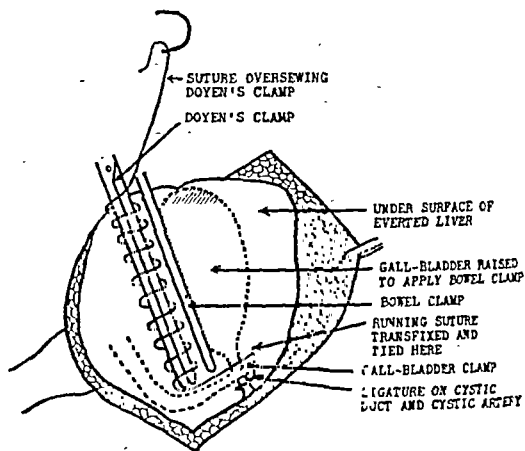
Cuzco, Peru.

A Modified Cholecystectomy

The following account of a modified technique for cholecystectomy may be of interest.

TECHNIQUE OF OPERATION

The gall-bladder is exposed and the cystic duct and artery ligated. Doyen's clamp is then applied firmly in close apposition to the liver along the peritoneal attachment of the gall-bladder, in such a way that the points of the clamp meet the ligature which secures the cystic duct and artery. A bowel clamp is next applied parallel to the Doyen's clamp, and one-twelfth of an inch or less away from it. An assistant steadies the clamp and exerts a gentle downward traction while a scalpel blade divides the tissues between the two clamps, being kept close to the Doyen's clamp. An ordinary gall-bladder clamp is then attached to the cystic duct close to its ligature, and the duct is cut across between the clamp and the ligature. The freed gall-bladder is now removed with its clamps *in situ*.



With a full-curved round-bodied needle six to eight inches of No. 2 chromic catgut are then transfixed and tied at the end of the Doyen's clamp and adjacent to the cystic duct ligature. The same thread then lightly oversews Doyen's clamp to the extremity of the previously severed gall-bladder attachment. Doyen's clamp is then withdrawn and the running suture pulled tight and locked. A thin bloodless line of peritoneal tissue will then be found to represent the previous attachment of the gall-bladder.

COMMENT

This method has the following advantages: (1) there is no oozing of blood such as occurs during dissection of the gall-bladder from the liver; (2) a running suture can be applied in about one-quarter of the time occupied by the somewhat tedious method of dissection; and (3) there is no possibility of puncturing the gall-bladder. It is obvious, of course, that this new technique is not suitable for every case. It will be found of value, however, in many cases of empyema of the gall-bladder, for a minimum of soiling of tissues is incurred.

CECIL F. TUCKER, M.B., B.S.

Brighton, Victoria.

examinations but also to graduate nurses and health visitors, and to persons less intimately associated with the tuberculous patient, such as almoners and sanitary inspectors. The book covers every aspect of tuberculosis, and deals fully and understandingly with nursing details and the relations of patient and nurse. It lays, however, too much stress on the principle of auto-inoculation as the basis of treatment in a sanatorium, which, moreover, is made to appear too much an educative centre and too little an institution in which active treatment is, or should be, carried out: and simplification of the indications for special forms of treatment, such as artificial pneumothorax, phrenic interruption, and sanocrysin, has been achieved at the expense of accuracy in the most modern light. Finally, some of the material included is really unnecessary, such as the treatment by nascent iodine, the description of the various tuberculins or the preparation of their dilutions. The illustrations, except for the badly reproduced chest skiagrams, are very good indeed, and a special word of commendation must be said in regard to the summaries at the end of the chapters and the glossary of technical terms at the end of the book. Altogether this is the best book we know of on tuberculosis for nurses.

Notes on Books

The Dissection and Study of the Sheep's Brain, by Mr. JAMES WILKIE of Guy's Hospital, is a type of book which we should like to see more of. It is a concise and accurate account of the brain of a macrosmatic mammal compared with that of the human brain; and since the olfactory part of the brain and the floccular and parafloccular regions of the cerebellum are specially well developed in the sheep, their study in the sheep's brain should prove a valuable help in obtaining a clear conception of these parts in the human brain, in which they are only feebly developed. By a comparison of the degree of development of such parts as are known or are believed to be associated with particular functions, the knowledge obtained by experimental evidence of localization of function may be very materially assisted, and we confidently recommend the book to all who are interested in the comparative anatomy and functions of the brain. It is published by Humphrey Milford, Oxford University Press, at 6s.

The fact that a second edition of Dr. CYRIL BURT's book on *The Subnormal Mind* has been called for little more than two years after the publication of the original edition is perhaps the best testimony to its value and practical usefulness. The interval has indeed been so short that very little change in the text has been necessary. Beyond a general revision the only difference between the editions is that there has now been added an appendix giving a useful list of stimulus-words for the free association test. In the *Journal* of September 28, 1935, there was a review of the first edition. We may remind our readers that we then assessed its merits and value highly, and that it dealt with its subject very fully and in a manner which is directed towards its use in practice by both the doctor and the teacher, as well as constituting it an excellent textbook for students in both professions. Its successive chapters deal with the normal mind, the mentally deficient, the dull or backward, the delinquent, the neurotic, sthenic neuroses, sthenic neuroses, and ascertainment and incidence. Although this new edition (Oxford University Press, 10s. 6d.) contains a few pages more than the original, it is of similar make-up and slightly smaller in handling.

We have received the fifth edition of Dr. OLIVER S. ORMSBY's well-known *Practical Treatise on Diseases of the Skin* (Kimpton, 52s. 6d.). It is a substantial and com-

prehensive work, and the author, who is assisted by Dr. C. W. Finnerud on the pathological side, has done his best to prevent the book from growing into too unwieldy dimensions with its successive editions. It is well illustrated, mostly from good photographs, but the three coloured plates hardly come up to the general standard of excellence maintained by Dr. Ormsby.

The Essentials of Pharmacology. Materia Medica and Therapeutics for Medical Students, by Dr. D. M. MACDONALD, is a pocket volume of 280 pages (Kimpton, 7s. 6d.). Special attention is paid to the description of the characters of drugs and the forms in which they can be prescribed. The book opens with brief but valuable notes on prescribing, incompatibility, channels of administration, poisons law, etc.

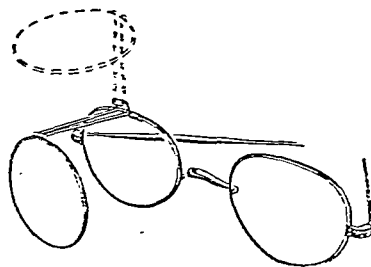
A new American *Handbook of Orthopaedic Surgery*, by Dr. A. R. SHANDS, jun. (Kimpton, 21s.), has the merit of not being too long, and the information is reasonably up to date, although an American bias is unmistakable. Illustrations are an important part in a book on orthopaedics, and it is therefore surprising to find that each one is a drawing or diagram, even the radiographs. It is difficult to see why the last should not be properly reproduced as photographs. The whole effect is very nineteenth-century. The author has succumbed to the attractions of the rare disease when he could ill afford the space. He gives a page to fungus infections of bone, but has little to say about the treatment of active rickets: "The treatment of its active stage is of a pediatric nature." This is carrying specialization too far. The book also suffers in that principles of treatment are either neglected or submerged in a mass of detail.

Preparations and Appliances

MAGNIFIER FOR SMALL OPERATIONS

Dr. F. OLIVER WALKER (Dartford, Kent) writes:

I have often felt the need of a powerful magnifier which could be used for the removal of foreign bodies from the eye. I had tried a watchmaker's eyeglass. This was not entirely satisfactory owing to the difficulty of holding it in the orbit and



because of steaming of the lens. I consulted Messrs. Clement Clarke, Ltd., of 16, Wigmore Street, W.1, and suggested to them that they might make me a spectacle to my own correction and a 14OD lens, this lens to be fitted on a swinging arm in front of one eye, in my case the left, because the left is my master eye. There is a spring clip which keeps the lens out of the way when not required.

I find the device excellent in every way, since it leaves my hands free for the removal of a foreign body or for the purpose of other minute operations. Such a device might also be useful to dermatologists or to biologists for minute dissections. In fact its uses could be endless. I would suggest that it would be useful to watchmakers, jewellers, and others. The spectacle is comfortable in wear and the lens is in a well-balanced position. I am grateful to Messrs. Clement Clarke for their co-operation and help in producing the spectacle.

generally held in this country. He describes the neurasthenic as an introverted personality who is strongly motivated. That person's feelings and emotions are very intense, and he takes himself very seriously. He tends to react by compensation because he is too inclined to yield to the influence of the other person, and this may lead to negativism. He introspects endlessly in a search for the causes of his difficulties, and he rationalizes in order to keep himself from seeing that he is striving to retain and aggravate his own symptoms.

Psychopathics and epileptics are discussed as constituting a border-line between psychoneuroses and psychoses; and then follows a survey of the functional psychoses under the headings of manic-depressive psychoses; involution melancholia; paranoia and paranoid conditions; and schizophrenia or dementia praecox. Next general paresis, and alcoholic, drug, and senile psychoses are described as the commoner organic psychoses. Three chapters on sleeping, dreaming, and suggestion and hypnosis are inserted at the end of the section, partly because these reactions are important for the life of the individual and have an interest in themselves, and partly because they provide the student with a means of gaining considerable insight into the nature of mental organization and personality in general and, when carefully studied in relation to a specific individual, of arriving at a better understanding of that individual's particular personality or mental make-up. A chapter is also devoted to the feeble-minded individual, and there is a "last word on mental hygiene."

This is a well-thought-out and well-presented book, certainly worthy of the close attention of all those interested in psychopathology and psychotherapy.

MELLOR'S CHEMISTRY

A Comprehensive Treatise on Inorganic and Theoretical Chemistry. Volume xvi. By J. W. Mellor, D.Sc., F.R.S. (Pp. 811; 94 diagrams. 63s. net.) London, New York, Toronto: Longmans, Green and Co. 1937.

Mellor's *Chemistry* is now complete with the issue of the sixteenth volume. This volume deals with the metal platinum, and contains the general index. The preceding volumes have been described in this *Journal* as they appeared serially, and little can be said of the final volume that has not been said before. The present is, however, a fitting occasion for a recapitulation of the main features of the treatise. It is the most comprehensive work on inorganic chemistry that has yet been seen. The word "comprehensive" is not here lightly used. Information of every kind and of the most recondite nature is arranged and co-ordinated in a form that renders easy the search for knowledge of facts; and not only the knowledge of finally verified facts but the observations made in the experimental efforts of workers who only partially succeeded in their object. The treatise is all-embracing. A map illustrating the geographical distribution of platinum, a history of the scanty esteem it once enjoyed, statistics of its economic employment, a diagram showing its fluctuating price—all these are given in detail sufficient to satisfy every kind of inquirer. But all this wealth of detail belonging to the fringe of pure chemistry is insignificant by comparison with that concerning chemistry proper. Every kind of chemical reaction that has been recorded in literature is here set down in an arrangement connecting it with related or kindred reactions. The cost of the work involved in producing this arrangement is beyond estimate, as is also the extraordinary gift of ordered knowledge and power of grasp which were necessary to effect it. The bibliographical

references are so exhaustive that it is difficult to believe that anything relating to inorganic chemistry has been omitted.

The work will long remain monumental in the world's chemical literature. The most exacting criterion of excellence is reached when a reader puts down a book with a new feeling of ignorance after perusing a subject that he thought he knew well. It is safe to say that, no matter in whose hands, this book may be judged by that standard and will pass the test.

DISEASES OF VULVA, VAGINA, AND CERVIX IN PREGNANCY

Maladies des Femmes Enceintes. IV. Affections des Muqueuses Génitales. By Henri Vignes. (Pp. 126; 2 figures. 24 fr.) Paris: Masson et Cie. 1937.

This volume is the fourth in the well-known series on the disorders of pregnancy edited by Vignes, and is devoted to diseases of the vulva, vagina, and cervix. It might be suggested that such a work is superfluous, for there is hardly any gynaecological condition which is not affected by pregnancy. But though every obstetrician is naturally familiar with the diseases described, their presentation in relation to the particular changes involved by pregnancy cannot but be of value in spite of a good deal of inevitable redundancy. All the usual, and most of the rare, conditions are described in detail, but the main interest naturally lies in the therapeutic aspect. In this connexion it may be noted that the general lines of treatment suggested are mainly similar to those adopted in this country. Of particular interest is the discussion on carcinoma of the cervix, for the combination of malignancy and pregnancy is always a difficult problem, particularly when the growth is discovered about the twenty-eighth week. There has been much discussion, mainly in Belgium, as to whether it is justifiable in such a case to delay treatment until the child is safely viable, and it is the practice of some surgeons to leave the decision to the patient and her relatives. But the accelerated growth of carcinoma during pregnancy may change an operable tumour into a hopeless one within the course of a few weeks, while the sedative benefits of radium should not be withheld from an advanced case, for the patient will not in any eventuality survive parturition very long, and must also be subjected to the added strain of Caesarean section later on.

The work is well indexed, copiously annotated, and written with the author's characteristic fluency and style, and, though undistinguished by any striking innovation or originality, it is a most useful summary of a number of not uncommon combinations.

HANDBOOK OF TUBERCULOSIS FOR NURSES

A Manual of Tuberculosis for Nurses and Public Health Workers. By E. Ashworth Underwood, M.A., B.Sc., M.D., D.P.H. With an Introduction by Professor J. R. Currie, M.D., F.R.C.P.Ed., D.P.H. Second edition, revised and enlarged. (Pp. 404; 58 figures, 6 tables. 8s. 6d. net, postage 6d.) Edinburgh: E. and S. Livingstone. 1937.

Nurses occupy somewhat an anomalous position in connexion with the teaching of medicine, and the task of preparing a really satisfactory textbook for them is by no means simple. Dr. Underwood has gone a long way towards accomplishing such a task successfully in regard to tuberculosis. We welcome the publication of this second edition of his excellent little book, the scope of which has been appreciably widened in order that it should appeal not only to the probationer preparing for

the pain was experienced. Sir Thomas emphasizes the importance of assessing the quality of the pain. The common descriptive terms such as "tearing," "boring," "cutting," or "stabbing" are of little value. Clear-cut evidence is presented that three kinds of somatic pain exist, coming respectively from skin, muscle, and tendon, and differing qualitatively in their characteristics. Skin pain is always of the same quality, whether it is produced by pricking, burning, passage of an electrical current, or the application of irritant poisons. The short painful stimulus produced in any of these ways gives rise to a sensation best known as "pricking." More prolonged stimulation of the skin sets up a "burning" pain, whether it is due to heat or not. No additional term need be introduced to describe the pain which is the after-effect of injuries such as continued friction or ultra-violet burns, as it has no distinctive qualitative characteristics. Examination of the muscles shows that they can be the seat of a distinctive pain which is disagreeable, continuous, possibly wavering a little in intensity, diffuse, and difficult to locate; though indescribable, it is quite different from skin pain. It can be produced by such varying procedures as exercising a muscle under ischaemic conditions,^c squeezing the muscle violently, or injecting into it hypertonic or acid isotonic saline solutions. A point of clinical interest is that muscle pain may often be referred to distant parts. The third kind of pain recognized by Sir Thomas Lewis he calls "web" pain, because it is easily elicited by squeezing the short web of skin between adjacent fingers; but pain indistinguishable qualitatively can be elicited by appropriate stimulation of tendon or periosteum. Sir Thomas suggests that the most satisfactory way of detecting objectively the quality of a pain felt by a patient is to reproduce each of the three kinds of pain already described, preferably during an attack of spontaneous pain, and to ask the patient to judge whether any one of them is identical with the pain which he is experiencing. In this way, in an observant and co-operative subject, evidence as to site of spontaneous pain can probably be obtained. This method may be of special value in the differentiation of the different forms of headache; during quiescent periods pain could be experimentally induced from the muscles or aponeuroses attached to the occiput to see whether it resembles or differs from that of which the patient ordinarily complains. Such studies can be extended by attempting to reproduce the pain, not only as regards quality and distribution but also as regards intensity and the circumstances in which it naturally arises. This is well shown in the experimental

reproduction of the muscle pain of intermittent claudication or the skin pain of erythromelalgia by appropriate means.

Many additional questions will occur to every reader once the subject has been clarified so far, and they will doubtless be answered by future research. Is, for example, the referred somatic pain of visceral disease distinctive in quality or is it identical with one of the three types recognized by Sir Thomas Lewis? If the latter is found to be the case interesting conclusions follow. It has already been pointed out that the quality of pain, as of all sensations, depends on the region of the sensorium activated. If visceral referred pain proves to be identical with some form of somatic pain it would mean that visceral afferent impulses can irradiate widely in the brain to reach the cerebral areas normally concerned with the recognition of pain of somatic origin. Again, is the "protopathic" pain which is felt during recovery from nerve lesions a distinctive entity, and what is the quality of so-called central pain? Posing these questions will probably lead to their satisfactory elucidation. But theoretical considerations aside, Dr. J. H. Kellgren's paper on page 325 of this issue shows that immediate practical results may follow rapidly on a seemingly academic inquiry. He finds that in painful muscular states usually called "myalgia" or "fibrositis" localized areas can be found which are tender to palpation; if pressed upon a diffuse widespread pain is set up similar to that from which the patient suffers during his attacks. Evidence is presented that this more generalized pain is probably of the referred type. When the tender spots are infiltrated with a local anaesthetic both the localized and the referred pain disappear, sometimes for periods as long as one to four weeks. Dr. Kellgren's fuller account will be eagerly awaited, but enough clinical details are given to indicate the probable value of this form of treatment; it certainly offers scope for useful work on the part of the general practitioner. It is clear also that other forms of local therapy such as heat and massage or radiation might be more usefully applied to the local tender spots which are probably the actual foci of disease rather than to the wider area of referred pain or disability.

LONDON WATER IN 1936

The high standard of purity which is justly claimed for the water supplied by the Metropolitan Water Board to the London area has been achieved as a result of the efficient operation of an imposing and well-devised system of reservoirs, wells, filters, and other purification plant. The whole structure

^c Lewis, T. (1932). *Arch. intern. Med.*, 49, 713.

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PAIN AND DISEASE

Physiological investigations during the last decade, particularly those of Professor E. D. Adrian¹ in this country, have much clarified our ideas of the mode of action of the sensory organs, especially those in skin and muscle. There is still uncertainty about the exact anatomical identity of the nerve-endings in the skin which subserve pain, touch, and temperature, but there is little doubt that there is in each case a specific type of nerve-ending which responds to the appropriate stimulus and to none other. Similarly, the muscle spindles and tendon organs respond specifically to changes in tension produced by stretch or by active muscular contraction. Little, however, is known about the nerve-endings responsible for pain sensitivity in muscle, though there is no doubt that various experimental procedures and disease conditions may set up pain in these structures. The *quality* of a sensation depends on the properties (largely not understood) of the region of the brain in which the impulses from the sense-organ end. To take a well-known example: activation of the appropriate region of the occipital cortex gives rise to the sensation of sight whether it is brought about by light falling upon the eye, artificial stimulation of the optic nerve trunk, or irritation of the cortex itself. The *intensity* of the sensation depends on the frequency of the impulses set up in the peripheral sense-organ, and this may vary from a few to several hundred per second. The *extent* of the area stimulated is judged from the number of afferent fibres simultaneously activated, and this in turn is related to the number of nerve-endings which are discharging. Less is known about the way in which sensation is localized, but probably this depends on the anatomical connexion of points in the peripheral sensory field with special groups of cells in the sensorium. The sensation of pain is of special interest both to doctor and to patient, if only for the reason that it is so often responsible for bringing them together. It is quite clear that pain must be regarded as a specific sensation, and not as a mere intensification of other sensations. Our knowledge of visceral sensation is more fragmentary. Normal afferent impulses from viscera do not reach consciousness but expend themselves in producing various reflex modifications of visceral or somatic activity. The extent and importance of the changes that they can set

up are ably dealt with in a recent monograph by Schweitzer.² Thus, stimulation of the central end of the vagus,³ distension of the urinary bladder, or gentle handling of the small intestine may diminish muscle tone and abolish the knee-jerk. Similarly, increasing the pressure in the carotid sinuses not only reflexly affects circulation and respiration but also may modify skeletal muscle tone and induce a condition indistinguishable from normal sleep. In exceptional circumstances stimulation of the viscera may give rise to pain which may be vaguely localized or referred to distant parts. In the case of the gut the appropriate stimulus is usually a change of tension in the muscle coat; in the case of the heart it results from the action of chemical substances liberated during ischaemia. The important researches of Morley⁴ and Capps⁵ have proved the reality of referred pain, particularly from the parietal pleura and peritoneum. Thus stimulation of the central part of the diaphragmatic pleura gives rise to pain which is referred to the neck and shoulder; this is attributed to the fact that both regions are supplied by the same segments of the cervical cord. Similarly, stimulation of the peripheral part of the diaphragm, which is supplied by the lower thoracic nerves, gives rise to pain which is referred to the somatic distribution of these nerves in the skin and muscles of the abdominal wall and back.

An important advance in our understanding of somatic pain is made in Sir Thomas Lewis's interesting paper in this issue on page 321. Using the simplest of experimental methods with characteristic skill and elegance, he has reclassified somatic pain and described methods of investigating it in patients. A complete description of pain should "comprise a statement of severity, of kind or quality, of relation to time, and of the locality and the circumstances in which it is felt." "Severity" is briefly dismissed because it is thought to be too dependent on the mental and emotional make-up of the patient to be gauged with any accuracy. Stress is laid on the duration, and more especially on the time-intensity curve, of pain for diagnostic purposes. The pain of angina pectoris, for example, rises to a plateau and lasts for a long time with little fluctuation before diminishing and vanishing; on the other hand, inflammation of the dental pulp causes pain which is felt in rhythmic pulses. Localization of the site of pain is of the greatest importance, but becomes difficult when one deals with the deeper visceral and somatic structures. Detailed information on this point is not readily elicited when much time has elapsed since

¹ *Die Irradiation Autonomer Reflexe*, Basel, 1937.² Schweitzer, A., and Wright, S. (1937). *J. Physiol.*, 88, 459.³ *Abdominal Pain*, Edinburgh, 1931.⁴ *Clinical Study of Pain*, New York, 1937.⁵ *Basis of Sensation*, London, 1928; *Physiol. Rev.*, 1930, 10, 336.

cation will be followed with much interest. Further point is given to these researches by the recent statistical inquiry into menstrual periodicity carried out by Gunn, Jenkin, and Gunn.⁴ As the result of a detailed investigation into the menstrual histories of nearly 1,000 women these workers concluded that the variation is so considerable that it is impossible to specify a menstrual "type," in the sense of a regular interval. While this statement may appear rather sweeping, there is no doubt that it is true enough to emphasize the inaccuracy of the Ogino-Knaus calculations and to add point to the value of alternative methods.

RESULTS OF SANATORIUM TREATMENT

It is now generally recognized that the remote results of "sanatorium treatment" are far from satisfactory, and there is a tendency to throw all the blame for this on inadequate "after-care." The actual methods of treatment carried out in the sanatoria are rarely questioned. That more attention needs to be paid to these is impressed upon us by reading, in his annual report for 1936, the results obtained by Dr. Peter W. Edwards at the Cheshire Joint Sanatorium. Of 331 patients, no fewer than 210 (65 per cent.) stayed over six months. Artificial pneumothorax was given to 199 patients, phrenic evulsion was carried out in 91 and adhesion-section in 108; gold salts were administered to 125 patients. The immediate results, as judged by the finding of tubercle bacilli in the sputum, are particularly striking in view of the fact that in this institution concentration and culture methods are routine procedures when bacilli are not found by direct examination: 65 per cent. of the patients admitted had tubercle bacilli in the sputum, which were present in only 23 per cent. of those discharged. A negative sputum examination was obtained finally in all those classified as T.B. + 1, in 70 per cent. classified as T.B. + 2, and in 52 per cent. classified as T.B. + 3. Dr. Edwards gives the ultimate results in 3,452 patients for a period covering one to twelve years after discharge from the sanatorium, with particular reference to those treated by artificial pneumothorax and by phrenic evulsion. The amazingly small number of fifty-seven (1.65 per cent.) were untraced. The percentages of patients still alive in March, 1937, in the groups T.B. -, T.B. + 1, T.B. + 2, and T.B. + 3 were 80, 84, 61, and 21 respectively. Of the patients selected for artificial pneumothorax from 1924 to 1932 in whom phrenic evulsion was also carried out 83 per cent. were alive four years later when the collapse was complete; 60 per cent. when it was partial; and 46 per cent. when the induction failed. The respective percentages in similar groups when phrenic evulsion was not done were 62, 22, and 25. The results of artificial pneumothorax induced between 1924 and 1934 with and without phrenic evulsion, "according to choice," and according to the Ministry of Health classification, as judged by survival to March, 1937, are also indicated in tables. These results, both immediate and remote, as set out in the report are much superior to those usually published from other institutions, and speak greatly in favour of artificial pneumothorax and of phrenic evulsion. The

claims made at the Cheshire Joint Sanatorium therefore appear to deserve careful statistical examination by an independent authority. If confirmed, the findings of Dr. Edwards should show the way to improving the results of sanatorium treatment by directing attention to methods of treatment in institutions as well as to after-care. In one other respect the report is outstanding—in the amount of pathological work carried out in the well-equipped pathological laboratories. It emphasizes the indispensability of such a department in every institution for the treatment of tuberculous persons.

LAURA BRIDGMAN

The Perkins Institution for the Blind in Watertown, Massachusetts, recently celebrated an interesting centenary. In 1837 the first blind deaf-mute to be taught the use of language was admitted to this pioneer school. As an infant Laura Bridgman had suffered severely from fits. In her twenty-fourth month she had an attack of scarlet fever, which destroyed both sight and hearing and almost completely abolished smell and taste. At the age of 8 this triply handicapped child attracted the attention of Samuel Gridley Howe, first director of the school, who succeeded in penetrating her darkness and helped her to adjust herself to life through the sense of touch. She learnt to sew, and her embroidery was so beautiful that she became a teacher of sewing in the institution. She was kept alert and happily occupied until her death at the age of 60 in 1889. Her story, which Dickens tells in his *American Notes*, is pleasantly related in the December number of the *Scientific Monthly* (1937, 45, 573). Its scientific aspects were discussed by Professor Frederick Tilney in a paper entitled "A Comparative Sensory Analysis of Helen Keller and Laura Bridgman," which was published in *Archives of Neurology and Psychiatry* (1929, 21, 1227).

A special lecture on "Some Recent Work in Experimental Cancer Research" will be given by Dr. W. E. Gye, Director of the Imperial Cancer Research Fund, at the Royal College of Surgeons, Lincoln's Inn Fields, W.C., on Wednesday, February 16, at 5 p.m.

We regret to announce the death of Sir Josiah Court at the great age of 97. He qualified M.R.C.S. in 1863, and will long be remembered for his investigations into the aetiology and incidence of miners' nystagmus.

An address entitled "The Doctor in the Home" will be given to senior students of the twelve medical schools in London and to those who have qualified in the last two years by Sir Kaye Le Fleming, M.D., Chairman of Council of the British Medical Association, on Tuesday, March 8, at 5.30 p.m., in the Great Hall of B.M.A. House, Tavistock Square, W.C. Tea in the Members' Lounge from 5 to 5.25 p.m. A film illustrating the work of the Association will be exhibited at 5.15 p.m., and after the address there will be a "talkie" film dealing with physical fitness education, a subject to which Sir Kaye will allude. Fourth- and fifth-year students who do not receive a card of invitation by February 27 should seek one from their Dean, or from the Honorary Secretary of the Metropolitan Counties Branch at B.M.A. House.

⁴ *J. Obstet. Gynaec. Brit. Emp.*, 1937, 44, 839.

with practice does occur; but all workers are agreed that it is slight and quite insufficient to account for the remarkable improvement which follows vitamin A therapy. A close relation has repeatedly been found between the incidence of night blindness and the previous diet of groups of individuals. Jehgers,¹ for example, studied the dietary history of university students who had been placed by the dark-adaptation test into two groups—normal and subnormal. The diets of the normal group were calculated to contain an average of 5,560 international units of vitamin A, with a range from 3,300 to 9,000 units. The subnormal group averaged 2,445 international units, with a range from 900 to 4,000. Maitra and Harris² found that of 200 elementary school children in London and Cambridge from 22 per cent. to 36 per cent. were in the "definitely subnormal" category, whereas at a public school examined at the same time none of the boys was definitely subnormal. Mutch and Griffith,³ examining university students, mill girls, industrial school boys, and children of working-class parents, found that only the university students failed to improve after a single large dose of vitamin A. We do not yet know what is an adequate intake of vitamin A, but there can be little doubt that a significant improvement in dark vision after a single large dose of vitamin A is presumptive evidence that the vitamin A content of the patient's diet was previously inadequate. When the improvement is observed in groups of people low in the economic scale and not among people who are better off the evidence becomes less presumptive. As Mutch and Griffith point out, the important dietary sources of vitamin A—milk, butter, eggs, liver, carrots, and green vegetables—are relatively expensive food-stuffs, and deficiency will therefore be commoner among poor people. There seems little doubt that the objective testing of dark vision will almost always detect minor deficiency before any other clinical signs are present, and it is to be hoped that in the future most hospitals and clinics will be in the position to conduct it.

INDUSTRIAL WELFARE THE WORLD OVER

The annual report of the Industrial Welfare Society for the year ended June 30, 1937, states that the society has maintained and increased its foreign and colonial contacts. The director, the Rev. Robert Hyde, after spending some weeks in Sweden, meeting leading Swedish industrialists and visiting factories in several towns, found that much could be learned from this extremely prosperous country, and that the encouragement of close friendships would be to the mutual advantage of the two nations. Many oversea visitors have consulted the society, seeking information on problems concerning health, co-operation, accident prevention, and security in industry. Among these were three Japanese doctors, and representatives of social organizations and research students from Belgium, Finland, Hungary, Turkey, Palestine, and many other countries. The council feel that close links may thus be forged between ourselves and other nations, which will make for better

international understanding. With regard to health in industry the report pays a tribute to the medical services of individual firms. Although the toll of occupational diseases has decreased, the efficiency and happiness of the individual worker is still too often impaired by fatigue and vague ill-health. The works doctor, with his special knowledge of the employees and the processes on which they are engaged, is in a position to carry out valuable preventive work.

THE TIME OF OVULATION

The recent work of Ogino¹ and Knaus² on the control of conception by the limitation of coitus to the so-called "safe" period has stimulated a good deal of research into the question of the exact time of ovulation, for it is upon this that the necessary calculations are based. The determination is usually done on the assumption that ovulation occurs around the fourteenth day after menstruation, with variations according to the individual type of cycle. This assumption is based on operative findings, on observation of patients in whom rupture of the follicle is accompanied by painful symptoms (intermenstrual dysmenorrhoea), and on direct palpation of the growing follicle (Dickenson).³ There is, however, so much individual variation that Knaus's method, with its guesswork calculation, cannot attain sufficient scientific accuracy to enable the ovulation time to be determined with any real degree of exactitude, and it is for this purpose that Rock, Reboul, and Wiggers⁴ have elaborated their electropotential technique. This is based on the previous work in animals of Burr, Hill, and Allen,⁵ who were able to demonstrate that a difference of potential arose with ovulation in the rabbit and that this electrical disturbance could be measured by means of a vacuum-tube potentiometer. In the human being the difference is recorded by the projection of a reflected beam from a moving-cell galvanometer connected with specially constructed vaginal and abdominal electrodes, and in the case reported quite definite results were obtained. A sudden sharp change in potential, lasting about an hour, was coincident with ovulation (as verified by subsequent laparotomy), the difference from normal attaining the very considerable amount of 7 millivolts. This has since been verified in a later case, and it does appear that the technique described provides a more accurate index of the time of ovulation than has hitherto been available. Whether this is clinically important, and whether the discomfort and tediousness of the method are justified by its somewhat theoretical value, is doubtful, and it is more than possible that the electrical changes found are due to the exaggerated tubal contractions which follow ovulation rather than to that function itself. But the demonstration that these cyclic phenomena can be recorded with such accuracy is a valuable discovery, and its further appli-

¹ *Jap. med. World*, 1927, 8, 147.

² *Periodic Fertility and Sterility in Women*. Vienna: Urban and Schwarzenberg, 1934.

³ *Human Sex Anatomy*, London: Baillière, Tindall and Cox, 1933.

⁴ *New Eng. J. Med.*, 1937, 217, 664.

⁵ *Proc. Soc. exp. Biol. N.Y.*, 1935, 32, 199.

septic finger, if it is associated with any constitutional symptoms, rest in bed is most important. In treating a leg the patient is kept in bed and the limb is elevated on pillows: if the foot or ankle is concerned a splint holding the ankle at a right angle is called for. It is sometimes quite surprising how cellulitis will cease to spread and the temperature drop as soon as all movement of the affected part is prevented.

There are a number of different ways in which heat may be applied: moist heat in a bath, dry radiant heat, and various forms of fomentations. For a severe cellulitis of the finger or hand the following is an outline of the treatment and the method of applying heat. The patient should be kept strictly in bed from the beginning. Every two hours the hand is immersed in an arm bath of hypertonic saline (5 per cent.) for half an hour, the water being kept at as high a temperature as the patient can tolerate; it is then lifted from the bath, not rubbed but very gently dried by swabbing with wool, placed on a pillow, and given an application of radiant heat. Radiant heat is easily provided by placing the hand under a leg cradle to the top of which an ordinary electric-light bulb is tied. The cradle is then covered with a mackintosh and blanket. Care must be taken not to have the electric bulb too close either to the hand or to the mackintosh, as either may very easily be burned, and the strength of the lamp should not be more than 25 or 40 watts. As the hand is lifted out of the bath and rested on the pillow the fingers and wrist should be kept quite still, and if the patient is inclined to move the hand about when it is on the pillow it should be gently secured to a splint but with the inflamed part left exposed to the heat.

When the leg is concerned it is not always convenient to soak the part in a bath, and the following treatment may be carried out. The whole area involved in the cellulitis is covered with magnesium sulphate paste, which is warmed to body temperature and spread on gauze so as to make it easy to apply. Over the gauze is placed hot antiphlogistine spread on lint, and the whole leg is then wrapped in cotton-wool. The dressing may be changed every twelve or twenty-four hours, when any spread of the cellulitis is noted. Both in the case of the arm and that of the leg it is essential that treatment should not be allowed to interfere with sleep, and the hot baths should be given to the arm only when the patient is awake. The patient should take large quantities of fluid and as much food as he can eat. With a cellulitis there is often great pain, especially when the finger is affected, and this, unless relieved, will do great harm by preventing sleep and thus lowering the patient's resistance. If the pain is bad morphine or dilaudid should be given.

WHEN TO INCISE

There is often a temptation to make early incisions, especially when the area of inflammation is spreading and the temperature is raised; but there is nothing to be gained by incising a cellulitis in the initial stages. It is far better to pursue conservative treatment, for it will be found that many cases of cellulitis will recover without the necessity of making an incision, and thus the convalescence is shortened. But this is not the sole reason for avoiding operation. It is believed, and has been proved, that far from doing good early incisions are likely to do harm. In the first day or two of the inflammation the surrounding tissues are building up barriers of defence, which, if called upon to withstand the added trauma of an incision, are likely to break down and allow

the infection to spread further. The only real indication for incising a cellulitis is suppuration, and as soon as pus has formed it should be let out. At this stage the infection has usually become limited, and only good comes from making an incision, provided the latter is confined to the area of the abscess and does not encroach on the surrounding tissues. After the incisions have been made hot arm baths should be continued, but with normal saline at first and then with a gradually increasing strength of salt solution. Care should be taken not to let the part get too sodden, and ten or fifteen minutes' immersion every three hours may be long enough. In the interval between the baths the hand should be covered with gauze and lightly bandaged or wrapped in a sterile towel and given radiant heat for about an hour. After this it should be allowed to lie at rest on a pillow or in an elevated position.

It is sometimes argued that before pus has formed incisions should be made to lower the tension in the tissues, so as to relieve the pain and because the tension is thought to do harm to the tissues. It is far better to diminish the swelling by elevating the limb and giving drugs for the pain. A leg may be supported on pillows or slung from a cradle. The arm is easily held in an elevated position by a roller towel, the upper end of which is suspended from the ceiling or wall, while the arm rests in the lower end, preferably with the elbow flexed and the hand pointing upwards.

Contractures are likely to follow cellulitis overlying a joint—a result all the more to be expected when incisions have been made. This possibility must always be kept in mind, and should be prevented by suitable posture or splints. When cellulitis is severe and of streptococcal origin sulphanilamide may be used as described in the treatment of erysipelas, the same precautions of course being observed.

The above account of the treatment of cellulitis is applicable to that condition in general; there are, however, many important points of difference in the treatment of various parts of the body, but it is not possible to describe all of them here. Nevertheless, reference must be made to one most important point concerning the time for incisions in certain situations. In most parts of the body it is inadvisable to make early incisions in cellulitis, but in the neck it is different. A diffuse cellulitis in this region is quickly followed by oedema of the larynx and pharynx, which, combined with the great tension in the neck, causes suffocation. Incisions must be made early, but if these are only through the skin and subcutaneous tissues they are of no value: the deep fascia must be incised, for in all cases of serious pressure there is tense oedema beneath it. Similarly, when cellulitis affects the orbit or scalp incisions should be made before serious damage is done to the eye or before the blood supply to the outer table of the skull is imperilled.

Lymphangitis

The typical red streaks extending up a limb, indicative of lymphangitis, give some idea of the severity and seriousness of the infection, particularly as regards spread and degree of toxæmia. They are more commonly seen with streptococcal than with staphylococcal lesions, and as a rule begin to fade at the end of thirty-six or forty-eight hours. Lymphangitis of itself requires no treatment, but a careful watch must be kept on the lymphatic glands into which the vessels drain. With the fading of the red streaks these glands, which will have been tender and slightly enlarged, will usually become less tender. But occasionally, instead of resolving, the gland may

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

ERYSIPELAS AND CELLULITIS

BY

JOHN HOSFORD, M.S., F.R.C.S.

Erysipelas is an inflammation due to a streptococcal infection in the lymphatics of the skin. It is most characteristically seen on the face, and more often than not there is no obvious origin of the infection. In other cases, both on the face and elsewhere in the body, erysipelas starts either from a punctured wound or minute crack, or from an open infected wound. Its characteristic red appearance, with a well-defined slightly raised edge and minute vesicles, is unmistakable. The usual acute form is associated with marked constitutional symptoms and a high temperature. There is also a less acute type in which the pyrexia is of low degree and the patient not gravely ill: this form is sometimes recurrent at several weeks' interval.

Like that of other acute infective conditions which the surgeon meets with, the treatment of erysipelas is both local and general; but erysipelas is unlike most of the others in that the general treatment is of very great value and more important than the local. In the past many drugs, mostly of the type of antiseptics given intravenously, have been tried, but without benefit. Streptococcal sera and vaccines, sensitized and otherwise, have been used, though never with any convincing success.

Since the introduction of sulphanilamide as a remedy in streptococcal infections, however, we have a drug of the utmost value in the general treatment of erysipelas. In fact, erysipelas is one of the conditions in which sulphanilamide has had its greatest success. Its full name is para-aminobenzenesulphonamide, but it is put up by various firms, usually in 7½-grain tablets, under such names as sulphonamide-P, streptocide, prontosil album, and sulfanilamide. It is a white crystalline solid, and is given in tablet form by mouth. In order to maintain its concentration in the blood stream it is better, in the acute stage, to spread it over the day. It may be given four-hourly, one tablet at a time, with two night and morning, making a total of eight tablets, equal to 60 grains, for the whole day. The above dose, which is the average for a man of 10 st., should be adjusted to the size of the patient, and may be exceeded for a few days. When giving sulphanilamide certain precautions should be taken to prevent the complication of sulphaemoglobinaemia, which is caused by absorption of hydrogen sulphide produced in the colon. This condition is easily recognized, as the patient becomes cyanosed. To prevent its onset no purgatives must be given and the patient should be placed on a high-calorie low-residue diet and take liquid paraffin night and morning. Amidopyrine (contained in allonal) is forbidden, and phenacetin should be avoided if possible. Sulphanilamide may be prescribed at any stage of erysipelas, but of course the sooner it is given the sooner will it cut short the attack. In most cases it has a profound, sometimes dramatic, effect: the temperature drops to normal in forty-eight hours or less, the rash fades, and the patient feels better. During this period he must of course be kept in bed. In some cases in which, following the administration of sulphanilamide, the temperature has quickly dropped and the local condition improved, a relapse has occurred when the drug has been immediately stopped. It is advisable to continue

giving the drug, though in slightly smaller doses, for four days after the temperature has been normal. Agranulocytosis, which is a rare complication of prolonged sulphanilamide treatment, is most unlikely to come on after such a short course of treatment, but particular care should be taken with feeble or anaemic patients. Pain is not usually severe, but if it is morphine or its derivatives should be given, as rest and sleep are essential. Increased quantities of fluids should be taken, but, as already mentioned, purgatives must be forbidden.

So many lotions and ointments have been tried as local applications for erysipelas and given up that clearly none of them is of real value. Ichthyol has been very widely used, but its benefit is doubtful, though its smell, colour, and associated mess are impressive. When the inflamed area feels hot and painful relief may be given by applying gauze soaked in lotio plumbi. To prevent the spread of erysipelas it has been recommended that the healthy skin just beyond the red advancing edge should be painted with a strong iodine solution or even scarified in order to excite a protective leucocytosis and so render the tissues the better able to destroy the advancing streptococci. The infrequency with which these methods are used is the best testimony to their value.

Incisions should not be made in areas of erysipelas either with the idea of preventing its spread or under the mistaken idea that there is pus to let out. The only indication for incisions in erysipelas is extreme oedema such as may occur in the loose cellular tissues of the eyelids or scrotum. Small punctures may be made with a knife to allow the escape of fluid, but as the oedema subsides rapidly as soon as the inflammation begins to diminish this treatment is very rarely called for.

Many methods of treatment, both local and general, have been used for erysipelas, which remains an infection with a low mortality rate, and if left untreated will run its own course and disappear, leaving no ill effects. The treatment outlined above, however, is planned to shorten the course of the disease and add to the comfort of the patient.

Cellulitis

By cellulitis is meant an infective inflammation of the subcutaneous tissues, usually superficial to the deep fascia, though sometimes beneath it. Whereas erysipelas is always a streptococcal infection, cellulitis may be either streptococcal or staphylococcal, and is occasionally due to other organisms. There are several routes by which organisms may gain access to the tissues, but it is most commonly by infection carried in through a punctured wound. The infection may extend rapidly in the cellular tissues and, especially in streptococcal cases, there is likely to be a lymphangitis and lymphadenitis as the result of quick spread by the lymphatics. The treatment of lymphangitis is so much that of the initial cellulitis that they will be considered together.

The treatment of cellulitis is the classical treatment of an inflammatory condition, and may be summarized in absolute rest, heat, and adequate incisions when pus has formed. The first item—rest—is often overlooked, but it is of the greatest importance. When a finger or hand is infected it is essential to splint the part and rest the whole arm, either in a sling or, if the patient is in bed, on a pillow; and it may be added that in the case of a

Nova et Vetera

SIR HANS SLOANE

Professor W. W. D. Thomson recently delivered a presidential address before the Ulster Medical Society. He took as his subject "Some Aspects of the Life and Times of Sir Hans Sloane," and the text appears in the January number of the *Ulster Medical Journal*. In this address he gives many facts about the great Ulsterman which are but little known. Sloane was of Scottish extraction and his father settled in County Down at the time of the plantation by King James I. He was receiver-general of taxes and was a man of considerable importance. His immediate neighbour was James Hamilton, second Viscount Claneboye and first Earl of Clanbrassil, whose wife brought with her Sarah Hickes to act as companion. Sarah was the daughter of a prebend, said to be of Winchester, who had acted as chaplain to Archbishop Laud, and of this prebend it should be possible to get further details. She married Alexander Sloane, and Hans, their seventh son, was born on April 16, 1660. Hans being a name already known in the Claneboye connexion.

The boy soon showed an interest in science and botany, determining to become a doctor. His father being long dead, he was sent to live with a chemist in Water Lane, Blackfriars, close to the Society of Apothecaries. Here he soon came under the influence of his fellow-countryman, Robert Boyle. In London he haunted the newly founded Physic Garden at Chelsea, becoming the pupil and life-long friend of John Ray, the greatest botanist of his generation. In 1683 he went to France, where he made the acquaintance of the French botanists. On his return he must have brought news of them—though Professor Thomson does not say so—to Robert Morison, the Sherardian Professor of Botany at Oxford, who had once been keeper of the gardens belonging to the Duke of Orleans. On his return to England Sloane was introduced to Sydenham, who took a liking to him and to whose practice he ultimately succeeded. He then spent twenty months in Jamaica as physician to the Duke of Albemarle, then recently appointed governor of the island. In Jamaica he continued his study of botany and married the wealthy widow of a sugar planter. By this time he had become a Fellow of the Royal College of Physicians and a Fellow of the Royal Society, becoming in later years the president of each society. Sloane went from honour to honour, obtained a large and fashionable practice, attended Queen Anne in her last illness, was created a baronet on the accession of King George II, and tactfully led the Princess of Wales (afterwards Queen Caroline) to believe that she had instigated him to have her two daughters engrafted with the smallpox. He died at Chelsea on January 11, 1753, "without the least pain of body, and with a conscious serenity of mind he ended a virtuous and beneficent life."

Sloane had always collected everything that was curious and valuable, and his executors were instructed to offer his treasures to the King for the sum of £20,000. The offer was not accepted, but an Act of Parliament was passed entitled "An Act for the purchase of the Museum or Collection of Sir Hans Sloane, Bart." By this Act £100,000 was ordered to be raised by lottery. The Act passed, the money was raised, the mansion of the Duke of Montague was bought, and the new British Museum was opened for study and public inspection on January 15, 1759, just six years after the death of Sir Hans Sloane. Sloane Street in Chelsea preserves his name, and until recently the greater part of the east side was a market garden. A statue of him stands in the Physic Garden and his tomb is in Chelsea churchyard.

PHILEMON HOLLAND

Through its special numbers, which are always interesting, *Medical Life* deserves well of the profession by bringing vividly before it bio-bibliographical studies, often generously illustrated, of some of the lesser-known characters in the history of medicine. In its July issue Dr. Herbert Silvette of the University of Virginia department of physiology attempts to resurrect the indistinct figure of one who to-day is more familiar to classical students than to physicians.

Philemon Holland, son of a Protestant clergyman, was born at Chelmsford, Essex, in 1552, and was educated at Trinity College, Cambridge, taking his M.A. in 1574. About 1595 he had the M.D. conferred on him, possibly by a Scottish or a foreign university. He practised in Coventry as a physician, and for a time was a school-master. Married for half a century, he had seven sons and three daughters, though only one son survived him. His last years were clouded by poverty and illness, and he died in 1637.

Deeply read in the medical classics, Holland's knowledge of Latin was accurate and profound. He translated Livy in 1600, Pliny in the following year, and Plutarch's *Morals* in 1603. The *Natural History* of Pliny the Elder was for centuries a medical Bible, but in Holland's time its authority was beginning to wane. Only a few years later Sir Kenelm Digby was to be called the very Pliny of the age for lying. Holland's translation, *The Historie of the World. Commonly called, the Naturall Historie of C. Plinius Secundus*, was published in two folio volumes in 1601 and in a revised edition in 1634. It is elegant and ornamental even for an ornamental age. The translator prefers two words to express the meaning of one, often suggesting alternative words to display a single idea in various lights. His imagination was vivid and vigorous, and no man was happier in his style. His notes are brief and few, and probably satisfied his contemporary readers. When he catches Pliny in errors, especially in his accounts of plants and herbs, which he corrects from Theophrastus or Dioscorides or from his own experience, he chides him gently. His medical mistakes, however, he is firm enough in bringing to light.

W. R. B.

ALEXANDER SKENE, 1837-1900

Alexander Johnston Chalmers Skene, whose name is familiar to medical students through "Skene's glands" of the female urethra (1880), forms the subject of a sympathetic sketch in the *Long Island Medical* for September-October, 1937. Born on June 17, 1837, in Scotland, he went to America at the age of 19. Studying medicine at Toronto, the University of Michigan, and the Long Island Cottage Hospital, New York, he took his degree in 1863. After serving in the Civil War he became professor of diseases of women and of clinical obstetrics at the Long Island College, and subsequently dean of the Faculty and president of the College. In 1876 he helped to found the American Gynecological Society. A sound and popular teacher, he wrote numerous textbooks and a novel. Among his hobbies were modelling and sculpturing.

The following theses on British medical men have recently been published by the Institute for the History of Medicine of the Medical Academy at Düsseldorf, of which Professor Wilhelm Haberling is the director: John Hennen and John Pringle, their significance and services in the development of the English Military Sanitary Service, by Lothar Horeysek; the contribution of Robert Willan and Sir Erasmus Wilson to the development of dermatology, by Hermann Thumm; historical notes on the discovery of anaesthesia with special reference to the work of Henry Hill Hickman, by Kurt Waterman; and William Smellie's contributions to the development of obstetrics, by Fritz Bürger.

remain enlarged and suppuration take place; this may not cause much pain and may therefore be overlooked. Thus whenever pyrexia is continued, although the area of cellulitis is progressing satisfactorily, the lymph glands should be examined, as an abscess may form in them some days or even weeks after the cellulitis has been got well in hand. It is a mistake to incise lymphatic glands before they suppurate: no incision should be made until one is sure from the physical signs that pus is present. When a localized abscess is opened it heals well and quickly, whereas an incision made too early may cause infection to spread further. Hot fomentations for the enlarged glands associated with lymphangitis will do good by hastening resolution or accelerating suppuration as well as by relieving pain.

The course of cellulitis with its associated lymphangitis is greatly altered by appropriate and well-judged treatment. In the aged and those of poor resistance a certain mortality occurs from septicaemia and pyaemia. In all cases there is likely to be some degree of permanent stiffness when the cellulitis is extensive and especially where the fingers are concerned.

SCIENCE AND INDUSTRY

The annual report of the Department of Scientific and Industrial Research¹ opens with a tribute to the late Lord Rutherford and his inspiring leadership during the seven years he was chairman of the Department's Advisory Council. The reports which have appeared annually over his signature during that period all bear testimony to the strength of his conviction that the prosperity of this country can only be assured if its industries make the fullest use of the technique and the discoveries of science. His last act as chairman was the shaping of the present report, which is signed by Lord Riverdale (formerly Sir Arthur Balfour), the new chairman of the Council.

During the year consideration has been given to directions in which it may be possible to strengthen the contacts between industry and the National Physical Laboratory. The report records substantial progress in practically all directions of the Department's work, both in the researches carried out by the research establishments of the Department itself and in the laboratories of the research associations, formed on a co-operative basis in various industries under the Department's auspices.

Storage and Transport of Food

A short time ago a new system of refrigeration was developed at the Ditton Laboratory, known as the "jacket" system. The new system has been installed with modifications in most of the new tonnage in the Australian and New Zealand trade, and during the year arrangements were made for officers of the Department to sail in some of the ships so equipped to examine its practical working. The basis of the investigation had to be wide, since the system involved changes in the method of carriage of all the ships' refrigerated cargoes, including butter, cheese, frozen meat, chilled meat in gas storage, pears, and apples.

The success that has attended the commercial development of gas storage of home-grown apples—that is, storage in an atmosphere containing just the right amount of carbon dioxide—is well known. A second investigation carried out with William pears and with Conference pears has shown that the pear responds to gas storage even better than the apple. When gas-stored the pears ripen more slowly on removal from store, thereby allowing the trade more time for marketing them.

To meet the increasing demands of the trade for information as to the behaviour in store of fruits and vegetables, not previously stored in quantity, trials have been carried out

with strawberries, hot-house grapes, broccoli, and peas. The previous work with plums has been extended, and gas-storage trials with asparagus have begun.

The Shoe and the Foot

Interesting work has been carried out during the year by the Boot and Shoe Research Association arising from investigations on "walking research" in which moving-picture records are taken of the gait of various people to study in detail the way they walk. The full results of this investigation will not be available for some time. As a result of knowledge already gained, testing machines have been designed for laboratory investigations of the response of different kinds of shoes to the forces acting on them during wear. One of these is a flexibility meter. In dress shoes flexibility gives comfort and elegance, and an instrument, the report states, which imposes on a shoe the correct kind of deflection and gives a measure of flexibility provides a means of investigating the different ways in which this property can be achieved. A second instrument investigates the character of the shank or waist of the shoe, an important feature in high-heeled shoes; and a third, not yet completed, is a machine which will put shoes through the motion of walking and give the soles the treatment they receive during wear. The object of this machine is to give information on the materials and constructions likely to give maximum durability in various circumstances.

Another matter which has come up during the year is occupational footwear—the need for designs and specifications of boots and shoes suitable for various kinds of industrial occupations. For example, what is the best kind of boot or shoe for a waitress to wear, or a nurse, a shop assistant, a policeman, a railway porter, a factory machine minder, and so on. Many large concerns and authorities take a great deal of trouble, and have a high degree of organization, in the welfare of their employees, and doubtless they would not hesitate to specify a certain shoe as part of their employees' uniform if they knew with certainty the best type of shoe for their special circumstances. "Safety boots" for miners and quarry workers is a case in point.

Other Points from the Report

Over half a million clinical thermometers were tested at the National Physical Laboratory during the year and 7,000 thermometers of other types. The Scientific Instrument Research Association has carried out on behalf of a member firm an investigation into the best form of "lensing" of clinical thermometers to enable them to be easily read.

Measurements with the noise-measuring apparatus developed at the National Physical Laboratory have been made on motor vehicles on behalf of a committee of the Ministry of Transport; the results have led the committee to recommend that a noise level of 90 phons should not be exceeded by any new motor vehicle offered for sale or for use on the public highway. Measurements for the Home Office have been made of the loudness of certain portable sound-making instruments intended for use as local alarm signals in connexion with air raid precautions. The Building Research Station is now taking up the problem of ventilation of buildings, and methods and instruments have been developed which will be first used in carrying out ventilation surveys in existing buildings. The extent to which a wall admits or excludes heat and therefore its effect upon the amount of heat required to keep the room warm is being investigated, for different types of wall, in six chambers of 8 feet cube placed side by side with one wall of each facing north. Tests are being made first with three 9-inch solid walls and three cavity walls all of Fletton bricks arranged alternately.

Synthetic resins have been produced which have the property of removing small quantities of materials from water passed through them. The possibilities of using these resins for the removal of boron and fluorine from natural waters is under investigation. Boron to the extent of a few parts per million in water used for irrigation is detrimental to the growth of certain crops. With regard to fluorine, recent surveys in different parts of the world have indicated that fluorine in drinking water to the extent of one part per million causes the dental defect known as mottled enamel.

Reports of Societies

TREATMENT OF ACUTE STREPTOCOCCAL INFECTIONS WITH SULPHANILAMIDE

In the Section of Surgery of the Royal Society of Medicine on February 2, Professor GREY TURNER presiding, the discussion was on the treatment of acute streptococcal infections by the use of compounds of the sulphanilamide group.

Dr. S. C. DYKE said that as a result of the introduction of drugs of this group there had been a remarkable change in the method of approach to acute infections due to haemolytic streptococci: the outlook in regard to these infections was now more hopeful. The results recorded by Colebrook and his co-workers at Queen Charlotte's left no room for doubt as to the value of the compounds in the treatment of acute haemolytic streptococcal infections. No comparable series of fully controlled clinical observations existed for what might be described as surgical cases, but the success achieved by Colebrook and others was an earnest of what might be expected when this particular method was more widely adopted. The present problem was not so much whether the drug was efficacious as the best method of its employment and the best type of compound to use. The effectiveness of *p*-aminobenzenesulphonamide and its benzyl derivative had now received ample demonstration. Both rapidly diffused in the system and were best given orally. There were available more complex soluble derivatives suitable for parenteral injection. They were effective, but their efficacy was not so well proved as that of the two compounds mentioned. In the present state of knowledge, so long as the oral route was available, it appeared safer to use one of these two compounds.

Sulphaemoglobinaemia

When the drug was first given the bluish-grey appearance shown by patients was disconcerting, but for the most part none of them seemed much the worse for the development of the cyanosis. Sulphaemoglobinaemia was of frequent occurrence, but only of importance when, owing to previous anaemia, an unduly large proportion of the haemoglobin became unavailable to carry oxygen, with resulting anaemia. This was readily remedied by blood transfusion, and was not a contraindication to the use of the drug. The incidence of sulphaemoglobinaemia was increased by intestinal fermentation, and therefore by purgation, so that all laxatives, other than liquid paraffin, were best withheld during treatment. Other manifestations seemed to fall mainly under the heading of idiosyncrasy. A recurrent temperature was a phenomenon to be watched for; it might appear from a week to ten days after the administration of the drug. Associated with it was a rash "looking more like measles than measles ever did," the only difference being that it was not associated with conjunctivitis or coryza. Some patients experienced a certain amount of nausea after each dose, but that again was no reason for withholding it. He had seen no toxic manifestations so far as liver and kidneys were concerned. He had given the drug to a number of diabetics suffering from severe generalized metabolic disturbances without any effect on their general condition. He believed the toxic possibilities of the drug had been somewhat exaggerated, always bearing in mind sulphaemoglobinaemia and the locking up of a certain amount of the available haemoglobin.

The tendency was to give too large doses of the drug. The maximum effect in haemolytic streptococcal infections could be obtained by relatively small doses—3 to 4 grammes daily for an adult, with corresponding reduction for children, for not more than a week. If the effect was not obtained within a week it was useless to proceed.

If at the end of a week there were signs of improvement then the drug should still be discontinued. The aim was not to destroy the streptococci in the tissues but to sway the balance of the fight. Once this had been done, the tissues could safely be left to deal with the matter, even though active streptococci might still be isolated from the original lesion by cultural methods.

The mode of action of the compounds of the sulphanilamide group remained somewhat obscure. Buttle had shown that in blood *in vitro*, containing its full complement of leucocytes, the drug exercised its full effect: if the leucocytes were removed the effect was very much modified. This led to the supposition that the action of the drug had something to do with the presence of the leucocytes in the blood. There was also evidence that the drug might have a stimulating effect upon the reticulo-endothelial system. This indicated that little could be expected from the application of the drug as a local antiseptic. Experience led him to the conclusion that acute streptococcal infection in its early stages required sulphanilamide and rest, with abstinence from the use of the knife for at least ten days.

Judicious Surgery

Mr. P. H. MITCHNER advocated the use of the knife at a considerably earlier stage. Where there was much local tension judicious surgery not only relieved it but permitted the escape of toxins and streptococci which would otherwise be absorbed into the circulation, and by relieving pain ensured rest. In the early stages of septicaemia it was not always certain that the infection was a haemolytic streptococcal one, and thus it was necessary to consider other treatments than prontosil—the only form in which he had used the drug. Excellent as prontosil was in some cases, it was useless in the fatal condition of staphylococcal septicaemia, which, clinically, so closely resembled any other severe septicaemia. Local incision into pus should not be hurried; there should be a certainty of localization of the pus. Maintenance of the fluid intake was important when treating septicaemic patients. Saline was more efficacious than blood transfusion in such cases, and generally should be administered by the subcutaneous, not the intravenous, route. Alcohol was beneficial in cases of severe septic infection.

As to the dosage of the drug, he usually prescribed two 3-gramme tablets on the first and second days, and afterwards, if the temperature had not dropped or the pulse rate remained high, one tablet a day for a week, or until such time as the temperature and pulse rate were normal. Usually the maximum result was obtained in eight days. If the infection did not yield within forty-eight hours to 6 grammes given by mouth it was practically certain that the patient had not a haemolytic streptococcal infection. In suspected cases of staphylococcal septicaemia he gave both prontosil and staphylococcal serum. In cases in which it was not possible to obtain a prompt bacteriological report, or in which prontosil failed to have the desired effect, there was justification for giving either intravenous antiseptics—preferably perchloride of mercury—or serum. Unless there had been general toxæmia serum was in his experience of no benefit in erysipelas, either in checking the spread of the local lesion or in preventing relapses. Lately, however, following the use of prontosil, the vast majority of patients at St. Thomas's suffering from severe erysipelas had been completely cured in from eight to ten days. The results in cellulitis, even haemolytic streptococcal cellulitis, were by no means so satisfactory. The local condition did not improve unless judicious surgery was resorted to at a considerably earlier stage than Dr. Dyke had advocated.

General Discussion

Mr. T. B. LAYTON, speaking of streptococcal infections as a whole, was not prepared to admit that for the first time medicine had a specific and effective remedy against

SISTER KENNY METHOD IN INFANTILE PARALYSIS

THE BRITISH
MEDICAL JOURNALTREATMENT OF INFANTILE PARALYSIS
BY SISTER KENNY'S METHOD
REPORT OF QUEENSLAND COMMISSION

At Queen Mary's Hospital for Children, Carshalton, an experiment in the treatment of anterior poliomyelitis, which has already aroused considerable interest, is in progress. A ward has been set aside at this L.C.C. hospital, and the children there are treated by what is known as the Sister Elizabeth Kenny method, the clinic being organized by Sister Kenny herself. Articles on the treatment of spastic paralysis (*Journal*, August 28, 1937, p. 414) and on the treatment of acute poliomyelitis (January 22, 1938, p. 168), both by Dr. F. H. Mills, who has been collaborating with Sister Kenny, have been published in these columns, together with some comment on this experiment (January 22, p. 178). By courtesy of the Editor of the *Medical Journal of Australia*, Dr. Mervyn Archdall, we have received advance proofs of the issue of that journal for January 29, a large part of which (thirty-six pages) is devoted to the report of the Queensland Royal Commission on Modern Methods for the Treatment of Infantile Paralysis. The Royal Commission, consisting of Drs. Aeneas J. McDonnell, A. E. Paterson, J. V. J. Duhig, J. Bostock, L. J. J. Nye, C. A. Thelander, L. W. N. Gibson, and R. S. Lahz, was set up in October, 1935, to observe cases before, during, and after treatment at Sister Kenny's clinic, and to report thereon.

The Commissioners, in their report, have considered the whole question and have examined and re-examined forty-seven cases treated by Sister Kenny. The periods between the first and the final examination in these cases varied from only five months to about two years. There are several appendices to the report, one of them drawing attention to the first article by F. H. Mills published in the columns of the *British Medical Journal*. The Commission "in no spirit of carping . . . really finds the claims in this article confusing and unsubstantiated; and considers it remarkable that such should be published in a reputable medical journal." The findings of the Royal Commission are summarized, as follows, at the end of its report.

Summary of Findings

"After two years' study of the work of the Elizabeth Kenny Clinic at Brisbane, from the evidence of Miss Kenny and of experts acquainted with her work directly and indirectly, the Commission has arrived at its conclusions on the Kenny method of treating paralysis. For the purpose of convenience we refer to the method of treating infantile and spastic paralysis used by expert medical practitioners as the 'orthodox' treatment, and to that of Miss Kenny as the 'Kenny method.' We have found that:

1. Except in one important principle the Kenny method of treating poliomyelitis differs very little at present from orthodox treatment. Where there is a difference the orthodox method is better.

2. Originally the Kenny method showed radical departure from orthodox treatment, but in the course of time the former has gradually been brought into conformity with the usual medical practice.

3. The departures from orthodox treatment, especially the present important points of difference, could be and actually were responsible for damage beyond and in addition to that already sustained by the patient.

4. Of a series of patients, forty-seven in number, examined by the Commission two years ago and since re-examined at least once and sometimes twice or three times the majority showed no effective improvement, a few were worse and a few improved. Those who became worse would not have

done so under orthodox treatment, and those who improved would have done so to an equal or greater extent under orthodox treatment of equivalent intensity.

5. It is significant that in her original forecasts of the patients' chances of cure Miss Kenny was highly optimistic, occasionally to the point of being fanciful. Later she became more cautious. We interpret this inconsistency as a consequence of Miss Kenny's unfamiliarity with the nature of the work she was undertaking and as proof that she learnt as she went along not only caution but orthodox technique as well.

6. The return to the people of Queensland from Government expenditure on account of the Kenny clinics was disproportionately small. The return would have been much greater if the same amount of money had been spent in already existing orthopaedic departments of public hospitals and on vocational training. For many cases of paralysis treated by Miss Kenny nothing further could have been done. The slight improvement in others, of little real use to the patient, involved a waste of time spent in treatment which might have been used to better advantage.

7. The belief held by many people in the possibility of improvement in the reality of improvement by the Kenny method, despite of facts to the contrary, is attributable to Miss Kenny's strong personality; her own conviction of technical competence and to improvement in patients treated by her, all of which combined to inspire the patients and relatives with great hope and especially with unshakable loyalty to Miss Kenny.

8. Miss Kenny may claim credit on two counts. Though she has neither discovered nor applied any new principle, she has drawn attention to the plight of the crippled child, who was too often denied hope of possible further usefulness. Some children suffering from spastic paralysis did improve very much under her treatment, which differed from orthodox treatment only quantitatively. The Commission believes that a trained masseuse can obtain similar results if given the same opportunity of concentrated attention on a given case.

9. Action taken to make effective Miss Kenny's claims was unbalanced. For the most part it was political, without really expert preliminary investigation. Many cripples, beyond further aid, wasted their time and public money in a repetition of treatment (modified in some cases for the worse), the possibilities of which they had already exhausted. The state of affairs was made worse because of Miss Kenny's inadequate knowledge of the conditions and mechanisms amongst which she was to test her theories and assumptions.

10. Miss Kenny's method adds little of value to orthodox treatment and discards principles which sound opinion considers essential. The method of re-education is no better than orthodox treatment; indeed it is faulty, as already stated, and has no advantages that would enable treatment to be efficiently carried out without splints.

11. The Commission cannot recommend the application of the Kenny method to the treatment of cripples at any stage of paralysis, and especially not to the treatment of the acute or early stage.

12. If the Government takes the responsibility of rejecting the advice implied in this report and decides to allow the Kenny clinics to remain, the Commission strongly urges that they be placed under the control of a competent orthopaedic surgeon or surgeons, with the object of rejecting obviously hopeless cases, of avoiding the cruelty of disappointed hopes, of saving public money, and, in general, of getting a sane and balanced view of the patients' possibilities.

13. The Commission also urges that the re-educative care of paralysed or paretic muscles needs a highly trained staff, that attendants at paralysis clinics should receive practical training in anatomy and physiology, and that some adequate standard of general education should be demanded from those undertaking the care of cripples at the clinics.

14. Where no further improvement in the condition of the cripple can reasonably be expected the Commission urges again that attention be directed to vocational training, and especially to the provision of employment.

BIRTH Palsy

Clinically, birth palsy is strictly comparable with poliomyelitis. All references to the re-educative treatment of the latter disease apply exactly to that of birth palsy, with even more stress on the necessity of proper splinting."

his early days heroic methods of hydrotherapy were practised, but he had come to the conclusion that tepid or even warm baths produced equally beneficial effects. He also referred to the insidiousness of the symptoms in many of these cases; he had never convinced himself that it was possible to detect a pre-perforative stage. The greatest advance in the treatment of typhoid, in his opinion, was dietetic—the change from the starvation diet once current to the liberal diet now provided. Serum treatment was not new, and he was not entirely convinced that the claims made for this form of treatment in recent years had been justified. In the past it was his experience that similar results had been obtained with sera and with vaccines, and this made it difficult to ignore the possibility of a non-specific factor.

Immunization

Dr. A. FELIX (Lister Institute) said that in the early days of typhoid serum no animals were available for estimating virulence, but that had now been changed. In diagnosis it was his experience that blood culture was little used in this country as compared with the Continent. With regard to carriers, Vi-agglutination had been noted by him in a large proportion of cases. He believed that a patient might be infectious in the incubation period, with positive blood cultures before the onset of fever. Early use of serum was therefore indicated, both in prevention and in treatment. In the later stages little benefit would be obtained. The prophylactic use of serum was definitely called for, especially in a water-borne epidemic.

Dr. H. S. BANKS (Park Hospital, L.C.C.) said that whenever typhoid cases were sufficient in number to fill a ward in a hospital a high proportion of the nurses on duty became infected unless immunized. It was essential to maintain active immunization of the nursing staffs of fever hospitals, also to provide convenient washing and sanitary arrangements in every ward. In the specific treatment of toxic typhoid fever by Felix's serum he had at first encouraging results, but during the past year results had been disappointing. [Dr. Felix had previously explained that recently the supply of the serum in which he was interested had not always been quite equal to the demand, and on two occasions serum of rather lower antibody content than usual had been issued; on both occasions an experienced user of the serum, unaware of the alteration, had complained to him.] Apart from specific treatment Dr. Banks regarded the modern high-calorie diet in typhoid as the chief advance of the last twenty-five years. It was impracticable as a rule, however, to give a balanced diet of 4,000 calories in the second and third weeks. The diet which he tried at these periods was from 1,600 to 2,300 calories, and it required considerable nursing skill to give even that amount.

General Measures

Dr. ROBERT CRUICKSHANK (L.C.C.) recommended bacteriological examination of the faeces, emulsified in a preservative of 30 per cent. glycerin in 0.6 per cent. saline, as an early diagnostic method suitable to the general practitioner. Dr. J. REID (Motherwell) said that he had listened with interest to Dr. Goodall's observations on perforation. He emphasized the importance of early diagnosis and operation on suspicion. A steady increase in the pulse rate in a patient who complained of sudden abdominal pain within the perforating period was to be taken as sufficient evidence to suggest operation. Delay until characteristic signs of peritonitis were obvious made matters hopeless.

Dr. F. GRUNDY (Luton) said that the control of the enteric infections in non-epidemic times was very largely a question of control of carriers, especially carriers associated with water undertakings, milk supply, and bulk handling of foodstuffs. It might be that the power at present given to the medical officer of health and to the local authority would need to be reviewed in the light

of recent happenings to ensure a full control of carriers of epidemic infections. For a reasoned consideration of existing and projected regulations answers to the following questions were desirable: What proportion of a community not recently subjected to any unusual risk were either intermittent or chronic carriers, and of these what proportion had previously suffered from a diagnosed enteric infection? To what extent was the position different in a localized community recently subjected to special risk, and for how long was the difference likely to persist? Further, with regard to water-borne infection, what degree of contamination of a water supply might reasonably be supposed to place a community at risk?

ASSOCIATION OF CLINICAL PATHOLOGISTS

The eleventh annual scientific meeting of the Association of Clinical Pathologists was held at St. George's Hospital, London, on January 29, with Dr. J. Boycott in the chair.

Blood Fragility Tests

The first paper, on blood fragility tests, was read by Dr. E. F. CREED. Dr. Creed described his technique for estimating the fragility of red blood corpuscles. He found the simplest method of ensuring accuracy in the strength of the sodium chloride solutions was to make up a stock 25 per cent. solution, and prepare dilutions from this when required, using a dropping technique for the final stages. The amount of haemolysis at each dilution was estimated by matching against colour standards, and the results were plotted as a curve. He emphasized the effect of the viscosity of the blood on fragility, and showed how discrepancies due to this could be eliminated by aeration of the blood before testing. Fresh untreated blood was used to avoid any risk of altering the fragility by preliminary treatment and to retain the buffering effect of the plasma. He thought that the increased fragility said to be found in some cases of alcoholic jaundice only after washing was due possibly to increased liability to changes in pH in the absence of plasma. When interpreting fragility results the degree of anaemia had to be taken into account, as the corpuscles of anaemic blood showed an increased resistance to hypotonic saline. He suggested that results should be recorded either as a curve or as the dilutions at which given percentages of corpuscles were haemolysed. He showed the narrow limits within which fragility curves normally fell, and the constancy of these curves in single individuals over long periods.

Dr. C. J. YOUNG then read a paper in which he drew attention to the fact that splenectomy was not always successful in the treatment of acholuric jaundice. Splenectomy and transfusions failed to arrest a haemolytic crisis in one case, but after the removal of a degenerating ovarian teratoma complete recovery ensued. It was suggested that the haemolysis was directly or indirectly related to a toxæmia due to the ovarian tumour, although this could not be the only factor in its causation. Although splenectomy had been recommended to prevent the occurrence of haemolytic crises, it was clear from this and other recorded cases that it could not be guaranteed to do so.

Plasma Bilirubin

Dr. JANET VAUGHAN described observations made in collaboration with Dr. Haslewood on the level of plasma bilirubin in normal and pathological subjects. The values found in 100 healthy men and women, using the method of Haslewood and King (1937), had varied between 0.2 mg. and 1.7 mg. per 100 c.cm., 93 per cent. of the figures falling between 0.2 and 0.8 mg. per 100 c.cm. The high figures had all been noted in men. She concluded that there was no justification for excluding such figures, as previous workers had done, and suggested that until further work was available levels varying between 0 and 1.3 mg. per 100 c.cm. should be considered as probably

SULPHANILAMIDE IN STREPTOCOCCAL INFECTIONS

THE BRITISH
MEDICAL JOURNAL

the haemolytic streptococcus. The haemolytic streptococcus was so constantly the cause of inflammation of the middle-ear cleft that it was quite legitimate to assume that every case arose from a streptococcal infection. If surgeons were to be permitted to see cases only when pus had been well localized and walled off, he feared it would mean going back to the mortality experienced in an earlier era, though he admitted that in cases of meningitis which had been left too long, in which the onset of the disease had become advanced, and in which the physicians had refrained from calling in an otologist at an early stage, prontosil had proved the means of saving a few lives, whereas previously all such cases had been lost. Was it yet proved that the organisms in the blood stream, but did not touch the organisms in a local lesion. If that was so, there was still room for far more surgery than had been indicated by Dr. Dyke.

Miss KENNY, a co-worker with Dr. Colebrook, gave details of the results obtained by the use of prontosil in the treatment of puerperal sepsis at Queen Charlotte's. Established cellulitis did not respond so satisfactorily, but one had developed a cellulitic spread from the uterus, which meant that the duration of illness had been greatly reduced. Professor CLELAND, an Australian pathologist, mentioned a post-mortem observation on a case in which prontosil had been administered, and from which it appeared that the streptococcal infection had been controlled in parts accessible to the drug, but had remained established elsewhere.

Professor PATERSON ROSS referred to the kidney lesion which was sometimes a serious complication in haemolytic streptococcal infection. He wondered whether the high urea content of the blood might indicate not the effect of the recent haemolytic streptococcal infection but rather an older damage to the kidney. Further, was the damage to the kidney permanent, or was function likely to be restored after the acute infection had passed off? In two cases of streptococcal infection with renal damage there was severe colicky abdominal pain. Was that a symptom of the acute infection, or was it particularly associated with renal damage? Mr. E. C. B. BUTLER gave results in a series of cases treated with prontosil at the London Hospital. This revealed definite indications for its administration, but at the same time suggested that it must not be regarded as a panacea. It had definite toxic properties. Mr. CHARLES DONALD expressed surprise at Mr. Mitchiner's advocacy of such early incision. The fluid was really there to deal with the infection, and was, at least in the early stages, beneficial, not necessarily toxic. Dr. G. A. H. BUTTLE said that it appeared that some strains of the staphylococcus were more susceptible to sulphanimide than others, so that possibly from the point of view of laboratory evidence large doses of the drug might be worth trying if a case was regarded as hopeless from other points of view. In regard to middle-ear infections he had heard from Dr. Massingham of the London Fever Hospital that in cases of scarlet fever, since the giving of about 3 grammes of sulphanimide a day, there had been no case which had called for mastoid operation.

Professor GREY TURNER said that it would be agreed that the discovery of the compounds of the sulphanimide group constituted a valuable addition to the therapeutic armamentarium. He had been impressed by the importance of early pain in cases of streptococcal infection. A mild injury if attended by intense pain suggested such a development. No speaker had touched on the prevention of acute streptococcal infections following, for example, street accidents. When dealing with diseases arising from such organisms as haemolytic streptococci it was important to know whether the patient was in a good state of health when the infection occurred. It was a bad prognostic feature if patients with acute streptococcal infection were unable to take nourishment. He

wondered what would be the long-term effect of prontosil and similar drugs on sepsis. The organisms persisted in the body when there was no evidence of their activity. As yet there were no effective means of preventing recurrence of staphylococcal infections. Was health likely to be promoted on these lines by the use of prontosil, or was it only of avail in the immediate illness? Dr. DYKE, in reply, said that despite what Mr. Mitchiner and others had said as to the desirability of early incision in cases of streptococcal infection, he held to his view that the time for the use of the knife was late, not early. As for kidney manifestations in haemolytic streptococcal infections, a large number of patients showed albuminuria and pus in the urine. Colicky pain was sometimes associated with uraemia. Mr. MITCHNER, also in reply, said that he had stressed the necessity that incision should be judicious. He maintained with all deference that in many early cases of streptococcal infection judicious surgery was extremely valuable.

PREVENTION AND TREATMENT OF THE
ENTERIC DISEASES

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health on January 28 a discussion took place on the enteric group of diseases. Dr. J. A. H. BRINCKER presided.

Administrative Control

Dr. ANDREW TOPPING (London County Council), in opening, said that under modern conditions water-borne epidemics could not normally occur; when they did the were due to a combination of fortuitous events, frequent unavoidable. Milk and other foodstuffs were much commoner mediums of infection, and until proper control of milk supplies and reasonable facilities for detecting and eliminating carriers were legally enforceable sporadic, and sometimes epidemic, outbreaks would occur. The medical officer of health could do much to prevent any serious outbreak by organization in the non-epidemic periods; if relations with local practitioners were cordial it might be ensured that indefinite febrile illnesses and the possibility of carriers working on farms and in dairies were investigated. Laboratory facilities should be available and used regularly. Investigation should be made as a routine in cases of pyrexia of unknown origin and the like. A great deal could be done to educate the public, who, if they were informed as to the real causes and modes of spread, would be less likely to give way to panic. It must be made plain to them that the causative organisms were not disseminated through the air or lying in wait for people at the street corners. Dr. Topping also sketched the methods of control necessary when cases developed in hospital. In his opinion a contact could not pass on infection during the incubation period, and a realization of this fact would obviate much needless dislocation of hospital practice. As to specific immunological measures, he pointed out that the number of potential sufferers from an infected water supply was so enormous that the cost, the discomfort of the large numbers of people who would undergo injection, as well as the lack of unanimity among immunologists as to the efficacy of the procedure in the presence of infection, might well be held to outweigh the advantages. Passive immunization of those who had been in contact with a case had much more to recommend it.

Improvements in Treatment

Dr. E. W. GOODALL, late medical superintendent in the London Fever Hospital Service, who was to have been the second opener, was unable to be present, but sent a paper dealing with the principal improvements which had taken place in treatment during his long experience. In

view that in about four cases out of five the testis descends spontaneously by the age of puberty; (2) possible disadvantages of delayed descent with reference to atrophy and interference with function after puberty; and (3) development of the treatment by hormones and a comparison of the results published in the literature and those of a series of personal cases. The disadvantages and dangers of the treatment were emphasized. The speaker then made brief reference to operative procedures, and came to the following conclusions: (1) Pregnyl is of value in the treatment of undescended testis: a proportion of cases which would otherwise require surgical treatment respond to injection therapy. (2) In those cases associated with hernia and hydrocele, in which hormone treatment usually fails to secure descent of the testis, a preliminary course of injections is of value, leading to increase in the size and vascularity of the testis and development of the scrotum, and thereby improving the prospects of operation. As a post-operative measure injections are of value. (3) In bilateral cases hormone treatment should be begun about the age of 6 years, except in minor degrees of the deformity. Unilateral cases require individual consideration. In those cases needing surgical intervention the Ombredanne and Thorek methods are recommended.

In the discussion which followed the PRESIDENT said he thought that many years must elapse before the dangers of over-stimulation by sexual hormones in growing children could be correctly assessed. Mr. COSBIE ROSS surveyed the results of endocrine therapy in these cases. He pointed out that this method had been used for a longer period in some American hospitals, and quoted Campbell as saying that while congestive enlargement of the testicle and full descent might occur as a result of a course of injections, in many of these cases the testicle had returned to its former site and had resumed its previous size a few months later. These observations would appear to indicate that hormone therapy should be used as an adjuvant to surgical measures, and Mr. ROSS considered that the optimum time for operation was when the hormone therapy had achieved its maximal effect. The importance of operative correction of bilateral cases was emphasized by Moore's experimental work, when the normal descended testicle of an animal was transplanted back into the abdomen and some time later was shown to have lost the power of spermatogenesis. This was due to the increased temperature in the abdomen, and it emphasized the important thermal function of the scrotum, which acted as a "testicular radiator." With regard to the age at which operation should be carried out, the speaker thought that this should be done in bilateral cases before the age of 8 years. During the eighth and ninth years of age pubertal changes were already in progress, and if the full physiological effect of the operation was to be obtained it should be carried out before these changes began. In unilateral cases he was prepared to wait until puberty. Finally, Mr. ROSS said that the whole question of the treatment of undescended testicle was overshadowed by the hernia which was present in the majority of cases. Neither endocrine therapy nor procrastination was justifiable when the condition was complicated by the presence of a hernia. Dr. JOHN D. HAY asked if the increased virilism and enlargement of genitals produced in some of the cases by injections of pregnyl persisted after the cessation of the injections.

Dr. A. G. C. FFOLLIOTT described two cases: first, that of a boy with undescended testis high up in the left inguinal canal, which descended spontaneously at the age of 18; and, secondly, the case of a boy aged 7 with bilateral undescended testis high up in the inguinal canal, with marked symptoms of dystrophia adiposo-genitalis, which responded to a course of pregnyl injections given twice weekly. The left testicle descended after the sixth injection, and the right after the tenth.

Mr. W. A. THOMPSON believed that the treatment of undescended testis was of such importance that closer observation and more careful records should be made by

those who dealt with the condition in large numbers. He had seen over 400 cases, and had operated on 271. In his cases the following points were observed: (1) one in nine was bilateral; (2) 40 per cent. descended of their own accord, and this descent occurred during the first 2 years of age in 5 per cent., from 2 to 5 years in 10 per cent., from 5 to 10 years in over 15 per cent., and from 10 years onwards in under 10 per cent.; (3) hernia was found to be associated in only 35 per cent. of cases; and (4) it appeared that torsion was not seen so often now as formerly, this being possibly due to the fact that these cases were under supervision and that pain in an undescended testicle was regarded as a partial torsion and an indication for operation. The presence of a hernia also called for operation. Mr. Thompson said his practice now was to operate at 10 years of age, thus permitting a third of the cases to descend and, in the others, anticipating the physical and physiological changes of puberty. Regarding the results of operation, over two-thirds were uniformly good clinically. In 10 per cent. the testicle had to be removed; in 10 per cent. it atrophied. The rest of the results could only be described as moderate. He had been disappointed and frightened at the results of pregnyl injections, which appeared to require serious consideration as to the future state of the patient.

At the same meeting Mr. BRYAN WILLIAMS read a paper on a series of cases of stillbirth and neonatal death.

PAGET'S DISEASE

At a meeting of the Southern Medical Society of Glasgow on January 27, Dr. JAMES F. BRAILSFORD discussed the frequency, diagnosis, complications, and treatment of Paget's disease of bone.

Dr. Brailsford said that Paget's picture of the clinical features of the disease, as he first described it in 1876, was so complete that but little had been added to it since that time. He analysed his findings in 154 cases, of which eighty-two were males and seventy-two females. The youngest patient was aged 27 and the oldest 87. Only one patient fell in the age-group between 20 and 30, there were five between the ages of 30 and 40, twenty-four between 40 and 50, fifty-three between 50 and 60, fifty-three between 60 and 70, thirteen between 70 and 80, and five were over 80. The site at which the disease was first discovered was the pelvis in fifty-eight cases, the tibia in thirty-seven, the femur in twenty-two, the head in thirteen, the spine in thirteen, the humerus in eight, and the os calcis in three. Fractures of the tibia were noted in seven cases, of the femur in eight, of the humerus in five, and of the pelvis in three—that is, twenty-three cases in all. Malignant changes were observed in only six patients, in two affecting the pelvis, and in the remaining four the tibia, femur, scapula, and spine respectively. In most cases the condition was discovered accidentally during radiographic examination of the spine or pelvis in patients who were complaining of pain or discomfort or who were suffering from a spontaneous fracture. Only patients with a bowed tibia were clinically suspect. The bones affected were expanded and plastic, and the lesions seen radiographically were of three types: (1) those exhibiting decalcification, (2) those exhibiting a general increase in density, and (3) those exhibiting fusion and increased density and thickness of the peripheral and main trabeculae in which lanceolate, ovoid, or rounded areas resembling bone cysts were apparent. The disease began either in the endosteal or in the periosteal tissue. In the latter the periosteum appeared to be stripped from the bone by a deposit of osteoid tissue between it and the cortex. Only in that segment of the bone from which the periosteum had been stripped did decalcification and absorption of the original shaft occur. It followed that in the bone which had an intact periosteum the density and structure were normal.

normal, while figures between 1.3 and 1.7 mg. per 100 c.cm. should be regarded as probably but not necessarily pathological. In fifteen cases of typical Addisonian pernicious anaemia with red cell counts below 3,500,000 per c.mm. only three patients had been found to have a plasma bilirubin above 1.1 mg. per 100 c.cm.; the average figure was 0.93 mg. per 100 c.cm., which was well within normal limits. She suggested that this divergence from accepted teaching was due to the fact that patients with Addisonian pernicious anaemia now received treatment at an early stage of the disease, before pigment not utilized had had time to accumulate. There was no essential difference in pigment metabolism between Addisonian pernicious anaemia and other megalocytic hyperchromic anaemias reacting to liver. In nine examples of hypochromic anaemia in middle-aged women she had found an average plasma bilirubin of 0.15 mg. per 100 c.cm., with a range of 0 to 1.3 mg. per 100 c.cm. In seven patients with acholuric jaundice, before splenectomy the range had been 0.7 to 2.3 mg. per 100 c.cm.; after splenectomy it always became normal. Dr. Vaughan, in conclusion, suggested that the level of plasma bilirubin was not necessarily a true index of the metabolism of blood pigment, just as the level of serum calcium was not always a true indicator of the normality of calcium metabolism.

Hypochromic Anaemia in Infancy

Dr. H. W. FULLERTON discussed the part played by maternal iron deficiency in the aetiology of the hypochromic anaemia of infancy. Analysis of the haemoglobin levels of 167 mothers and their infants between the ages of 9 and 16 months revealed no significant correlation between maternal anaemia and anaemia in the offspring. This finding did not support the view generally held that the infants of mothers suffering from iron deficiency have a normal haemoglobin level at birth, but develop hypochromic anaemia towards the end of the first year of life, owing to a deficiency in the iron stores in the liver at birth. A quantitative study revealed that even complete absence of liver stores of iron at birth could produce only a mild degree of anaemia in the infant after nine months. It was concluded that low birth weight was a much more important factor in the development of hypochromic anaemia in infancy. Dr. Fullerton also described three cases of severe macrocytic anaemia of obscure causation, one of which was associated with portal cirrhosis. The macrocytosis, he said, could not be attributed solely to a lack of storage of the anti-anaemic factor in a diseased liver. A depressant effect on the bone marrow of toxic products formed or retained as a result of liver failure was considered to be a possible cause, however. It was suggested that in those cases in which a partial response to parenteral liver therapy occurred, deficiency of the anti-anaemic factor might also exist, due either to a failure in production of "intrinsic factor," resulting from the gastro-enteritis which frequently precedes and accompanies liver cirrhosis, or to a failure in absorption of the anti-anaemic factor consequent on congestion in the portal circulation.

Anaemias and Tropical Diseases

Dr. N. HAMILTON FAIRLEY said that though in the deficiency anaemias the reticulocyte response to replacement therapy had been carefully studied, little had been done in the anaemias caused by bacteria and parasites. Tropical diseases afforded scope for such investigation. In malaria, following experimental infection, a haemolytic normocytic anaemia rapidly developed. After atebirin or quinine had been administered the temperature became normal and parasites disappeared from the peripheral blood, in six to nine days a maximal reticulocytosis ensued and was associated with blood regeneration. A fall from 5,500,000 to 4,000,000 erythrocytes per c.mm. might be succeeded by a maximal reticulocytosis of 8 or 9 per cent. In chronic malaria a similar phenomenon occurred, the reticulocytosis being inversely related to the red cell count, here the red marrow was already hypertrophied

and the reticulocytes somewhat increased before treatment had started. In blackwater fever an intense reticulocytosis followed intravascular haemolysis; anaemia consequent on blood destruction was the main factor involved. In amoebic liver abscess associated with mild degrees of anaemia, emetine injections caused the disappearance of fever, and a maximal reticulocytosis was noted some seven to ten days later. When there was secondary coecal infection such effects were not seen. Here a reticulocytosis persisted for many weeks, only disappearing with recovery. It appeared that malarial and amoebic parasites inhibited the erythroblastic response in both these diseases, acting either directly on the normoblast and preventing adequate reticulocyte formation, or indirectly by decreasing the availability of factors essential to normal haemopoiesis. Graphs showing the reticulocyte response in tropical sprue following the oral administration of liver extract and campolon were demonstrated, also the submaximal response and poor blood regeneration in cases treated by marmite and ventriculin, neither of which proved satisfactory. The more refined and concentrated liver preparations—anahaemin (Dakin and West fraction) and reticulogen (Cohn fraction)—gave lower maximal responses, and had to be given in relatively much larger doses than in Addisonian anaemia to be effective.

Blood Tests in Disputed Paternity

Dr. JOHN C. THOMAS read a paper on the blood grouping test in disputed paternity. After discussing the results of the test in nearly 10,000 cases abroad, he showed that if the test was used as a routine in England approximately 1,000 men who are involved in affiliation suits each year would be proved not guilty. In view of impending legislation it was necessary to standardize the technique of the test to ensure accurate and comparable results, and he outlined a routine grouping method, discussing the possible sources of error. He emphasized the absolute necessity for complete control tests of both the specificity and the potency of the sera, especially with the anti-A and the immune anti-M and N sera. The sera must be of known high titre, he said, and should be titrated at intervals; they should not be stored in capillary tubes. Weak sera often failed to detect the A2 agglutinin, especially in group A2B, and anti-N sera might be so weak as not to react with MN groups; it also often failed to react with the N2 factor. The use of a too strong cell suspension was a common source of error; no suspension stronger than 1 per cent. should be used. The test should never be performed at a temperature lower than 20° C., and might be done in tubes or on slides; titrations had always to be done in tubes. In either method a negative reading was only made after microscopical examination. If completely typical reactions were not obtained with the unknown and all the control cells, the test had to be repeated with fresh sera, at least three of each type being necessary. The cells should be tested always with two or three anti-M and anti-N sera. In all forensic blood groupings the serum agglutinins were examined as a check on the cell tests, and this was done preferably by titration. Only when there was a reciprocal relationship between the cell and serum tests could the results justifiably be taken into a court of law.

ENDOCRINE TREATMENT OF CRYPTORCHIDISM

At a meeting of the Liverpool Medical Institution on Thursday, January 27, with the president, Dr. E. G. BAYNE, in the chair, Mr. PHILIP HAWE read a paper on the treatment of undescended testis.

Mr. Hawe referred to the various dangers to which patients with undescended testis are liable, and to avoid which treatment may be necessary. He briefly reviewed the following subjects: (1) the possibility of spontaneous late descent: although in the past this has been thought unlikely after the age of 3, recent statistics support the

Chadwick Public Lectures

On Tuesday next, February 15, at 5.15 p.m., the twenty-sixth annual series of Chadwick Public Lectures will be started at Manson House, 26, Portland Place, London, W., when Major P. Blair-Hook of the South African Medical Corps will lecture on "Health Conditions in the Union of South Africa." This will be also the fourth and last lecture of the course by representatives of the Dominions. Sir William J. Collins, M.D., chairman of the Chadwick Trustees, will preside, and Major Blair-Hook will tell in word and picture the health story of the Union of South Africa from days of the early use by trading steamers of the Cape of Good Hope as a refitting station, through all the developments which geographical and race problems have brought about. On March 3 Mr. B. S. Townroe will discourse on "The Hygiene of Prisons," reviewing the Prison Acts from 1782 to 1898, describing present movements for amelioration and plans for future reforms, and giving account from his inspections of the sanitary conditions of many French, American, and English prisons. A series of slides showing interior and exterior conditions will illustrate the lecture. These lectures at Manson House will be followed by two in the theatre of the London School of Hygiene, Keppel Street, W.C., where, on March 24, Mr. W. J. E. Binnie will take "Water Supply in Relation to Public Health" as his subject. In May Professor Ernest Barker will speak on "The Community Centre in Relation to Public Health and Public Welfare." Admission to all Chadwick Lectures is free and no tickets are required.

SCOTLAND

Edinburgh Public Dispensary

At the recent annual general meeting of the Royal Public Dispensary of Edinburgh the Lord Provost, who presided, said that under an agreement with the corporation the old site of this dispensary had been made available for other purposes as part of the slum clearance scheme in the Richmond Street district. A new site and a substantial sum towards the cost of rebuilding had been contributed by the corporation, and the new building, now almost complete, would be opened in spring. The total number of patients treated in the past year had been 2,296, and the finances had been satisfactory with a surplus of revenue over expenditure of £220.

West of Scotland Neuro-Psychiatric Research Institute

At the annual meeting in Glasgow on January 31 of the Board of Management of the West of Scotland Neuro-Psychiatric Research Institute Dr. Ford Robertson, superintendent of the Institute, said that several publications on serology, haematology, and bacteriology in relation to mental diseases were in course of preparation. There had been progress on the Continent in recent years in the treatment of dementia praecox by cardiazol and insulin shock. It had been estimated that if patients suffering from dementia praecox were treated by the insulin shock method during the first four years an average of 46 per cent. recovered, while an even higher percentage of recoveries was claimed in cases receiving the cardiazol shock method of treatment. Research in mental disease in this country, he said, did not enjoy so much support from the public as research into bodily illness.

Aberdeen Health Services

The report by the medical officer of health of the city of Aberdeen on the medical inspection and treatment of school children, covering the year ended July 31, 1937, states that the dental section of the school services scheme continues to increase in popularity, and that the appointment of an additional whole-time dentist has been fully justified. Further additions to the dental staff are

envisaged in the near future. During the period under review the authorities have fostered an active campaign in connexion with immunization against diphtheria. A circular letter was sent to the head teacher of each school, together with a supply of handbills, consent cards, and record cards. The teacher was requested to give a handbill and consent card to each child. The handbills, addressed to parents, carried some very effective propaganda in favour of immunization. Those parents who were persuaded by the handbills signed the consent cards to permit immunization, and their names were then entered by the teacher on the record cards. As a result of this campaign 52.3 per cent. of school "entrants" were immunized. This figure, however, is not regarded as satisfactory, for, as stated in a previous report, a percentage of at least 80 is necessary to affect favourably the efforts to eliminate the disease and to relieve the strain on the infectious diseases hospitals.

Correspondence

Use and Abuse of Antiseptics

SIR,—May I reply to comments which have been made both in your columns and in personal correspondence on the articles by Mr. Geoffrey Keynes and myself entitled "The Use and Abuse of Antiseptics"? These have referred chiefly to the properties and use of acriflavine. In the first place, by deploring the cost as well as the unsuitability of iodine we did not intend to convey that all the preferable alternatives are inexpensive; this is true of Harrington's solution but certainly not of acriflavine, although the 0.2 per cent. solution recommended for the treatment of wounds is more economical than Tinker and Sutton's 5 per cent. solution for pre-operative skin disinfection. Professor Fleming's opposition to some of the claims made on behalf of acriflavine is well known, and there is much force in his argument that appropriate experiment should expose leucocytes to the action of acriflavine for a longer period of time. In a study of acridine compounds which has recently been made in this laboratory my colleague, Dr. A. E. Francis, has studied their effect on the motility of leucocytes by direct observation during periods up to one and a half hours, and activity persists in 1 in 2,000 solutions of acriflavine and proflavine throughout this time; the spectacle presented by these leucocytes, stained a bright yellow but nevertheless actively motile, would astonish any sceptic. Since weaker solutions of such compounds are bactericidal under similar conditions and within the same time limits, it is true to say that these substances are more lethal to streptococci than to the cells of mammalian tissues.

Acridine has the disadvantage, not referred to in the articles by Mr. Keynes and myself, of ill-defined composition. It is actually a mixture in variable proportions of 2:8 diaminoacridine hydrochloride and its methochloride, together with traces of by-products of the reaction of preparation, which appears to increase solubility. It is possible that experimental results less favourable than those which I have just described have been obtained with unsatisfactory samples, and that divergent opinions on the merits of acriflavine are justified by differences in composition and action. Good acriflavine is the best antiseptic of its kind now obtainable, and it is justifiable to hope that bad samples are not nowadays produced, but the position is admittedly unsatisfactory. A paper by W. H. Linnell, A. Albert, A. E. Francis, and myself, which is shortly to appear, records

CHILD GUIDANCE

At a meeting of the Sheffield and District Association of the Medical Women's Federation on January 29 Dr. F. J. S. ESHER, medical director of the Sheffield Child Guidance Clinic, gave a lecture on child guidance.

Dr. Esher said that child guidance was a scientific subject based on interpreting certain observations of the relationship between children and parents. Intelligence was a physically determined aspect of mind and depended on the number, complexity, and arrangement of nerve cells. An index of the degree of intelligence could be obtained by testing and was unalterable except for the worse. Mental stability might also be a physically determined aspect of mind, but emotional development or personality was mainly dependent on the psychological environment. Environmental factors might cause a child to become a "problem child" where, for example, there was loss of security in a home broken by discord, death, changes of abode or changes of income; lack of opportunity for mental growth; and, perhaps most important of all, the failure of parents to adopt the right attitude in training a child. Treatment undertaken at the child guidance clinics involved testing of the intelligence by a psychologist, examination of the emotional reactions by a psychiatrist, and certain social investigations which were made by social workers. Conditions of which complaint was commonly made were fears and anxieties, excessive fantasy, emotional instability, nervousness, inferiority feelings, enuresis, neurotic illnesses such as asthma and migraine, delinquency, educational difficulties, and stammering. Dr. Esher concluded by saying that ideally there should never be a problem child. This ideal state would only be brought about by dissemination of the knowledge gained about the mental life of the child in relation to his parents, teachers, and others.

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland on January 21, with the president, Dr. G. C. DOCKERAY, in the chair, four short communications were presented. Dr. W. R. F. COLLIS read notes on a case of congenital haemolytic anaemia, Professor J. McGRATH described a case of leuco-erythroblastic anaemia, Dr. J. A. WALLACE discussed a case of mediastinal tumour, and Mr. A. B. CLERY showed four specimens of meningeal tumours, outlining the histories of the patients concerned and describing the operations performed in each case. Among those who took part in the discussion which followed each paper were the President of the Academy, Dr. A. R. Parsons, Mr. A. A. McConnell, Drs. J. C. Flood, R. E. Steen, E. Harvey, and T. A. Bouchier-Hayes.

At a joint meeting of the Society of Public Analysts and Other Analytical Chemists with the Food Group of the Society of Chemical Industry, on February 2, Dr. A. C. FRAZER read a paper on fat absorption and metabolism, in which he presented evidence that passage of fats through the walls of the small intestine could take place without hydrolysis to fatty acids and glycerol. In cats such hydrolysis could not occur, for there was no lipase in the intestines. In human beings lipase was present, and part of the fats ingested penetrated the intestinal walls as fatty acids, but a large proportion penetrated unchanged. The fatty acid portion passed to the fat depot by way of the portal vein, liver, and hepatic vein, but the unhydrolysed fat avoided the liver and passed to the fat depot by way of the lacteal lymphatics and the systemic vessels. The presence of particles of unhydrolysed fat in the blood was detected microscopically by use of dark-ground illumination, and this means was used to study variations in the concentration of the fat particles in the blood in course of digestion.

Local News

ENGLAND AND WALES

Liverpool Cancer Inquiry

A commission of leading Liverpool medical men, scientists, and representatives of hospitals has been authorized to report on the work which is being done in the district in the investigation and treatment of cancer, and on possible extensions and improvements. The inquiry was set up on the initiative of Lord Derby, Chancellor of the University of Liverpool, who consulted with the Associated Voluntary Hospitals Board. The members of the commission are Professor Arnold D. McNair, LL.D., Vice-Chancellor of the University (chairman), Professor R. E. Kelly, M.D., F.R.C.S., Professor Henry Cohen, M.D., F.R.C.P., Professor James Chadwick, F.R.S., Professor A. Leyland Robinson, M.D., F.R.C.S., and Mr. Rowland H. Thornton, chairman of the Associated Voluntary Hospitals Board. The secretary is Mr. A. V. J. Hinds, 641, India Buildings, Water Street, Liverpool. The commission's terms of reference are to examine and report on the work being done in the Liverpool area in connexion with the treatment of cancer and the investigation in all its aspects of the cancer problem; to examine and report on methods of extending and if possible improving this work in the Liverpool area and of giving maximum effect to all the scientific, clinical, and financial resources available therein for these purposes, with particular reference to (1) the best use, consistent with the welfare of patients, of the hospital accommodation and research facilities available in the voluntary and municipal hospitals in the Liverpool area, and in particular in the Radium Institute and the Hospital for Cancer; (2) the most promising lines of investigation in regard to cancer, its causes and treatment, capable of being pursued in the area; (3) the feasibility of co-ordinating the various activities involved, whether by bringing these under some unifying board or authority or by some other method.

New Clinic for Chronic Rheumatic Disease

On February 2 the new clinic which has just been formed for the treatment of chronic rheumatic diseases at the West London Hospital was officially opened. The physician-in-charge, Dr. W. S. C. Copeman, showed a film of his own making illustrating the differential diagnosis of rheumatoid arthritis and osteo-arthritis. Among those present were Sir Frank Fox, organizing secretary of the Empire Rheumatism Council, the chairman of the Public Health Committee of the Royal Borough of Kensington, Dr. James Fenton, M.O.H. for Kensington, and Dr. J. B. Howell, M.O.H. for Hammersmith. Before showing the film Dr. Copeman drew attention to the importance of chronic rheumatism as an industrial disease, and expressed his belief that the West London Hospital was the first general hospital in London, if not in the British Isles, to start a special department for the treatment and investigation of these diseases. At the conclusion of the lecture the Dean of the Medical School, Dr. Maurice Shaw, congratulated Dr. Copeman on the excellence of his film, and expressed the general satisfaction of the staff of the hospital in the foresight of the Board of Management in providing the new clinic. Dr. James Fenton stressed the need for research into the rheumatic diseases, and hoped that this aspect would not be lost sight of in the new clinic. A clearer understanding of the aetiology would lead to more effective preventive treatment. Dr. Howell also congratulated the hospital on its new venture, and promised the sympathetic support of the public health authorities of the Borough of Hammersmith.

supervised, and presumably the results are reported to the medical officer of health. Presumably, also, these results are incorporated in his annual report, of which three copies are sent to the Minister of Health. Moreover, in the city of London, and probably in other large cities, all slaughtering is supervised by two whole-time qualified veterinary inspectors. Is there any difficulty in asking for a return of the number of carcasses inspected and the number found to be tuberculous? The answer is in the negative.

The Cattle Diseases Committee of the Economic Advisory Council, which was appointed in November, 1932, and whose report was published in May, 1934, stated as follows concerning the incidence of bovine tuberculosis among cattle (para. 29 of the report):

"The incidence of bovine tuberculosis among cattle is probably as high in Great Britain as anywhere else in the world. A number of witnesses before us have expressed the view that 40 per cent. of the cattle in this country are infected with it in such degree that they will react to the tuberculin test. This estimate is based first upon the percentage infection found in herds tested with tuberculin for the first time, and, secondly, upon the results of the inspection of carcasses of cows slaughtered. For example, the results of tests in 144 herds which had not previously been tested for tuberculosis were quoted in various memoranda submitted to us, and showed that of 5,199 cows, 2,233; or 43 per cent., gave a 'positive' reaction. It was also recorded in a report drawn up by the People's League of Health that 39.5 per cent. of 55,318 cows slaughtered at various centres were found on post-mortem to be infected. In considering this latter percentage it must be remembered that many cows which are infected with tuberculosis do not reach the slaughter-house, as they die upon the farm, or are sent to kennels or knackers. It may therefore be unduly low. In the light of such figures as these the generally accepted conclusion that at least 40 per cent. of cows in dairy herds are infected with tuberculosis does not appear exaggerated. This percentage of infection may be compared with the percentage of something over 4 in the United States, and of approximately 12 in Canada, before steps were taken against the disease. We have no evidence to show whether the disease is increasing or diminishing in Great Britain, but the widespread neglect of adequate precautions against its increase makes the latter improbable."

It is a sad reflection on our complacency and apathy that Great Britain in this aspect of public health should lag so far behind a smaller and poorer country, and that the incidence of bovine tuberculosis in England and Wales should be two thousand times greater than in Finland. To make things worse our Milk Marketing Board, the most friendless body in Britain, has put a levy on the milk from tuberculin-tested herds. The owners of these herds are allowed to sell milk for one-third more than the price of milk from non-tested herds. Nevertheless, there will be a reduction in the number of tuberculin-tested herds, and consequently a reduction in the amount of tubercle-free milk available for the public. When the Milk Scheme was introduced all milk producers—good, bad, and indifferent—were lumped together and paid the same levy. The good producer who spent more on milk production than the bad producer would have been crippled; if not ruined, by the levy. To escape from the clutches of the Milk Board the good producer sold his herd and bought tuberculin-tested animals which cost double as much as untested cows. Yet being outside the jurisdiction of the Milk Board he was able to sell his milk at a remunerative price, and in point of fact the number of tuberculin-tested herds was doubled. I know of two owners who have ceased to use the tuberculin test since the levy was introduced.

The Milk Marketing Board is a mystery and a sign. The producer must sell whole milk for 2s. a gallon, but he may sell skimmed milk to food manufacturers for 3½d. a gallon. Again, milk sold for its cream costs more than

milk sold for making butter, although a child could tell you that butter is made from cream. Hence we have reached the Gilbertian situation where it is more economical for a consumer of cream to buy butter together with a machine for turning the butter back into cream. It reads like *Alice in Wonderland*, or rather in *Dementia*. I am not an economist, and am beginning to wonder whether such people exist.—I am, etc.,

London, W.8. Feb. 3.

HALLIDAY SUTHERLAND.

Tuberculosis in Infants

SIR,—The prevention, diagnosis, and treatment of intrathoracic tuberculosis in infancy is one of the most difficult problems we have to face. Dr. Dorothy Price's excellent paper on tuberculosis in infants (*Journal*, February 5, p. 275) will help to correct certain common misconceptions to which she refers and emphasize important points in prognosis and treatment. It might be argued that her diagnostic standards were not strict enough, and I for one would wish her to include, in paragraph 3 of her summary, examination of the expectoration (obtained by tickling the throat or by gastric lavage) for the tubercle bacillus either directly or, if this is negative, by guinea-pig injection. Exact diagnosis is particularly important, because it helps the tuberculosis officers to find unsuspected "open" cases of phthisis in adults, and, as Dr. Price emphasizes, one of our most important tasks is to remove infants from their dangerous environment whenever we can and at the earliest possible moment. It would, of course, be more economical to remove the infected adult from the home—in the American phrase to "make every home a preventorium"—but for various reasons this is often impossible at present.

My own investigations—a summary of which will shortly appear in *Acta Paediatrica*—have convinced me that:

1. Primary intrathoracic tuberculous infection is fairly common in infancy, and is frequently undiagnosed—masquerading as bronchitis, pneumonia, debility, "marasmus," gastro-enteritis, etc.—unless the tests advocated by Dr. Price and supplemented by a search for the tubercle bacillus are extensively applied to ailing babies.

2. Such infection is always a potentially dangerous illness, but the mortality rate is not high if infants can be removed early from the source of infection. (Dr. Price's series gave a high mortality rate because so many of her cases had gone beyond the primary stage when they came under her care.)

3. The correct and early diagnosis of primary tuberculosis in infants constitutes one of the most important means we have for attacking the tuberculosis problem in general.—I am, etc.,

Liverpool, Feb. 6.

NORMAN B. CAPON.

Trauma and Progressive Muscular Atrophy

SIR,—In his interesting review (*Journal*, January 29, p. 225) Dr. G. E. Frederick Sutton puts forward the view that trauma may sometimes be a factor in the production of progressive muscular atrophy. It may be of interest to mention three cases, of a somewhat different kind, which perhaps throw a light on the nature of the influences at work.

During a large epidemic of acute anterior poliomyelitis I saw three instances of children suffering from fractures who developed poliomyelitis while the fractured limb was still in splints. In each of the three cases there was a widespread paresis, which cleared up almost completely

an attempt to identify a single acridine compound (as distinct from a mixture) which is at least equal in merit to acriflavine, and although this work has not yet fully attained its aim it is likely that in time to come uniformity of effect in antiseptics of this kind will be secured.

May I at the same time refer to Dr. Corfield's suggestion that chloroform should be used instead of spirit for sterilization of instruments? This may be a useful method from some points of view, but the accompanying statement that chloroform will kill spores requires emphatic contradiction. It was found as long ago as 1881 by Koch that chloroform would not kill anthrax spores in 100 days, and subsequent experiments by many others have had similar results. I can vouch from personal experience for the fact that chloroform does not kill the spores either of *B. subtilis* or of *Cl. tetani*.—I am, etc.,

St. Bartholomew's Hospital,
London, E.C.1, Feb. 4.

LAWRENCE P. GARROD.

Oxygen Want and Oxygen Therapy

SIR.—Your leading article on this subject contains a statement in regard to the mortality from pneumonia which requires explanation or correction. You state that among 46,000 cases of pneumonia in England and Wales in 1936 there were 30,000 deaths, and contrast these figures unfavourably with those in the United States.

It has long been recognized that the mortality of lobar pneumonia in the United States is, for various reasons, considerably higher than in this country. The usual mortality figure for lobar pneumonia in large hospitals in England, including all age groups, is given as approximately 20 per cent., and it is generally held that the mortality in practice is considerably lower. Full references to mortality figures were recently given by Davies, Graham Hodgson, and Whitby (*Lancet*, 1935, 1, 791). Your figures suggest a mortality of 65 per cent., or double the higher hospital figures in the United States, or, so far as I know, in any European country. You give no indication, however, as to whether your figures are concerned with lobar (pneumococcal) pneumonia only, or with all types. No allowance is apparently made for discrepancies due to the fact that, although pneumonia is now notifiable, we have no reliable evidence as to the actual proportion of cases notified.

Finally, the article seems to imply that the more favourable [*sic*] figures in the United States may be partly due to a more extensive or efficient employment of oxygen therapy. This would be very difficult to substantiate even were it accepted that the American mortality rate is lower than ours. It must be remembered that serum therapy is extensively employed in the United States because of the high mortality figures there, and that it has not as yet been employed on a wide scale in England.—I am, etc.,

Cambridge, Feb. 5.

JOHN A. RYLE.

* The figures were obtained from the Annual Report (1936, p. 17) to the Minister of Health. The cases include, however, only those that are notifiable; but the deaths tabulated under acute primary and acute influenzal pneumonia (31,067 in all) include also deaths from bronchopneumonia and "pneumonia not otherwise defined," as stated in a footnote. In the leading article the word "notified" should have been inserted between "46,000" and "cases." That early treatment with oxygen is of value in preventing and lessening complications was demonstrated by Dr. Hathaway and colleagues (*Anaesthesia and Analgesia*, 1937, 16, 89), also by Drs. Evans and Durshodwe (*ibid.*, 1932, 11, 193).

The Danger of the Stercolith

SIR.—Mr. A. M. Spencer in the *Journal* of January 29 (p. 227) stresses the importance of the stercolith in the aetiology of acute appendicitis; undoubtedly its presence, acting as a nidus of infection and as an obstruction to drainage, is responsible for a virulent and acute type of the disease that is apt to be particularly dangerous. Perforation of the appendix wall and release of the stercolith into the abscess cavity is frequently found in late cases, and careful search for and removal of the stercolith should be made as far as circumstances permit. Failure to achieve this may be responsible for prolonged suppuration, either immediate or delayed, as in a recent case under my care.

In 1925 a child of 24 years was operated on for acute appendicitis; as the patient was extremely ill no prolonged search was made for the stercolith which, it was noted, had probably been present. Healing occurred satisfactorily, and nothing further was noticed until, as a boy of 14, the patient was again seen in 1937 for abdominal pain and tenderness in the right iliac fossa. A few days later a lump appeared, and from this pus was evacuated. While this was being done the stercolith which was suspected as the cause of the residual infection was felt momentarily in the depths of the abscess cavity, but escaped before it could be removed and could not be identified again. Prolonged suppuration followed in the pelvis and lower abdomen, and the boy became extremely emaciated and ill, until, happily, at the end of three months a small stercolith of almost metallic hardness delivered itself from a sinus, and suppuration ceased almost immediately.

Apart from such an unusual occurrence, one may envisage the possibility of mild chronic sepsis occurring round a retained stercolith producing very baffling symptoms in a case in which the appendix was known to have been removed and such a contingency overlooked.—I am, etc.,

Birmingham, Jan. 29.

SEYMOUR BARLING.

Bovine Tuberculosis in Britain

SIR.—During a recent visit to Finland I learnt that over two million cows in that country have been tested with tuberculin during the past forty years. In the early years of testing cattle a positive reaction to tuberculin was obtained in as many as 26 per cent. of the animals. Many of these were slaughtered and found to be obviously diseased. In this aspect of public health Finland is now unique in Europe. In the State-controlled abattoirs only 0.02 per cent. of cows slaughtered are found to be tuberculous, as against 50 per cent. in Sweden and at least 40 per cent. in England and Wales.

The facts about bovine tuberculosis in Finland led me to seek information from the Ministry of Health as to the percentage of cows found to be tuberculous when slaughtered (a) in municipal abattoirs and (b) in private abattoirs in England and Wales. The reply was as follows:

"I am directed by the Minister of Health to say that he regrets that the information you seek is not available, and the Minister is not aware of any source from which it could be obtained at present."

In view of that reply it is a pleasure to enlighten the Minister as to the sources from which the information could be obtained. All abattoirs, municipal and private, are open to sanitary or veterinary inspectors. All owners of private abattoirs must give statutory notice to the local medical officer of health before animals are slaughtered. In a large rural area with only one sanitary or veterinary inspector it would be impossible to supervise all slaughtering. Nevertheless the slaughter of some animals is

through intramural tension; and, thirdly, that he might investigate thoroughly the bacteriology of the acute fulminating appendicitis which is so often fatal, particularly with reference to the leucocytic response and the value of the sulphanilamide group of drugs in its treatment. It is generally admitted that the diet of the white races plays a large part in their marked predisposition to the disease, and the extreme prevalence of appendicitis in the U.S.A. suggests that canned and preserved foods may be largely responsible for this increased frequency. This last point also seems worthy of further investigation. The results of such investigations made over a large series of cases—500 to 1,000—could not fail to be of great clinical value.—I am, etc.,

Glasgow, Feb. 5. A. JAN L. MATTLAND, F.R.C.S.Ed.

Throat Carriers in Midwifery Practice

SIR.—The "generous spirit" that recognizes in Professor Miles H. Phillips's dictum, "every woman is pregnant until you have proved that she is not," a pearl of wisdom when applied to bacteriology finds that "what you lose on the swings you gain on the swabs." It is therefore a matter of interest and importance to estimate what the profession has gained on the swabs. The swabs have revealed to us, among other things, that the streptococcus is a most protean and omnipresent organism. The type lethal to man is found in every possible situation except one—the vagina. It refuses absolutely to inhabit the vagina until it can clearly prove that it has been put there by the carelessness of the medical attendant. I know of no other organism that displays this lethal and malicious combination of characteristics. The favourite habitat of this Group A streptococcus is the nose and throat of every third or fourth person in existence. It shows such a tendency to inhabit the vagina of the parturient—when the attendant can be convicted—that it is almost impossible to keep it from doing so.

The remedies suggested are, among others, that the nose and throat of the patient and every possible contact should be swabbed *two days before the patient goes into labour*. With a certain Royal example recently before us, it is pertinent to ask how often these suffering people would require to have their throats swabbed. The swab must be taken and cultured by experts, otherwise the results are not to be depended on. If a swab is negative no importance is to be attached to it. If positive the swabs have to be kept for six months in case of legal action. They have to be witnessed and certified by disinterested responsible persons, who no doubt in their turn would require to be swabbed and masked. Similarly, two days before labour sets in everyone in the immediate environment of the patient must be constantly masked, as must the patient herself. The same masks must not be worn for any length of time because they lose their pristine sterility and become in their turn lethal agents. To be absolutely reassured against legal consequence we must also have swabs taken to prove that the masks were sterile, and if the masks were sterile the swab would thus be negative, and the bacteriologist says these negative swabs have to be disregarded. We must thus go on swabbing at the sterile mask until we get a positive culture, and that positive culture must also be kept for six months. To show the resulting reaction by the parturient if these bacteriological safeguards are not employed we have only to conjure up a picture of the postman with septic tonsils coughing upon letters congratulating the young primipara on the successful conclusion of her first adventure. The letters would be taken straight to the patient with

disastrous bacteriological results. The nurse who carried the correspondence to the patient would become similarly infected, and upon the swabs being taken would be blamed for the septic consequences to the patient. The doctor and nurse in the future must be content to have their antra operated on, tonsillectomy performed, etc., though no one with a knowledge of the end-results of these operations would seek to maintain that they were cures for streptococcal infection. I need not enlarge these points further, but will end by asking again—What have we gained on the swabs?—I am, etc.,

Glasgow, Feb. 4.

JAMES COOK.

Cauterization of the Cervix

SIR.—I should like to add my congratulations to those of others on Professor James Young's able and enlightening publication on lower abdominal pains of cervical origin in the *Journal* of January 15 (p. 105). The amount of disability resulting from chronic septic infection of the cervix uteri is not sufficiently recognized, and it is a good thing to call attention to it from time to time because the condition has been overlooked in so many women who come to the gynaecologist after having found no relief from removal of the appendix. It is to one of the methods of cure that I wish to call attention.

Thorough cauterization is often advised and referred to as a simple and harmless measure. I have recently seen three most distressing results of this procedure. One case was that of a young woman who developed increasingly severe dysmenorrhoea after cauterization. All that remained of the cervix was a hard indurated knob of dense scar tissue or keloid through which the smallest dilator would pass with difficulty; dilatation of the canal was impossible. How is such a patient to be relieved? The other two cases are more or less the same but less severe. Both have hard cicatrized tissue preventing the natural softening and dilatation of the canal, and have developed dysmenorrhoea since cauterization. The essential practical features of the cervix are its elasticity and dilatability. The scar of a burn is a permanent deformity which the obstetrically minded do not like in the cervix, apart from the occasional results seen from over-thorough cauterization.

I think there are objections to producing burn scars as a surgical procedure. I find that the clinical results of disinfecting the glands of the cervical canal as much as possible, coupled with curetting and excising badly infected portions and retention cysts, and with amputation of the cervix for the more severe cases, are satisfactory. So far I have not seen constrictions of the canal and dysmenorrhoea resulting. My warning is not to those who understand the correct degree of heat to use and how to apply it, but to those who would give it "a thorough good cauterizing"—and do. Is my experience exceptional?—I am, etc.,

E. LAWTON MOSS, F.C.O.G., M.R.C.S.

London, W.1, Jan. 30.

Methods of Pelvimetry

SIR.—The important conclusion arrived at by Mr. J. Howkins in his paper published in the *Journal* of February 5 (p. 278) on the unreliability of the clinical measurements of the true conjugate is another argument in favour of x-ray pelvimetry. This can now be carried out with any standard radiographic plant and is sufficiently accurate for clinical purposes, as the possible error in a properly carried out x-ray pelvimetry does not exceed 4 to 5 mm. I have been using Thoms's method for a number of years.

except in the fractured limb, which remained severely and permanently paralysed. For example, in a case of fracture of the bones of the forearm the final result in the uninjured limb showed a paralysis of only the opponens pollicis and triceps, while the whole of the fractured limb was the subject of permanent and almost complete paralysis, which included even the deltoid. I described these three cases at a professional meeting, and in the subsequent discussion it transpired that two of the members present had seen cases precisely comparable. In these children it appears probable that the trauma had the effect of opening the door to an acute anterior poliomyelitis, with a segmental distribution corresponding to the site of the injury. The pathological process is at present obscure, but it may perhaps represent the acute phase of the chronic process described by Dr. Sutton.—I am, etc.,

R. G. ABERCROMBIE.

Edgar Allen Institute, Sheffield, Feb. 3.

SIR,—I was greatly interested in Dr. G. E. F. Sutton's account of the association between trauma and progressive muscular atrophy. During 1937 I was consulted four times in respect of this problem. On each occasion I gave those seeking my advice the following information. (a) There is a sharp conflict of opinion, as reflected in medical textbooks, on this subject. The best example of this conflict is seen in the difference between the second and the fourth editions of Price's *Textbook of Medicine*. (b) It is incredible that slight jarring or jolting should be the cause of progressive muscular atrophy; for if it were so the disease would be exceedingly common instead of very rare. (c) On the other hand, many patients give an impressive chronological account pointing to the probability that in certain cases trauma may hasten or precipitate the onset of the disease. (d) It may well be that in certain cases the accident is the result of clumsiness in the very early stages of the disease. (e) The disease may be closely mimicked by other maladies, some of which are certainly traumatic in origin. (f) The original descriptions of the malady by Duchenne and others make little or no mention of trauma.

I thought it might interest your readers to know how these views have appealed to jurists. Two of my cases are still unsettled. In one case compensation has been refused point-blank, and I have advised that appeal will be useless. In a fourth case the employers paid to the estate of the injured workman the sum of £500. A learned and very experienced county court judge consented to this settlement.—I am, etc.,

Sunderland, Feb. 3.

G. F. WALKER, M.D., M.R.C.P.

SIR.—The association of trauma with progressive muscular atrophy was discussed in an article by Dr. G. E. Frederick Sutton in the *Journal* of January 29 (p. 225), and I am prompted to add the following case report to the somewhat scanty literature on the subject.

A retired business man, aged 62, sprained his right ankle while playing golf in September, 1935. In December of the same year he complained of numbness and weakness of the right foot and leg, which he attributed to the recent accident. A month later, in January, 1936, the question of progressive muscular atrophy was raised, and by April of that year the diagnosis was established. In October atrophy of all the muscles below the knee was demonstrable, but the patient was able to walk and to drive his car with safety. A year later, in October, 1937, he was still driving, but was unable to walk without the help of a stick, and could not balance himself unassisted when standing. He further complained of

weakness and cramp of the muscles of the left thumb, being unable to hold his razor in that hand. The following month the loss of power in the left arm interfered with gear-changing while driving, and weakness of the left foot was first noticed. A month later the trouble spread to the right hand, and at the time of writing there is pronounced general weakness of all four limbs. The patient's condition is complicated by urethral stricture and multiple urinary calculi. The Wassermann reaction is negative.

The question arises as to the relation between the slight injury to the foot and the onset of the disease a few months later. *Post hoc ergo propter hoc* may be fallacious reasoning in this case, and the accident to the foot may have been the first sign of muscular imbalance. The patient himself insists that his foot was perfectly sound before the accident, and that it has never been the same since. He unhesitatingly attributes his disability to that occurrence. But it is a well-recognized fact that any patient suffering from a defect—be it physical, mental, or moral—seeks an external cause rather than admit in himself an internal source of disease. Every woman with mammary carcinoma believes her condition to be due to a blow upon the breast.

I report this case for what it is worth. While some may consider it as a further instance of trauma precipitating the onset of progressive muscular atrophy, I am inclined to look upon the relationship as accidental. Having regard to the large number of injuries and the few cases of progressive muscular atrophy, it is by no means certain that the cases hitherto reported cannot equally well be explained as mere coincidences. In the absence of any better theory than "ascending neuritis" or "molecular disturbance of the cord" I prefer to retain an open mind on the subject.—I am, etc.,

D. STANLEY-JONES, M.B., B.S.,
B.Sc., F.R.C.S.

Hayle, Cornwall, Jan. 31.

Acute Appendicitis

SIR.—After reading Dr. A. M. Spencer's article in the issue of January 29 (p. 227) on the aetiology of acute appendicitis, I feel that two criticisms of it must be raised. The first of these is this—that during the years up to 1900 (*circa*) appendicitis was frequently labelled in error typhilitis, perityphilitis, or simply peritonitis of unknown origin, and therefore these diseases should be included in any survey designed to determine its frequency prior to that date. The second is that it is fallacious to base statistical conclusions on any series of cases which is not considerably larger than that used in this article. Let me illustrate the point by an example showing the possible error even in a fairly large series and extracting only one simple fact. During 1936, 319 cases of catarrhal appendicitis were operated on in the Western Infirmary, Glasgow, with three deaths, giving a mortality rate for the year of slightly under 1 per cent. If this series of cases is arranged chronologically and split into two groups of 160 and 159 respectively, it is found that the former contains no deaths, while the latter contains all three and thus acquires a high mortality rate of slightly under 2 per cent.

Since the only justification for destructive criticism is the emission of constructive suggestion from the same source, let me make the following suggestions to Dr. Spencer for his future use in the study of this subject. I would suggest first of all that he makes an endeavour to correlate the organisms of the sore throat—when present—with those in the inflamed appendix; secondly, that he differentiates between the appendix kinked over an adhesion with distal inflammation and that coiled on itself

the school shoe, with its broad flat heel, to the high heel and pointed toe. True, she may be able to get a brogue shoe with flat heel for outdoor country wear, but indoor shoes, slippers, afternoon and dancing shoes are all of the so-called fashionable, pointed, high-heeled variety. Of course shoes can be made individually for the wearer, but they are expensive, especially when she requires to have a number suitable for wearing with different frocks. The typist, shop girl, secretary, etc., cannot afford this, and therefore has to take what the manufacturer offers. I have had the opportunity of speaking to several manufacturers and they maintain these extravagant shapes are what the public demand. Yet I am continually getting complaints from mothers and daughters of the impossibility of getting correct shoe wear. The retail shoe provider makes a great show with his x-ray apparatus, and he has shoes with innumerable varieties of patent arch- and toe-supports, which may or may not assist in correcting the deformities which they in the main have previously produced. X-ray films taken with the patient wearing high-heeled shoes show that only half the upper articular surface of the talus is engaged, the anterior portion of the articulation having nothing to work on.

Is it not time for the medical profession to urge from a national health point of view that the shoe manufacturers provide a shoe on real anatomical lines?—I am, etc.,

Harrogate, Feb. 2.

G. L. KERR PRINGLE.

Technique of Blood Transfusion

SIR,—From personal experience of receiving blood transfusions I should like to mention one or two relevant points which I think could with advantage be emphasized.

First, and of paramount importance, is the rate of transfusion. Dr. H. F. Brewer in his excellent article (*Journal*, January 29, p. 241) suggests that a pint in half an hour is a reasonable rate. May I make a plea that this be regarded as the maximum rate, and that on occasions this time should deliberately be exceeded? Blood transfusion is a procedure that may so easily and unconsciously be hurried. Patience on the part of the operator will add greatly to the comfort of the patient, and may often avoid some of the unpleasant catastrophes that occasionally occur. Transfusion by the clock—not against it—will be helpful in developing this necessary virtue. At the same time the temperature of the blood should be kept as near to the ideal as possible, a point to be watched when the transfusion is given slowly.

Secondly, in transfusing patients with severe infections the quantity of blood should be rather on the low side. This type of patient usually develops a severe delayed reaction, probably of a non-specific protein character. This reaction very often has a beneficial effect on the course of the infection, and one which I believe is of more importance than the actual increase in haemoglobin to the patient, but it may easily become too violent. Little and often is, I think, good practice to follow in these cases.

Finally, with regard to the amount of citrate added. That suggested by Dr. Brewer—0.3 gramme for every 100 c.cm. of blood—may comfortably and safely be used, but I think it is easy to be too lavish with the citrate in order "to be on the safe side." I believe that a good many of the unpleasant sensory symptoms experienced in the course of transfusions are due to the temporary alkalosis induced by the citrate. Where excessive quantities are used the symptoms of tetany that may occur, though of short duration, may be quite alarming. As the

action of the citrate appears to be rapidly dealt with and adjusted in the body, emphasis on the slowness of transfusion will also help to reduce the occurrence of these symptoms.—I am, etc.,

Feb. 1.

RECIPIENT.

The Radiologist's Range of Service

SIR,—In the *Journal* of February 5 (p. 310) Mr. H. Osmond Clarke criticizes Dr. C. H. C. Dalton's letter (January 22, p. 206). May I, as a radiologist of forty-two years' experience, criticize Mr. Clarke's view of the duties and restricted range of service of the radiologist? A radiologist is not a mere technician, but is now recognized as a "medical physician who specializes in radiology." In almost all reputable hospitals the radiologist constantly confers and consults with any or all of his surgical, medical, and other colleagues, and they decide together what is best to be done for the patient according to their combined findings. It has also been my custom to confer or consult with other medical men who have in private sent cases to me, with the happiest results to all concerned. Medical knowledge and treatment must be considered as a whole; it cannot be bound down and pigeon-holed into specialized compartments without injury to our patients.—I am, etc.,

South-Eastern Hospital for Children, GEORGE B. BATTEN.
Sydenham, Feb. 6.

The Problem of the Final M.B., B.S.Lond.

SIR,—May I crave a little more of your space to add a few words to my previous letter?

I have read again the letters that have been published on this subject, and the reading of them has left my mind in a whirl. The writers, for the most part, are practised controversialists and politicians—not statesmen—and there is some truth in the gibe of Dr. Gray that "Sir Ernest and his friends appear to take no interest in the student or in his educational career." My sympathies are entirely with the student (and with his parents). I submit that the students are to a very large extent the University, it cannot exist without them; and that therefore the policy of the University should confine itself to them and take no account of the Royal Colleges.

But my chief reason for writing is to draw attention to an amazing statement made by Sir Ernest Graham-Little in his last letter. He writes that at a full meeting of the subcommittee of the Faculty Board the suggestion that the examination should be held four times a year was turned down because "this action would constitute 'competition' with the Colleges." Could there be stronger evidence of the medical side of the University being, so to speak, in the pocket of the Colleges, or stronger evidence of the strength of their following on the Faculty Board? Surely London University is important enough and strong enough to act alone.—I am, etc.,

Mayfield, Sussex, Feb. 7.

STANLEY COLYER.

J. C. Mauury (*Thèses Nancy*, 1936-7, No. 12), who records seventeen cases, in patients aged from 3 to 18, maintains that there is a special form of purpura which occurs in connexion with scarlet fever; he calls it post-scarlatinal purpura fulminans. The condition appears to be most prevalent in the Anglo-Saxon race, ten of the seventeen cases being English and four American. Sudden aggravation of the symptoms and the accompanying pain are characteristic. Fifteen of the seventeen patients died. The author considers the condition an example of the haemorrhagic allergy described by Sanarelli and Schwartzman.

and have had the opportunity of comparing the results of the x-ray pelvimetry by this method with direct pelvic measurements carried out in patients who have subsequently undergone a laparotomy. The error found was very small, and could be accounted for by the thickness of the soft parts.

X-ray pelvimetry can be carried out even in advanced pregnancy. It brings an element of reassurance to both patient and practitioner in normal cases, and gives a true picture of the brim in contracted pelvis.—I am, etc.,

London, W.1, Feb. 5.

A. ORLEY.

Contraceptives and Fertility

SIR,—In your issue of January 22 Mr. Green-Armytage is reported as saying at a meeting of the West London Medico-Chirurgical Society on January 7 that he "was convinced that contraceptive measures in the early days of marriage were inimical to pregnancy at a later date." I have been instructed by the Medical Subcommittee of the National Birth Control Association to draw the attention of your readers to the fact that there appears to be no medical evidence whatever to corroborate this statement. Records which have been carefully kept at clinics go to show that in many thousands of instances fertility has been in no way impaired by the use of contraceptive measures in early married life. The Medical Subcommittee will be glad to provide further information on this important subject if any of your readers are interested.—I am, etc.,

M. A. PYKE.

26, Eccleston Street, S.W.1,
Feb. 1.

Secretary, The National Birth
Control Association.

Temporary Sterilization by X Rays

SIR,—In your report of the meeting of the Sections of Radiology and of Obstetrics of the Royal Society of Medicine in the *Journal* of January 29 (p. 248) Dr. J. F. Bromley is quoted as having said: "Temporary sterilization in a young patient could be obtained without difficulty by x rays, and did not in any way preclude a later possibility of normal conception and the birth of healthy children." If this is so, have we not here a better means of contraceptive practice than either Graafenburg rings which fall out or occlusive pessaries which ladies forget to put in?—I am, etc.,

Droitwich, Jan. 31.

E. SHIRLEY JONES.

Coughing in Public

SIR,—Is it not time that the public was educated in the matter of the spread by droplet infection of the common cold and other diseases of the upper respiratory tract? Our public vehicles bear formidable notices, "No Spitting. Penalty £5"; surely space could be spared in them for the display of a few posters, preferably illustrated, on the lines of "Do Not Cough on your Neighbour, It is Dangerous" or "Protect your Neighbour from your Germs by Covering your Mouth when you Cough." A great amount of time is lost in industry owing to the common cold. It is useless to upbraid the medical profession for being unable to prevent this so long as colds are widely disseminated by a generous public coughing their infective organisms into the faces of their neighbours.

Unfortunately the medical profession itself has much to learn in this respect. At a medical meeting I attended recently about three-quarters of the audience coughed consistently throughout the proceedings and only a small

minority placed their hands before their mouths. As the temperature of the room was—as is usual at medical meetings—somewhere about 75° F. and ventilation was nil, the atmosphere formed a perfect incubator for the pathogenic organisms so freely distributed by the coughers.

Doubtless this matter is one for the public health authorities, but reference to it in the medical press may at least call attention to what is a serious, yet preventable, source of infection.—I am, etc.,

London, W.1, Feb. 3.

RUBY O. STERN.

Correct Footwear

SIR,—Public attention has at last been drawn to the absurdity of women's footwear, particularly to pointed shoes and the lack of a straight line from the extremity of the big toe to the inner side of the heel, resulting in the big toe becoming pressed outward and producing a prominence at the metatarsophalangeal joint, followed by inflamed bursa (bunion) and probably corns. Corns also are prone to occur on the dorsal surface of the little toe for the same reason. The want of a straight inside to a shoe is not the only cause of deformity. The high heel also contributes its quota. The main idea of the high heel is that it heightens the arch of the foot and gives an appearance of shortening. This appears to be the main reason why it is so fashionable. But, while apparently shortening the foot, it broadens the ankle. A most important point is that the platform on which the wearer's heel rests is not on the level but on an inclined plane. In consequence the foot is always slipping downwards and forwards, so that the weight of the body rests not on the os calcis but on the heads of the metatarsals, jamming the foot into the narrowest part of the shoe and flattening out the metatarsal arch. Callosities form on the soles of the feet and still further incapacitate the wearer.

After these high-heeled shoes have been worn for a time the small leather on the sole of the heel, which is about an inch square and often less, begins to wear down either at one side or on three sides, and the heel becomes uneven and sometimes conical. This is partly due to oscillation, for each time the wearer puts her foot down a certain amount of oscillation takes place as she corrects her balance, and as the heel gets still more worn the difficulty of correcting balance is increased. This want of balance is quite different from that experienced when learning to skate, as the heel is on the same level as the toes. With a high-heeled shoe the wearer's centre of gravity is thrown forward, and to compensate for this the knees must be bent, and to keep the body erect there is great strain on the anterior longitudinal and the ilio-lumbar ligaments, with resulting low backache pain, etc. The wearer becomes unable to walk far because of pain in her feet and in her back, does not get exercise, and suffers from indigestion and constipation as the result of a faulty pose. As she gets older there is the tendency to put on weight, with further strain on the knee-joints and feet, resulting in a villous arthritis of the knee-joints.

It is an everyday occurrence to see young women going about hobbling, with expressions indicating that they are in pain and trying to make the best of it. As they get older these women come to the spas with flat feet, chronic villous arthritis, and obesity. Can nothing be done to stop it? The manufacturers make a great song about looking after children's feet, and usually no fault can be found with the footwear provided for school children, but when a girl leaves school there is nothing for her but anatomical monstrosities; she has to go straight from

The death occurred suddenly in Perth on February 1 of Dr. CHARLES PARKER STEWART, who had been medical officer of health for Perth City for many years. Dr. Parker Stewart was born in 1870, and after a medical course at Edinburgh University graduated M.B., C.M.Ed. in 1893, taking the degree of B.Sc. in Public Health in the following year and that of M.D. in 1915. After a period of practice at Perth, during which he was assistant surgeon to Perth Royal Infirmary, he became medical officer of health for the city. He was superintendent of the Hospital for Infectious Diseases in Perth, and surgeon to Perth City Police. He had published various articles dealing with public health, including one on the supervision of small-pox contacts and several on the subject of infantile mortality. He had retired from the post of medical officer of health only the day before his death. Dr. Stewart was an active member of the British Medical Association, which he joined in 1898. He was treasurer of the Perth Branch in 1920-1, and in March, 1922, became secretary and treasurer of the Branch, a post he held until his death. He also acted as representative of the Branch at the Annual Representative Meetings in 1920, 1921, 1926, 1930, and 1935. "R. B." writes: Parker Stewart was unassuming, and while he had definite ideas of his own was always ready to listen to the opinions of others, hence the work of his department always went smoothly, and he carried his professional brethren with him. The great care of his life were children. He was never happier than at his child welfare centre, where besides dealing with them professionally he would sing to them, make drawings for them, and do conjuring tricks at which he was an expert. He was for over forty years a member of the B.M.A., and was for many years secretary to the local medical and panel committee. In this position also he carried out his duties with rare fidelity and tact, especially relative to the prescription subcommittee, where he would wade through thousands of prescriptions and tabulate them—a difficult job, in which his early pharmaceutical training stood him in good stead. He retired under the superannuation scheme on January 31 and died on his first day of retirement, to which, with his physical and mental powers unimpaired, he had not looked forward. The medical profession in Perth have lost a good and loyal friend, without cant or humbug, and one who was always ready to help in any good cause. He had no enemies. He is survived by a family of three sons, one of whom is in practice as a dentist in London. At the funeral service tribute was paid to his work: it was attended by civic and public bodies and every available medical practitioner in the area.

Dr. GERALD JOSEPH WALTON TIERNEY, who died recently in a Dublin nursing home at the age of 52, graduated M.B., B.Ch., B.A.O. of the Royal University of Ireland in 1908, and in 1912 became a Fellow of the Royal College of Surgeons in Ireland. Dr. Tierney had been for some years assistant gynaecologist to St. Vincent's Hospital, Dublin, external examiner in midwifery and gynaecology for the National University of Ireland, and examiner for the Central Midwives Board for Ireland. Before settling down in private practice he had worked at the Universitäts Frauenklinik in Berlin, and held the post of assistant master of the National Maternity Hospital, Dublin. Last year he travelled with the Irish National Pilgrimage to Lourdes as one of the chief medical advisers.

Dr. JOHN MATHESON, who died at Plockton, Ross-shire, on January 17, aged 81, had been a member of the British Medical Association for half a century, and practised for many years in Gibson Square, London, N. He had a distinguished student career at the University of Aberdeen, graduating M.A. in 1879, M.B., C.M. in 1883, and M.D. in 1886. During forty-five years of unbroken professional service in North London Dr. Matheson held many appointments, including that of honorary surgeon to the Royal Caledonian Schools at Bushey. He was president of the Caledonian Medical Society in 1922,

when it held its annual meeting in London. He had been a director of the Highland Society and a member of its bursary committee, president of the Gaelic Society, and was an original member of the Gaelic Service Committee. On his retirement from active work in 1930 Dr. Matheson returned to Scotland and made his home at Plockton in Lochalsh, in the old family house which he had never given up. He was a Justice of the Peace for the counties of London and Cromarty.

We regret to announce the death on January 28 at his home in Kennington Park Road of Dr. HENRY HARVEY NORTON, aged 73. Dr. Norton was a student of St. Mary's Hospital, and took the M.R.C.S. diploma in 1887 and the L.R.C.P. in 1888. Before settling down in general practice he served as house-surgeon and house-physician of St. Mary's Hospital, and later as house-surgeon at the Horton Infirmary, and contributed a note to the *British Medical Journal* on "Tracheotomy under Difficulties." He joined the British Medical Association in 1896 and was chairman of the Lambeth Division on two occasions—in 1924-5 and again in 1928-9. Among the appointments he held was that of surgeon to the Linen and Woollen Drapers' Institution.

The Services

PARKES MEMORIAL PRIZE, 1937

Major J. Biggam, M.C., R.A.M.C., has been awarded the Parkes Memorial Prize for 1937 for his very valuable investigations into the lighting of barracks and other military institutions coupled with important work he has carried out in regard to the effect on vision of the wearing of the service respirator and the designing of a suitable spectacle frame for wearing with the respirator by men with impaired vision. The prize is awarded annually to the officer who is considered by the committee to have done most to promote the advancement of naval or military hygiene by professional work of outstanding merit, and is open to medical officers of the Royal Navy, the Army, and the Indian Army, with the exception of the professors and assistant professors of the Royal Naval Medical College, Greenwich, and of the Royal Army Medical College, London, during their term of office.

NAVAL COMPASSIONATE FUND

At the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on January 21, Surgeon Vice-Admiral P. T. Nicholls, C.B., K.H.P., Medical Director-General of the Navy, in the chair, the sum of £96 10s. was distributed among the several applicants.

DEATHS IN THE SERVICES

Major ALEXANDER KEITH ROBB, R.A.M.C., died at Maymyo, Upper Burma, on December 3, 1937, aged 45. He was born on May 5, 1892, and was educated at Aberdeen, where he graduated M.B., Ch.B. in 1916. He entered the Royal Army Medical Corps as lieutenant in the Special Reserve on November 10, 1916, took a permanent commission as captain from March 4, 1920, and became major on September 4, 1928. Before he went to India he held the appointment of radiologist at the Royal Victoria Hospital, Netley. He served in the war of 1914-18.

Lieutenant-Colonel ROBERT HENRY BOTT, C.I.E., L.M.S. (rel.), died in a nursing home in London on January 21, aged 55. He was born on August 22, 1882, was educated at St. Bartholomew's Hospital, and took the M.R.C.S., L.R.C.P. in 1905, and subsequently the F.R.C.S. in 1907 and the M.B., B.S. Lond. in 1909. After filling the post of senior house-surgeon at St. Bartholomew's Hospital he entered the Indian Medical Service as lieutenant on September 1, 1906, became lieutenant-colonel on March 1, 1926, and retired on November 10, 1932. He served on the North-West Frontier of India in the Zakka Khel campaign of 1908, receiving the frontier medal with a clasp. On June 1, 1917, he received the Kaisar-i-Hind Medal, First Class, and the C.I.E. on January 1, 1926. He had been a member of the British Medical Association since 1910.

Obituary

Mr. CHARLES ARTHUR PARKER, who died at High Wycombe on January 26, was the son of a Lincolnshire clergyman and younger brother of the late Lord Parker of Waddington, Lord of Appeal in Ordinary. From Bradford College he went to St. Bartholomew's Hospital in 1882—at the age of 19—and after qualifying as M.R.C.S. and L.S.A. in 1886 became house-surgeon to Sir William Savory. He was then in turn resident medical officer, senior clinical assistant, and surgeon at the Throat Hospital, Golden Square, being elected to the consulting staff on his retirement from professional work in 1925. He had obtained the F.R.C.S.Ed. diploma in 1894, and for some years combined general practice at Rickmansworth with his laryngological practice in London. Parker wrote a small book on post-nasal growths in 1894, and in 1906 published his *Guide to Diseases of the Nose and Throat and their Treatment*, of which a second edition, with Mr. Lionel Colledge as joint author, appeared in 1921. His standing in the specialty was recognized by election to the presidential chair of the Laryngological Section of the Royal Society of Medicine. For the past twelve years he had lived wholly at High Wycombe, and entered into the public life of the district. He served on the borough council and was active in the local branch of the St. John Ambulance. Though he took no part in the ordinary medico-political work of the British Medical Association during thirty years of membership, Parker was profoundly interested in some of the larger aspects of medical and public health policy. With Professor Benjamin Moore he was an early advocate of a State medical service to replace the wasteful competition and the lack of co-ordination, and bridge the gaps, which they deplored in medical practice.

The death occurred on January 2 of Dr. ROBERT WATSON at his residence, 184, Belmont Road, Belfast. He was educated at Queen's University, Belfast, and graduated M.B., B.Ch., B.A.O. in 1895. He proceeded M.D. in 1899. He was one of the best-known practitioners in East Belfast, where he had practised for thirty-five years. His outlook on life was sincere: he had definite principles which made him a pleasing colleague and a great friend of his patients. The regard in which he was held by his patients and friends was a tribute to his personality. During all the years of his practice in the Bloomfield area he made numerous lifelong friends, and it was with regret that his many patients learned that he intended to retire at the end of 1936. Unfortunately the years of leisure he had planned with his wife and family were not fulfilled, and a sudden end has occurred to a happy life of usefulness. In addition to his professional practice Dr. Watson had art as a hobby, some of his paintings being hung in the Belfast Municipal Art Gallery. He was a firm advocate of the temperance cause, but while maintaining his principles he never lost a friendship. His wife is a doctor, as also are two of his daughters. He had been a member of the British Medical Association for nearly thirty years.

Mr. GRAVES STOKER, F.R.C.S.I., who died on January 28 at the age of 73, at his residence, Gaddesden Hall, near Hemel Hempstead, received his medical education in London, Trinity College, Dublin, and Vienna. In 1889 he became a Fellow of the Royal College of Surgeons of Ireland, where he was at one time senior demonstrator in anatomy. Continuing his father's practice in Rutland Square, Dublin, he was later elected consulting surgeon to Cork Street and Drumcondra Hospitals, and for some years was also a member of the Council of the Royal College of Surgeons of Ireland. On the death of his brother Ernest Mr. Graves took over his practice in London, and resided there until 1932. During the war he was attached to the Rochester Row Military Hospital, and was later

appointed assistant surgeon to St. Paul's Hospital, Endell Street. He had been a member of the British Medical Association for thirty-two years in all, and in 1915 contributed to the *British Medical Journal* a record of 1,000 operations for the radical cure of hernia; he had also published pamphlets on the treatment of venereal diseases. In his youth a keen Rugby player, he had been a member of the Dublin Wanderers team. In 1903 he married Constance Bennet, M.B., Ch.B., who survives him with two sons and three daughters.

At the time of his death on January 28, at the age of 84, Dr. GEORGE HANNA RUSSELL was the senior magistrate of Manchester, having been appointed to the Bench in 1892. He received his medical education at Guy's Hospital, where he won the Treasurer's Gold Medal; in 1879 he graduated M.B.Lond. and became a Member of the Royal College of Surgeons. He proceeded M.D. in 1882. Three years later, after spending a short time in the Australian bush as a medical attendant and travelling companion, he removed to Manchester. Here he built up a large general practice, interesting himself also in the public life of Gorton and Longsight, being one of the Liberal leaders who supported against strong opposition the amalgamation of these two districts with the city. After the amalgamation he headed the poll in the first election to the City Council, and was the first alderman to represent the Longsight ward. When he retired from active municipal life he continued his interest in Parliamentary elections, often taking the chair for Liberal candidates at their meetings.

Dr. JOHN RUSK died at his residence, Antrim Road, Belfast, on January 26 in his seventy-fifth year. He was educated at Queen's College, Belfast, and graduated M.B., B.Ch., B.A.O. in 1894. He was well known for many years, and not only in his profession. For some time past he had been in indifferent health, but his friends did not know that the end was so near. As a student at Belfast he was popular and outstanding; later he pursued postgraduate study in Galway and Vienna, and the experience he gained, in conjunction with his natural ability and pleasing personality, soon assured him of an extensive practice. Literature and bowls were his hobbies, and, in addition, he was interested in the temperance cause. To the bowling fraternity Dr. Rusk was almost an institution. He first became interested almost forty years ago, and his skill was so much appreciated that he was a member of the Irish team in international contests, and toured in Australia and New Zealand as a representative in the Empire games. His friends in the medical profession will miss one of the most loyal of colleagues and one of the most respected of the senior generation, which is so fast disappearing in Belfast. Much sympathy will be extended to his widow and brother. He had been a member of the British Medical Association for forty years. He was a Fellow (late vice-president and honorary treasurer) of the Ulster Medical Society.

Dr. EDWARD WALTON SPENCER ROWLAND, who died on January 22 at his home in Reading at the age of 64, was the second son of the Rev. Charles Brown Rowland, formerly vicar of Wolverley, Worcestershire. He began his medical studies at the University of Cambridge, and after taking his B.A. went to Guy's Hospital and qualified as M.R.C.S., L.R.C.P. in 1899. He then served as house-physician, senior obstetric resident, and clinical assistant at Guy's. While in general practice he was appointed surgeon to the Reading Dispensary, afterwards medical officer to the borough infectious diseases hospital and medical officer to St. Andrew's Boys' Home, an institution in which he took much interest. Dr. Rowland was for some years consultant for cerebrospinal fever to the Berkshire County Council. He joined the British Medical Association in 1902 and was elected chairman of the Reading Division in 1918; he was also a member of the Reading Pathological Society. He retired from active work a few years ago.

Medical Notes in Parliament

The House of Commons this week completed the committee stage of the Coal Bill.

The Middlesex Hospital Bill, the St. Bartholomew's Hospital Bill, and the Salford Royal Infirmary and Hospital Bill were read a first time in the House of Lords on February 1.

Sir Kingsley Wood presented the Housing (Financial Provisions) Bill on February 2, and it was read a first time. The Bill alters the basis of subsidy for the rehousing of persons from overcrowded dwellings and also proposes a new subsidy for rural housing.

The Prevention and Treatment of Blindness (Scotland) Bill was reported to the House of Commons on February 8 without amendment from the Standing Committee on Scottish Bills.

Sir Francis Fremantle, Dr. Salter, and Dr. Howitt have invited all Members of both Houses to a meeting at the House of Commons on February 17, when Lord Horder and Sir Frank Fox will speak on the work of the British Empire Rheumatism Council.

The Parliamentary Medical Committee, meeting at the House of Commons on February 8, discussed milk as a food and the attitude of the Press towards the advertisements proposed by the British Medical Association. In the discussion some sympathy was expressed for those critics who fear that too great attention to the dangers of milk will frighten people from consuming it. The meeting heard an account of the milk policy pursued in Northern Ireland and of its results. The committee also favourably discussed the Night Baking Bill. Notice was taken of the lack of medical books in the House of Commons library, and the possibility of remedying this was discussed.

Foot-and-Mouth Disease

On February 1 Mr. W. S. MORRISON, replying to Mr. A. Short, said that since his last statement in the House on the foot-and-mouth disease position on November 11 additional farms had been declared infected, but in the majority of these infection was due to contiguity to existing outbreaks. There had, on the whole, been an improvement. Excluding an isolated outbreak in Essex confirmed on January 22, and one in Kent on January 14, there had been no outbreaks for three weeks in any of the eastern or south-eastern counties to which it was necessary to apply a "standstill" order. Of a total of thirty-six outbreaks confirmed during the past fourteen days, thirty-three were in the adjoining counties of Wilts, Dorset, Somerset, Berkshire, and Hampshire, the remaining three outbreaks being in Essex and the West Riding.

The Blind Persons Bill

During the committee stage of the Blind Persons Bill in the House of Commons on February 1 Mr. JAGGER moved an amendment to ensure that if any dispute arose whether or not a person was blind within the meaning of the Bill the local authority where the person lived should make arrangements for that person to be examined by two ophthalmic surgeons, whose decision, unless there was disagreement, should be final. Where there was disagreement the local authority should arrange for the person to be examined by a third ophthalmic surgeon, whose decision should be final.

Sir KINGSLEY WOOD said he could not accept the amendment. The schedule to a circular issued by his Department in 1933 set out the optical criteria necessary, and recommended that the examination should be carried out by a medical practitioner with special experience in this kind of work. The effect had been to reduce very substantially the number of

cases in which any reasonable doubt could arise about a person's blindness. In a number of cases local authorities also had available a referee service—as, for instance, that provided by the Northern Counties Association. It would not be practicable everywhere to establish such a service or make the arrangements proposed by the amendment, because in some areas it would be difficult and in others impossible to find the requisite number of medical practitioners with the special experience necessary.

The amendment was withdrawn and the Bill passed through committee.

Pasteurized Milk and Tuberculous Infection

Mr. W. S. MORRISON told Captain Arthur Evans on February 7 that his attention had been drawn to investigations carried out by the Hannah Institute of Dairy Research into the feeding of calves on raw and pasteurized milk by experiments with two groups of calves, the first group with ordinary commercial milk in its raw state, the second group with the same milk after it had been submitted to ordinary commercial pasteurization in a local dairy. The results showed that of the thirty-six calves fed on ordinary commercial milk in its raw state twenty-three were ultimately found to be infected by tuberculosis mainly in the lungs, and of the thirty-seven calves fed on the same milk after it had been submitted to ordinary commercial pasteurization in a local dairy no case of tuberculous infection was found. The Government intended to bring forward legislation this session on the lines of the proposals regarding the compulsory pasteurization of milk, which were outlined in the White Paper on milk policy issued last July.

Typhoid in Somerset.—Twenty-four cases of typhoid (three fatal) in the county of Somerset had been confirmed when Sir KINGSLEY WOOD, on February 3, answered a question about the outbreak. The source of infection had not then been established, and a medical officer of the Ministry of Health was assisting in the investigations.

Research in Epilepsy.—In a reply to Sir Arnold Wilson on February 3 Sir KINGSLEY WOOD stated that the Medical Research Council was carrying out investigations bearing upon epilepsy and related conditions. The British Government was not officially represented on the Council of the International League against Epilepsy, nor did it make a contribution in aid of the Council's work.

School Children and Free Milk.—Mr. KENNETH LINDSAY, in a reply on February 3, said the Board of Education recognized it was desirable that children selected for free milk at school should continue to receive it when absent through illness. It would be difficult to devise suitable arrangements, but the matter was receiving consideration. When children were recommended for free meals or milk it was not necessary that they should first be certified by the school medical officer as suffering from subnormal nutrition. It was important, however, in the interests of the children that those selected should be seen by him as soon as possible.

Health of Durham School Children.—Mr. KENNETH LINDSAY, for the Board of Education, furnished the following table on February 8:

School Children Examined at Routine Medical Inspections in Durham County Council's Area

Year	Number Inspected	Classification of the Nutrition of Children Inspected							
		Excellent		Normal		Slightly Subnormal		Bad	
		No.	%	No.	%	No.	%	No.	%
1935	40,476	5,151	12.7	26,193	64.7	8,025	19.8	1,107	2.7
1936	40,500	5,269	13.0	26,599	65.4	7,691	19.0	641	1.6
1937	39,874	5,252	13.2	25,673	64.4	8,522	21.4	397	1.0

Lieutenant-Colonel MAURICE SWABEY, R.A.M.C. (ret.), died at Bath on January 27, aged 69. He was born at Prince Edward Island, British North America, on July 4, 1868; the son of the late Rev. Henry Birchfield Swabey, was educated at St. Bartholomew's Hospital, and took the M.R.C.S., L.R.C.P. in 1892. After filling the post of junior house-surgeon at the Wolverhampton and South Staffordshire County Hospital, he entered the Army as surgeon lieutenant on July 29, 1896, became lieutenant-colonel in the long war promotion list of March 1, 1915, and retired on September 27, 1922. He served in the war of 1914-18.

Lieutenant-Colonel JAMES SCOTT, Madras Medical Service (ret.), died at Dumfries on January 19, aged 78. He was born on July 20, 1859, the son of James Scott, manufacturer, of Troqueer, Kirkcudbright, and was educated at Edinburgh University, where he qualified M.B., C.M. in 1880. He entered the Indian Medical Service as surgeon on April 1, 1882, became lieutenant-colonel after twenty years' service, and retired on October 23, 1907. He served in the campaign on the North-West Frontier of India in 1897-8, in the Tochi Valley, receiving the frontier medal with a clasp. His whole service was passed in military employment.

Colonel CHARLES HENRY BEATSON, C.B., Bengal Medical Service (ret.), died at Colchester on January 20, aged 86. He was born at Table Bay, Cape of Good Hope, on March 27, 1851, the son of Surgeon General G. S. Beatson, C.B., Army Medical Department, was educated at Edinburgh and Glasgow Universities, and took the L.R.C.P. and S.Ed. in 1873. He entered the Indian Medical Service as surgeon on September 30, 1876, and was on temporary half-pay from May 8 to December 21, 1882. He attained the rank of colonel on June 16, 1905, and retired on March 27, 1911. He spent his service in military employment. He served in the second Afghan War in 1879-80, receiving the medal, and on the North-East Frontier of India in the Manipur campaign of 1891, when he was mentioned in dispatches and received the frontier medal. He rejoined for service in the war of 1914-18, and served from October, 1914, to 1916, being employed in connexion with the Indian hospitals in England. He received the C.B. on June 23, 1907.

Universities and Colleges

UNIVERSITY OF OXFORD

The Master and Fellows of University College have established a Radcliffe Medical Fellowship out of surplus income of the Linton Fund, to be tenable as an official Fellowship. If a suitable candidate presents himself the Master and Fellows will elect him in Trinity Term, 1938, to this Fellowship, combined with a Praelectorship in Medical Science. The Fellow will be responsible for teaching in physiology and biochemistry for the Final Honour School and for supervision of members of the College reading biology and medicine. He may also be required to take a share in the general work of the College, and must reside within the College during full term. He will enter on his duties on October 1, 1938. The initial emoluments of the Fellowship and Praelectorship will be not less than £450 per annum, with rooms in college free of rent, rates, and taxes, and participation free of charge in the common college dinner. The Fellowship is open to all candidates who have passed the examination for B.M. in the University of Oxford, or an equivalent degree elsewhere. Further particulars may be had from the Master, to whom applications, with not more than three testimonials and three personal references, should be sent by April 30.

UNIVERSITY OF CAMBRIDGE

The Raymond Horton Smith Prize for 1936-7 has been awarded to H. L. H. Green, M.D., of Sidney Sussex College. The prize is awarded to the candidate who presents the best thesis for the M.D. degree during the academical year.

At a congregation held on February 4 the following medical degrees were conferred:

M.D.—R. M. Dowdeswell.
M.B., B.Chir.—J. S. Joly, R. D. I. Beggs.
M.B.—K. L. Buxton.

* By proxy.

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

A course of three public lectures on "Surface Chemistry and Biology" will be given by Dr. J. F. Danielli in the department of physiology, pharmacology, and biochemistry of the College on Mondays, at 5 p.m., beginning February 28. The lectures are open without fee or ticket to students of the University and others interested in the subject.

UNIVERSITY OF DURHAM

On February 2 the Council of King's College, Newcastle-on-Tyne, approved the appointments of Dr. Albert Gild and Dr. J. W. M. Sutherland as demonstrators in anatomy.

UNIVERSITY OF LIVERPOOL

The Council of the University on February 1 conferred the title of Professor Emeritus on Walter Scott Patton, M.B., Ch.B.Ed., Dutton Memorial Professor of Entomology, 1927-37.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Croonian Lectures, on "The Clinical Aspects of the Transmission of the Effects of Nervous Impulses by Acetylcholine," will be delivered at the College, Pall Mall East, S.W., by Professor F. R. Fraser on May 24, 26, and 31, at 5 p.m.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A quarterly meeting of the Council was held in the College House, 58, Queen Anne Street, London, on January 29, with the President, Sir Ewen Maclean, in the chair. Professor Grace Stapleton, New Delhi, India, was admitted to the Fellowship of the College.

Membership

Dr. Allan Frederick Hollinrake, Hamilton, Canada, was admitted a Member of the College and the following were elected to Membership:

Yeshwant Narayan Ajinkya (India), John James Armitage (Salisbury), Elinor Francis Elizabeth Black (Canada), Doris Barbara Brown (Harrogate), William Deans Brown (London), William Davies Cunningham (Australia), Mary Evans (Manchester), Martin Birks Hallam (Manchester), Ockert Stephanus Heyns (Manchester), Fergus Duncan Johnston (Canada), John Cameron Loxton (Australia), Benjamin Edward Meek (Canada), John Miller (Greenock), Edward Brettingham Moore (Tasmania), Susanne Jean Paterson (Edinburgh), Robert William Nichol (London), Charles Guy Roworth (Aberdeen), Linton Morris Snaith (Manchester), David Fox Standing (South Africa), Dorothy Marian Stewart (London), Robert Atkinson Tennent (Glasgow), Geoffrey Thompson (Australia), William Howie Tod (Leeds), John Clinton Whyte (Canada), Ali . . .

The President has been appointed representative of the College on the Royal Commission on the Geographical Distribution of the Industrial Population, and Mr. J. Bright Banister representative on the Council of the Queen's Institute of District Nursing.

The name of Mr. Harold Burt-White has been restored to the roll of Members of the College.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College, held on February 1, with the president, Dr. Alexander Goodall, in the chair, Dr. J. D. W. Pearce (London), Dr. J. P. McGibbon (Edinburgh), and Dr. W. M. Arnott (Edinburgh) were introduced and took their seats as Fellows of the College.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glas.:

M. J. Ackerhalt, Zola S. Alpert, A. Appel, S. Bauman, R. A. Blair, E. Cohn, R. M. Cross, T. B. Dev, R. B. Dobson, E. F. Duschock, M. M. Elkind, M. Friedman, J. Gillman, K. A. Graf, H. Grundmann, V. Guyer, A. T. R. Hamilton, T. W. Howat, H. Hutton, W. M. Jamieson, K. E. Karunaratne, Yetta Kuper, M. Levin, H. Leibowitz, M. Lichtensteinas, J. T. McCutcheon, P. W. Fitz-J. McIlvanna, J. McMillan, K. P. F. J. M. Mangold, W. Meadow, J. E. Mishler, W. S. Murray, R. P. Myers, Anna Noll, U. E. Oberworth, S. Pollack, J. S. Pomerantz, L. Rae, A. Rapoport, F. L. Reardon, C. G. Rosenstock, W. Rothman, N. Schwartz, L. Scovronck, M. Shapiro, M. R. Simon, W. E. C. Taylor, A. J. Walder, M. Weinschel, D. Wilson, A. A. Wright.

EPIDEMIOLOGICAL NOTES

Enteric Fever

There have been no fresh cases of typhoid fever in Croydon during the last week, and the number of deaths remains at 43—that is, there have been no additional deaths since the 2 recorded in the previous week. Of the 8 cases of enteric fever notified in London 3 were in the borough of Stepney, 2 in Hampstead, and 1 in Wandsworth, while the remaining 2 cases were of paratyphoid fever, one in the City of Westminster and the other in the borough of St. Marylebone. To the 14 notified cases of typhoid fever mentioned last week in Somerset 21 more have been added, while the deaths remain at 3. The cases have been limited to the Highbridge and Bridgwater areas, but Bridgwater itself has not been involved. As a precautionary measure the Highbridge elementary schools and the secondary schools in Bridgwater have been closed. The source of the infection is not known. Two cases of typhoid fever were notified at Plymouth this week. Twenty-eight new cases of typhoid fever in Pembrokeshire have brought the total to 38 at the time of going to press; to date there have been 3 deaths. During the last three months there have been 21 cases of paratyphoid in Northumberland compared with 2 in the preceding quarter. While the majority of cases have been reported in Newcastle—5 fresh cases were reported last week—the disease has cropped up in several other parts of the county. The appearance of enteric fever in these localities has increased the notifications for England and Wales as a whole: the figure for the week ending January 29 being 61, compared with 19 in the previous week and 53 in the corresponding week last year. In London the number during the week has increased from 4 to 8.

Diphtheria and Scarlet Fever

The incidence of diphtheria continues to rise in England and Wales, the notifications being 1,892 for the week under review, compared with 1,737 in the previous week and 1,241 in the corresponding week last year; the median value for the last nine years is 1,400. London has shared in the increase, the notifications for the week being 200, compared with 179 in the previous week and 129 in the corresponding week last year. On the other hand, in Scotland the notifications have dropped from 252 to 245, but still remain higher than the figure of 217 for last year; and in Eire and Northern Ireland small increases have been recorded during the week under review. On the other hand, scarlet fever has shown a decided drop in England and Wales—2,431 against 2,459 in the previous week—but the figure is higher than that of 1,414 in 1936 and somewhat greater than the median value—2,312—for the last nine years.

Measles

As measles is only notifiable in the boroughs of Shoreditch, Stepney, Bermondsey, and the Port of London exact figures of its incidence in London are not available. An advance in the present epidemic is suggested by an increase of notifications from 17 to 23 during the week. Confirmatory evidence is furnished by the numbers of measles cases reported among the children of the L.C.C. elementary schools—784 cases compared with 522 in the previous week—and by the average daily admissions to the L.C.C. fever hospitals, which have risen from 25 to 32. The London deaths numbered 2 against 3 in the previous week, while for England and Wales the measles deaths have dropped from 48 to 37. In Scotland notifications of measles have risen from 1,544 to 1,661, and the deaths from 14 to 17. In Glasgow the numbers notified during the week have fallen from 1,077 to 1,013, and in Edinburgh from 214 to 172; but in Dundee the numbers have risen from 141 to 338, and small outbreaks have occurred in various localities. In Belfast measles notifications have fallen from 832 to 728, but the deaths for the week have increased from 15 to 22.

Medical News

A meeting of the Chelsea Clinical Society will be held at the Hotel Rembrandt, Thurloe Place, S.W., on Tuesday, February 15, at 8.30 p.m., when Dr. Charles F. White, medical officer of health for the City of London, will open a discussion on "Quarantine, Past, Present, and Future." The meeting will be preceded by dinner at 7.30 p.m.

A meeting of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, February 18, at 5 p.m., when Dr. Hugh Paul will open a discussion on "Present Practice in Regard to Quarantine and Disinfection." The Maternity and Child Welfare Group of the Society will meet at 1, Thornhaugh Street, W.C., on Friday, February 25, at 5.30 p.m., when Dr. Ethel Cassie will read a paper on "Children Living Apart from their Parents, including the 'Daily Minded'."

The Hunterian Society has arranged a banquet to commemorate the 210th anniversary of the birth of John Hunter to be held at the May Fair Hotel, Berkeley Street, W., on Thursday, February 17, at 7.15 for 7.30 p.m. The price of the dinner will be 12s. 6d. (exclusive of wines), and will be collected at the table. The Lord Mayor of London and other distinguished guests will be present.

A joint meeting of the Royal Sanitary Institute and the Yorkshire Branch of the Society of Medical Officers of Health will be held at Dewsbury Town Hall on Friday, February 11, at 5.30 p.m., when discussions will take place on "The Laboratory Examination of Milk," to be opened by Dr. P. L. Sutherland, and on "The Maternity Services," to be opened by Dr. J. F. Galloway.

The British Institute of Philosophy announces an address entitled "Philosophy and the Common Reader," by Professor L. S. Stebbing, on Tuesday, February 15, at 8.15 p.m., at University College, Gower Street. Cards of admission can be had from the Director of Studies, University Hall, 14, Gordon Square, W.C.1.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Thursday, February 17, at 2.30 p.m., under the presidency of Dr. Douglas McRae. Dr. S. Sharman will read a paper on "Some Observations on the Theory of Perception."

Sir Walter Langdon-Brown will deliver the second Skinner Lecture on "The Pursuit of Shadows" before the British Association of Radiologists, 32, Welbeck Street, W., on Friday, February 18, at 4 p.m. All members of the medical profession are invited to attend.

On Friday, February 18, at 4 p.m., at the Royal Army Medical College Library, Millbank, Lady Keogh will present the Banner of a Knight Grand Cross of the Order of the Bath, bequeathed to the College by the late Lieutenant-General Sir Alfred Keogh.

A congress of cosmobiology will be held at Nice in April. Further information can be obtained from Dr. Maurice Faure, 24, Rue Verdi, Nice.

There is a certain amount of time available for the treatment at University College Hospital of cases of malignant disease, other than patients of the hospital, with the two-gramme mass unit of radium. It is particularly suitable for the irradiation of superficial carcinoma, growths of the mouth and pharynx, and glandular fields. Applications for the treatment of patients should be sent to the Harker Smith Registrar, University College Hospital, London, W.C.1.

The Medical Research Council has been entrusted with an annuity of £350 for a period of twenty-five years, provided by the late Mr. Eugen M. Schlesinger and by Mrs. Schlesinger to establish a memorial to their daughter in the form of a Kathleen Schlesinger Research Fellowship. This is to be given for investigations on the subject of cysts of the brain or allied conditions, and will ordinarily be tenable at the National Hospital for Diseases of the Nervous System, Queen Square, London, for periods of from one to three years. Awards will be made by the Council with the assistance of a special advisory committee appointed in terms of the trust deed.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 29, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1923-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	28	5	16	7	—	32	6	11	—	2		
Deaths		3	4				3	1				
Diphtheria	1,892	200	245	64	61	1,241	129	217	61	47	1,400	201
Deaths	40	7	8	5	3	32	5	7		1		
Dysentery	273	65	97	—	—	41	7	11	—	—		
Deaths												
Encephalitis lethargica, acute	3	1	—	—	—	6	—	—	—	—		
Deaths		3					2					
Enteric (typhoid and paratyphoid) fever	61	8	3	—	—	53	3	3	5	—	26	—
Deaths	2	—	2	—	—	2	—	—	—	—		
Erysipelas			95	9	6			79	2	3		
Deaths		1					3					
Infective enteritis or diarrhoea under 2 years	60	25	7	9	2	38	12	8	5	2		
Deaths												
Measles	37	2	1,661	3	751	8	—	47	1	—		
Deaths			17		22			1				
Ophthalmia neonatorum	103	12	47	—	—	79	8	35		1		
Deaths												
Pneumonia, influenzal †	1,302	110	11	8	26	3,555	211	431	113	30	1,559	180
Deaths (from Influenza)	60	9	8	2	—	1,155	154	205	48	44		
Pneumonia, primary			323	13	23			408	10	26		
Deaths		20		21			34		66			
Polio-encephalitis, acute	1	—	—	—	—	3	—	—	—	—		
Deaths												
Poliomyelitis, acute	6	—	1	—	—	4	—	—	—	—		
Deaths												
Puerperal fever	—	—	16	—	1	43	9	13	3	—		
Deaths		1†					1†					
Puerperal pyrexia	191	31	19	—	—	168	15	29	—	—		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,431	167	556	93	84	1,414	142	314	73	53	2,312	260
Deaths	10	—	1	2	—	5	1	1	2	1		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough	—	—	46	—	9	—	—	603	—	9		
Deaths	16	2	1	1	—	27	8	28	4	1		
Deaths (0-1 year)	408	82	91	41	41	449	70	96	38	38		
Infant mortality rate (per 1,000 live births)	69	67				72	58					
Deaths (excluding stillbirths)	5,263	1,074	799	228	197	7,457	1,341	1,206	387	273		
Annual death rate (per 1,000 persons living)	13.0	13.5	14.8	15.4	17.5	18.6	16.7	22.9	26.4	26.1		
Live births	6,365	1,246	884	335	232	5,626	1,105	951	296	208		
Annual rate per 1,000 persons living	15.7	15.7	18.0	22.6	20.6	14.0	13.8	19.5	20.2	19.9		
Stillbirths	286	49	—	—	—	257	35	—	—	—		
Rate per 1,000 total births (including stillborn)	43	38				44	31					

(i) 122 great towns in 1937.

(ii) 12 " " "

(iii) 9 " " "

* 728 cases in Belfast alone.

† Deaths from puerperal sepsis.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

122 Cancer of the Lungs

F. HARBITZ (*Norsk Mag. Laegevidensk.*, December, 1937, p. 1451) reports from the Rikshospital in Oslo his observations during the past six years on thirty-four cases of cancer of the lung examined post mortem; in 1936 alone there were as many as twelve cases. This observation made the author carefully examine all the seventy-five specimens of cancer of the lung in his possession, and he has come to the conclusion that much of the alleged increase in the frequency of this disease is the outcome of improved clinical, anatomical, and microscopical diagnosis, as well as of the increase in the expectation of life and of certain other circumstances. So far he can find no reliable evidence of any real increase in the frequency of cancer of the lungs in our own times. As the patients were males in only forty of his seventy-five cases, he disagrees with the opinion, accepted in most countries, that cancer of the lungs is from three to four times more frequent in men than in women. The Norwegian vital statistics for 1919-34 showed 183 male to 170 female cases of cancer of the lung. The disease showed no peculiar preference for any area, rural or urban, nor for any profession or occupation, nor for persons supposed to be exceptionally exposed to exhaust gases, fumes of tar, or other irritants. But it was notable that chronic pulmonary disease of various kinds, with the exception of pulmonary tuberculosis, had often been a prelude to the cancer, which might possibly have been promoted thereby. In favour of a constitutional disposition to cancer, Professor Harbitz refers to the youthfulness of some of his patients, among whom were a boy of 12 and a woman of 26. He recognizes four forms of cancer of the lung—the bronchial, the pneumonic, the haemorrhagic-pleuritic, and the mediastinal.

123 Angiospastic Retinitis

F. VOLHARD (*Klin. Mbl. Augenheilk.*, November, 1937, p. 600) discusses the pathogenesis of angiospastic retinitis. He claims that definite contraction or narrowing of the vessels without any retinal changes often occurs months or even years before the onset of angiospastic retinitis, and refers to a case described by Hasselhorst and Mylius. This was a case of pre-eclampsia, in which these observers were able to follow with the ophthalmoscope the increasing contraction of the fundal vessels and the onset and disappearance of angiospastic retinitis. This form of retinitis has generally been regarded as uraemic, but more recent methods for testing renal function have shown that it often appears long before any signs of renal insufficiency can be detected, so that it may be regarded not as an effect of renal insufficiency but rather as a sign of impending insufficiency. This form of retinitis is not associated with any and every form of high blood pressure, but only with that form which is characterized by pallor of the skin, ischaemia of the skin capillaries, pale kidneys, and a high diastolic blood pressure. The author calls this "pale high-pressure" in contrast to the "red high-pressure" which is associated with a red face, red kidneys, and a high systolic but low diastolic blood pressure, and states that it must be due to a general contraction of all arterial vessels. This explains, for example, how this form of retinitis may supervene on so many different affections of the kidneys and blood vessels and also how angiospastic retinitis may end in recovery in those cases in which it is possible to improve the circulation and lower the blood pressure.

Surgery

124 Pseudarthroses

G. SOMMER (*Med. Klinik*, December 17, 1937, p. 1708) distinguishes two kinds of pseudarthroses—namely, those produced by local conditions and those caused by general constitutional disturbances, such as tuberculosis, syphilis, affections of the central nervous system, endocrine disturbances, etc. One of the most common local causes of pseudarthrosis was fracture with splintering of the fragments and infection of the wound. The next commonest cause was an interposition of soft parts between the fragments. The production of pseudarthrosis was further found to depend on the kind of fracture and the age of the patient, as, for example, in fractures of the femoral neck in elderly people. Lastly, wrong treatment, such as inadequate immobilization, was not infrequently responsible for the false joint. Pseudarthrosis was more frequent in men than in women (forty-one men and twelve women). Of the fifty-three patients observed, thirty-four were between the ages of 14 and 30. In forty-three of the fifty-three patients the treatment of the pseudarthrosis was surgical. The kind of operation varied according to conditions, but in every case it was found necessary to open up all sclerosed medullary spaces and to lay wide open the fractured ends of bone in order to stimulate vascular formation and encourage the formation of callus through the breaking up of bone tissue and through the operative haemorrhage. During the last few years the majority of cases of pseudarthrosis have been treated by Lexer's method as modified by Wenzel, and this technique is briefly described.

125 Early Symptoms of Arterial Obliteration

According to M. SUSSTRUNK (*Schweiz. med. Wschr.*, December 4, 1937, p. 1157) trophic lesions of the toes in thrombo-angiitic or arteriosclerotic arterial obliterations in the lower extremities are late signs of a disease which may have existed for three to five years. Among the common wrong diagnoses in the early stages are rheumatism, flat-foot, alcoholic neuritis, and ingrowing toe-nail. Careful inquiry may elicit a history of acute onset, perhaps with a sudden feeling of weakness in one leg (rarely both) which disappeared after a few days' rest but was followed by the gradual appearance of intermittent claudication, a symptom which is present sooner or later wherever the obliteration is situated, and is usually accompanied by pains in the heel and dorsum of the foot. When the obstruction is in the femoral artery or lies more centrally, the calves are painful. With progress of the disease pain is felt in the legs during the night, owing to the ischaemia following nocturnal cardiac depression. A lasting feeling of coldness of the feet is a significant sign. Inspection of the extremities may show pallor, bristliness of the hairs, thickening or grooving of the nails, and emptiness of the veins on the dorsum of the foot. Probably because the more central obliterations are associated with the earlier establishment of collateral circulation, closure of the common or external iliac artery causes relatively early atrophy but relatively late gangrene. An important sign of obliteration of the common iliac artery in the male is impotence, erection becoming impossible. When the findings of arterial palpation are indecisive, comparison of the sphygmomanometric oscillations on the two sides, as well as arteriography, may yield valuable information. Early diagnosis is particularly important, for when the obliteration is distal to the femoral artery prospects of cure by arterial excision are very slight.

Letters, Notes, and Answers

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QUERIES AND ANSWERS

"Cracking Skin"

Dr. F. ARTHUR HEPWORTH (Saffron Walden), in reply to Dr. A. E. Moore's question in the *Journal* of January 29 (p. 264), writes: Cracking of the skin of the hands and feet is usually associated with dryness of the skin all over the body; it is present from early childhood, and probably inherited. The hands should be treated with glycerin (2 parts) and water (1 part) after washing. Pure glycerin is unsatisfactory and lotions made with mucilage are useless. The diluted glycerin is rubbed on the skin when half dried, paying special attention to finger joints and tips, and then drying is completed with a dry towel. Use superfatted soap, dry the hands very carefully, and don't wash more often than is necessary. Always wear gloves in winter, or at any time when north or east winds are about. For cracked heels rub in an ointment containing a little zinc oxide and bismuth every morning and evening. The best time being after a hot bath. A few days' treatment is usually enough. The ointment should be made with animal or vegetable fatty base, not soft paraffin. Another useful application for hands and feet is "camphor-ball" (Martindale's *Extra Pharmacopoeia*, p. 314). For deep painful cracks on the fingers an old-fashioned treatment is to drop melted cobbler's wax into each crack and cover with a small piece of paper or linen before it sets, in order to prevent the wax sticking to articles handled and to hide the unsightly blob of wax. This is the only remedy I know which stops the pain at once and really heals the crack. I have recently met with a severe case of cracked hands appearing as a new condition in adult life and not associated with dry skin elsewhere. This has almost recovered under treatment by ultra-violet light and application of linimentum calaminae. I believe this to be an occupational dermatitis.

Treatment of Ascites

"PERPLEXED" writes: I should like suggestions from readers with similar experience as to the best treatment for the following troublesome case of ascites. An elderly lady, a following troublesome case of ascites. An elderly lady, a widow aged 70 with four children, who had a long alcoholic history, noticed a swelling of the abdomen about one year ago. She was first examined in June, 1937, and paracentesis was performed in July. From the end of August tapplings have had to be done every week, amounts of from 7 to 11 or 12 pints being withdrawn each time. The fluid is straw-coloured, usually clear, but sometimes a little milky, and examination shows an excess of endothelial cells. Pathologists report that the condition might be either neoplastic or due to a cirrhotic liver. The patient feels very well, apart from the swelling of the stomach, and gets about her

house doing light work. The pulse rate is 80, occasionally there is slight oedema of the feet and some altered blood in the motions, but the general aspect does not suggest malignant disease. X-ray examination of the colon and a straight x-ray were negative, as was the Wassermann test. Thirty years ago she had an operation for simple ovarian cyst. On examination of the abdomen after paracentesis the edge of the liver is felt to be very hard and shrunken to the xiphisternum. There is also a small mass, possibly enlarged glands, in the right iliac fossa. I should like to know of any alternative methods of treatment in order to avoid frequent tapplings. Treatment with purgation, salyrgan, diuretics, and antiphlogistine has been tried without effect.

Fomites

"SENEX" writes from Kent: Apropos of Professor Miles Phillips's article on the history of the prevention of puerperal fever (*Journal*, January 1) the word "fomites" seems to be wrongly used: "The actual fomites were the micro-organisms of Lecuwenhoek." My dictionary gives "Fomes (pl. fomites), a substance capable of retaining contagious germs... as woollen garments and bedclothing." Is there any authority for Professor Phillips's use of the word?

* * In medical usage "fomes" (Latin for tinder, kindling-wood, or touch-wood) means any substance other than food capable of acting as the medium for transmitting or harbouring contagion; it is usually employed in the plural.

LETTERS, NOTES, ETC.

Rehabilitation After Injuries

Dame GEORGINA BULLER, chairman of the Training Committee of the 'Cripples' Training College, Leatherhead Court, Surrey, writes: My attention has recently been called to a review which appeared in your *Journal* for January 22 of the recently published *Handbook on the Welfare of Cripples*. In this article the writer states that: "At present, while the treatment of injuries, restoration of function, and vocational training are provided to some extent at centres in different parts of England, there is still no provision for reconditioning, except at the small centre established by the L.M.S. Railway at Crewe." May I point out that this statement is not quite accurate having regard to the reconditioning work which is undertaken at this College. I enclose herewith a copy of the syllabus, and a reference to the rehabilitation course on pages 3 and 7 will show that activities are by no means limited solely to vocational training. On the contrary, provision for reconditioning has been an important element of the College work since it was opened in 1934, and the Training Committee are of opinion that such provision will always be more satisfactorily made in a place where vocational training is also carried on. It is by using the facilities available in connexion with the latter that remedial work of a varied nature is made available in those cases where reconditioning only is required.

Law and Theories of Evolution

Dr. H. WILFRED EDDISON (Exeter) writes: There has recently been a considerable amount of discussion on the validity or otherwise of the law of evolution, and many examples of muddled thinking have arisen. One is seen in the confusion between the law of evolution, on the one hand, and theories of evolution put forward, on the other, to account for its physical mechanism, none of which is completely adequate. The law of evolution and the theories of evolution are not synonymous terms. Even greater confusion is shown in the failure to distinguish between form and content, a distinction which Eddington is always so careful to make clear. The law of evolution is concerned solely with the form that mind has taken in the course of its development through the ages. The content of evolution, what mind often we hear criticisms of the law of evolution on the ground that it is hostile to a religious belief in the content of what is evolved. To criticize in terms of content a law which relates only to form does not seem to make sense. Science, being confined to form, has nothing to say regarding content. Yet how many people fail to realize that the scientist freely admits this! The Church, by its recent definition of its attitude towards the law of evolution, has shown its comprehension of this point, yet it has drawn upon itself adverse criticism based upon the two points of confusion referred to.

mouth, pharynx, and larynx. In 371 cases turbinectomy was performed. Treatment was prematurely discontinued by forty-six patients. Of the remaining 389 as many as 337 (86.6 per cent.) were cured. Relapses or recurrences of the disease in new sites occurred in thirty cases, twenty-four ending in recovery. Referring to another series of cases in the Finsen Institute with a longer observation period, the author states that 92.3 per cent. were cured. He finds that the recovery rate for cases of lupus of the mouth and respiratory tract, given rational treatment, is better than that for lupus of the skin, and he expresses approval of the system of treating skin and mucous membrane lupus in separate departments—dermatological and laryngological—provided there is co-operation between the two. With regard to the rarity of lupus of the tongue, he notes that among the first 2,000 cases of lupus coming to the Finsen Institute there were only fifteen in which the tongue was involved, and in none of these was the disease limited to this structure. He is, indeed, sceptical as to the existence of primary lupus of the tongue.

131 Lipstick Dermatitis

F. F. HELLIER (*Brit. J. Derm. Syph.*, November, 1937, p. 485) discusses lipstick dermatitis and reports two cases. He points out that very few cases have been recorded since the first, which was in 1905. His first patient was a woman aged 23, of dark complexion, who developed lipstick dermatitis the day after long exposure to the sun. Patch tests with six lipsticks gave positive reactions in four cases, doubtful reactions in two. The application of one of the latter to her lips produced signs of irritation. The lipsticks were analysed, and she was found to be sensitive to the eosin content. The second case was that of a woman aged 27, of fair complexion. She had lent her lipstick to the first patient for test purposes. This patient was not sensitive to lipsticks containing eosin, but to some other substance in her own lipstick, and, for some inexplicable reason, only after it had been lent to the first patient. Hellier points out that in this condition the patient notices itching, swelling, and even vesication of the lips in from two to twenty-four hours after the application of the lipstick, and that when it is not applied the condition clears up in less than ten days. In severe cases the surrounding skin, the eyes, and the tip of the tongue may also be affected. The trouble is not necessarily produced by the first application of the lipstick. Cases do not occur often in dermatological practice, because the cause is so obvious that the patient changes her lipstick. The main parts of a lipstick are its base, some perfume, and the colouring matter, and the main constituents of a typical base are beeswax, paraffin, stearic acid, cetyl alcohol, spermaceti, lanolin, lard, cocoa butter, and castor oil, all of which are recognized as occasional skin irritants. Perfumes vary from geranium essence to a mixture of as many as twenty-five ingredients, some natural, others synthetic. The colour usually includes eosin because it produces an indelible effect by staining the horny layer. Those used alone or together include rhodamine, tolu-safranin, rouge P 1566, ponceaux, erythrosine, geranium red, carmine, fuchsin, and phloxin. The author mentions an original theory that eosin acts as a photosensitizer and the dermatitis is precipitated by exposure to the sun. He considers that this may be so in a few instances, but that, generally speaking, the patient is simply unusually sensitive to the lipstick because of some temporary extraneous accident.

132 Diagnosis of Lichen Planus

G. MILIAN (*Rev. franç. Derm. Vénéreol.*, June, 1937, p. 306) describes a sign which he claims to be useful in distinguishing certain cases of lichen planus from psoriasis. A young woman patient showed a scaly eruption which at first sight appeared to be psoriasis. On scraping the patches with a curette he provoked an

abundant desquamation of silvery scales exactly as in a case of psoriasis. On continuing the scraping, instead of disclosing small bleeding points, as in psoriasis, he laid bare a dry surface on which was seen a marked, lilac-coloured reticulum, which is characteristic of lichen planus. The author states that this sign has not previously been described.

133

Scleroderma

TOURAINÉ, GOLÉ, and SOULIGNAC (*Ann. Derm. Syph.*, Paris, October, 1937, p. 761) point out that under the common title of scleroderma a number of widely differing syndromes are included. They seek to define these syndromes more accurately, to indicate their interrelationship, and to place them under subtitles of the group. They discuss particularly scleroedema, oedematous scleroderma, and oedematous sclerema, and suggest they should all be grouped together as "extensive benign sclerodermiform cellulitis." This condition is most common in Germany, especially since the war. Twice as many women as men are affected, and 50 per cent. are under 25 years of age. It usually follows an acute infective process, especially one affecting the mouth or pharynx or the skin itself, after a lapse of from three to twenty-one days, there being no symptoms during this incubation period beyond fatigue, malaise, or anorexia. The disease manifests itself as an oedematous infiltration of the skin and of the subcutaneous tissue of that part of the skin which shares the lymphatic drainage of the originally infected area, usually the nape or sides of the neck. The swelling spreads with varying speed, forming over the shoulders a cape of smooth or slightly roughened skin, with only an occasional pink, cyanotic, or brown coloration. There is a hard, non-splitting, waxy oedema with an indefinite edge and no changes in sensation other than a stiffness leading to hindrance of movement. The skin loses its wrinkles, cannot be picked up from the subcutaneous tissue, and on the face produces a mask-like effect. The scalp, hands, feet, and skin appendages are unaffected. There is no fever, but a constant finding is a lymphocytosis of 30 per cent. or more. Muscles and fasciae are occasionally affected, with swelling, diminished electrical excitability, and, later, wasting. The condition subsides in three to twelve months. Biopsy shows a perivascular infiltration by lymphocytes and plasma cells, dilatation of the lymphatics and degeneration of the collagen bundles. Many forms of treatment have given variable results, and as the condition naturally subsides no specific therapy can be suggested.

134 A. W. DURYEE and I. S. WRIGHT (*Amer. Heart J.*, November, 1937, p. 603) report good results in the treatment of scleroderma by means of acetyl-beta-methylcholine chloride (mechylol) iontophoresis. They hold that this treatment produces softening of the thickened skin as well as vasodilatation. Thirty-four patients were treated by this method. All but one showed vasomotor disturbances. Of the patients 76.5 per cent. were females; the average age was 37.9 years. Hands were more frequently involved than feet, and disability ranged from total incapacity to a slight stiffness of the fingers. Capillary examination usually showed large dilated loops typical of a Raynaud's syndrome. Seventeen patients had trophic ulcers, but none had gangrene involving more than two square centimetres. The drug was applied in the form of a 0.5 per cent. solution on an asbestos bandage over the affected areas, and the positive electrode of a galvanic battery was placed on the bandage; 20 mA of current was allowed to flow for twenty or thirty minutes during each treatment. Systemic reactions may occur, such as sweating, salivation, a fall in blood pressure, and increased intestinal peristalsis. Locally a marked vasodilatation appears, so that an area of rubor persists for several hours. Fifty or more treatments are usually necessary to obtain good results. All cases receiving thirty or more

Therapeutics

126

Undulant Fever

A. M. SNELL and T. B. MAGATH (*Proc. Mayo Clin.*, August 25, 1937, p. 542) report the successful treatment by typhoid vaccine of undulant fever in an elderly female, who, on account of her age, hypertension, cardiovascular state, and general debility, was considered to be unsuitable for treatment with specific antiserum or by fever therapy. Agglutination tests were strongly positive for *Brucella abortus* and negative for typhoid, paratyphoid, and *Pasteurella tularensis*. Two intravenous injections of combined typhoid vaccine were given at an interval of four days, each being followed by a chill, a rise in temperature, prostration, and sweating. Three days after the second injection the temperature became normal and remained so. Because of the dehydration and disturbed metabolism sodium chloride and water were given daily, intravenously and by mouth, along with suprarenal cortical hormone. As a result of the treatment the undulant fever was cured and the patient's general condition improved. The authors consider that typhoid vaccine therapy may be particularly suited to elderly patients with vascular disease, and stress the importance of maintaining the normal levels of body fluids and sodium chloride content in such cases.

127 Detoxicating Action of Sodium Thiosulphate

H. WENDT (*Dtsch. med. Wschr.*, December 3, 1937, p. 1832) states that the therapeutic virtues of sodium thiosulphate were first discovered in the latter part of the last century. The textbooks of that period credited this drug with a useful action in several fields—as a gargle in diphtheria, as a lotion to hasten sluggishly healing superficial wounds and fistulae, as a remedy for parasitic skin diseases, including scabies, and internally as a check on excessive fermentation in the stomach, and in typhoid and other fevers. The author considers the drug useful in three main ways: (1) superficially, by virtue of the generation of sulphur in the nascent state, in skin diseases of parasitic origin; (2) internally as a chemical antidote to such poisons as prussic acid; (3) internally, by virtue of its detoxicating action, in several allergic conditions reflecting disorders of metabolism. He has found intravenous injections of a preparation of this drug put up in ampoules effective in various skin diseases of an allergic character.

Dermatology

128 Skin Lesions due to Circulatory Disease

E. D. TELFORD (*Arch. Derm. Syph.*, Chicago, November, 1937, p. 952) discusses the skin lesions found in circulatory diseases. He points out that continued circulatory deficiency leads to fibrosis, and classifies his cases into a chilblain group, with subacute localized lesions which eventually heal, and a group characterized by slow, progressive interstitial fibrosis. The first lesions are well seen in cases of old anterior poliomyelitis or in erythrocyanosis. In a child affected with acute anterior poliomyelitis at 2 the first changes will probably be noticed at about the age of 10. Where the patients belong to the poorer classes, and have little chance of keeping the limb warm and well-cared for, it becomes cold and cyanotic with small, reddish-purple, firm, painful, tender nodules, which are situated just beneath the skin and are adherent to it. They usually appear in the lower half of the posterior aspect of the leg, at first in winter only, later in both winter and summer, and during the second winter small, clean-cut ulcers with fawn-coloured sloughs may form and take months to heal. The main factors

in the production of this condition are a defective venous return, a relatively small arterial inflow, and local cold. The deep purple cyanosis, due to defective venous return, results from loss of voluntary muscle action. In such cases the external iliac artery may be no larger than the radial artery, and the affected limb, if placed in an electrically heated cradle, warms quickly and cools slowly because of the defective circulation. In erythrocyanosis there is a reddish-purple discoloration, with roughness and coldness to the touch of the skin over the malleoli; the skin is blanched by pressure. Nodules occur in the subcutaneous tissue, and either resolve in several weeks or occasionally ulcerate. The main symptoms are sensations of weight, coldness in the leg, itching, and burning pain. Patients are usually of the sturdy, stout, and florid type. Telford considers that Bazin's disease is in no way different from erythrocyanosis and is not tuberculous, and that in four cases referred to him for examination there was no evidence of tuberculosis. The main histological features in the nodules seen in Bazin's disease, erythrocyanosis, and anterior poliomyelitis are thickening of the smaller arterioles, the presence of numerous giant cells, and necrosis and fibrosis almost exactly similar to that due to fat necrosis in the breast. Telford suggests that the giant cells containing fat may result from the presence of the fat-splitting ferment in the blood. He has had satisfactory results with lumbar sympathectomy in fourteen cases of anterior poliomyelitis with ulceration of the nodules, and in nineteen of the erythrocyanotic type. The second group includes cases of acrosclerosis and sclerodactylia. The earliest evidences of the affection are asphyxial and cyanotic attacks which later lead to arterial thrombosis. There is often osteoporosis and the subcutaneous deposition of calcium. The skin at first is thick and leathery, but later becomes tense, thin, and shiny. Painful ulcers develop at prominent points; the nails are small and deformed, the hand claw-like, and the face is also affected. Cervico-dorsal ganglionectomy in eight cases gave promising results.

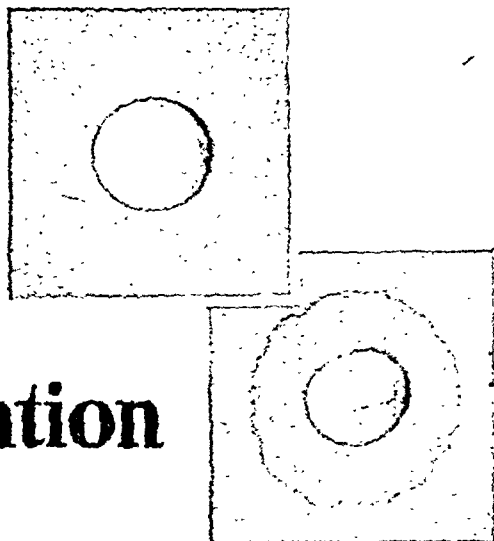
129 Benzyl Benzoate Treatment of Scabies

A. VELLIN (*Rév. franç. Derm. Vénéréol.*, July-August, 1937, p. 351) reviews the treatment of scabies with benzyl benzoate. Patients are soaped well, bathed, and the anti-itch lotion applied to the skin with a stiff brush, particularly at the usual sites of infection. The lotion is allowed to dry on for two or three minutes, and the application is then repeated. This usually kills all parasites, and it is best not to repeat the treatment for at least a week. Out of 112 cases dealt with in this way, 103 were permanently cured in twenty-four hours. As a result of the investigation he considers that benzyl benzoate is the ideal acaricide. Its penetrative powers are increased by soap and alcohol; it has a more rapid action than even balsam of Peru. The application by means of a brush is much less unpleasant and messy than those techniques which involve inunction, and therefore patients can easily be treated in their own homes. The alcoholic mixture does not appear to irritate the skin or produce any toxic effects, and can be used with safety on adults with delicate skins, pregnant women, and children, and even on cases with a moderate degree of secondary infection.

130 Lupus of the Nose and Throat

O. STRANDBERG (*Ugeskr. Laeg.*, November 4, 1937, p. 1163) reports from the Finsen Institute in Copenhagen the results he has achieved in cases of lupus of the nose and throat treated with universal carbon arc baths, supplemented, when the disease was localized, by the excision of small foci. When the condition was more extensive, fulguration, electrocoagulation, or galvanocauterization was prescribed. The lower turbinates were always removed when involved, in order to facilitate treatment of the structures beneath them. In the period 1913 to 1921 there were 435 new patients treated for lupus of the nose,

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treatments showed either marked or moderate improvement. Improvement is not confined to the treated area, but is seen in all areas affected by the scleroderma. Good results noted are: restoration of normal function; healing of ulcers; softening and loosening of skin; and return of sweating and of hair. The injection of 1/150 grain of atropine will produce a cessation of the mechoyl effects. For various reasons it is not advisable to give the drug orally or parenterally.

135 Exudative Lymphatic Erythrodermia

C. MADERNA (*Rif. med.*, October 30, 1937, p. 1549) describes the case of a young woman, aged 22, who suddenly ceased to menstruate after a violent emotional shock, and four months later developed intense pruritus all over the body, which resisted all forms of treatment. A few days later a rash was observed on the abdomen and limbs, and this gradually assumed the appearance of a generalized exfoliative erythrodermia, complicated by eczematoid foci with more or less exudation; there was also oedema of the lower limbs, and rhagadoid fissures of the hands and feet. The inguinal, crural, axillary, and cervical lymph glands were all enlarged, discrete, and mobile. The hair of the head, the eyebrows and eyelashes were not affected, and both finger- and toe-nails were perfectly normal, but the pubic and axillary hair gradually fell out. The mucous membranes of the tongue, mouth, and pharynx were unaffected. The Wassermann, Meinicke, and Kahn tests were all negative. The father was known to be luetic, and a brother had died of tuberculosis at the age of 15. A series of blood counts showed leucocytosis (21,000 per c.mm.), lymphocytosis (48 per cent.), and the presence of Riedel type cells. There was practically no pyrexia at any time. The patient was treated with small repeated injections of maternal blood, intravenous injections of ascorbic acid, and ovarian preparations by mouth. Both the general and the local condition became very much worse at the beginning of the treatment, but after three weeks or so improvement set in very gradually. Seventeen months were required to bring about complete restoration to health. The author discusses the differential diagnosis, and, after setting aside subacute or chronic exfoliative erythrodermia of the Wilson-Brocq type and the pityriasis rubra of Hebra, decides that the case was one of exudative lymphatic erythrodermia.

Obstetrics and Gynaecology

136 Labour in Elderly Multiparae

F. SZOLNOKI (*Zbl. Gynäk.*, December 25, 1937, p. 2941), as evidence of the greater dangers of labour in elderly multiparae, quotes: (1) Leyland Robinson's finding that up to the fourth labour the risk is inversely proportional, after that directly proportional, to the number of labours; (2) similar evidence from Japan; (3) a Scandinavian report on the increasing incidence of forceps application from the fifth labour onwards. At a Budapest clinic successive births are not associated with longer labours or greater frequency of pregnancy toxicoses; but they bring some increase in the proportions of cases of placental retention and atonic bleeding, and a very notable increase in cases of placenta praevia and of transverse presentation. The maternal mortality is two and a half times as great in fifth to seventh pregnancies as in second to fourth pregnancies; the corresponding foetal mortalities are 4.16 and 2.16 per cent. respectively. The increasing incidence of complications and mortality (maternal and foetal) which accompanies increase in the parturient's age—apart from the number of her labours—is largely independent of those associated with the bearing of many children. The increased risk run by old multiparae is here attributed partly to social factors—poor nutrition,

over-fatigue, and poverty—and partly to imperfect supervision during pregnancy.

137 Ovaries and Hysterectomy

R. P. TREVINO (*Cirurg. Ciruj.*, November, 1937, p. 501) stresses the importance of preserving the ovaries whenever possible in cases undergoing hysterectomy. He refutes the suggestion of some authors that the ovaries cease to have any endocrine function after the removal of the uterus, and draws attention to the favourable results obtained by means of grafts. Among other effects of bilateral oophorectomy are a rise in blood pressure, vasomotor disturbances, and psychic disorders of various kinds which may even go on to actual mania. This happened to one of his own patients from whom he removed the ovaries seven years ago. He gives a detailed account of ten cases in which he performed hysterectomy for various reasons, leaving the ovaries *in situ*. None of these patients, whom he was able to follow up for some years, had any menopausal symptoms, although in some of them the ovaries at the time of the operation seemed incapable of performing any useful function. The cases include six of fibromyomata, two of double pyosalpinx, one of double hydrosalpinx, and one of pelvic peritonitis after an abortion at the third month.

Pathology

138 Biological Assay of Liver Extracts

R. EGE and E. HAGENS (*Acta path. microbiol. scand.*, 1937, 14, 4, 597) report a study of Jacobson's method of standardizing liver extracts by observing the reticulocyte count in guinea-pigs after injecting the extracts. In addition to the theoretical objections that the guinea-pigs used are normal and not anaemic, and that the rise in their reticulocyte count is not specific for liver extract since it may be produced by many other substances, the authors found experimental evidence that the method is unsatisfactory. In thirteen of one group of twenty-seven guinea-pigs the reticulocyte count was at times above 20 per 1,000 erythrocytes—the figure fixed by Jacobson for a positive response—and in all cases there were great variations in the reticulocyte count. In another series a change of diet produced a rise in reticulocytes, in some cases to above 20 per 1,000 erythrocytes. This was not due to the effects of salts or vitamins. In both series injections of a therapeutically active liver extract failed to produce a reticulocyte change differing from that occurring in untreated guinea-pigs. Morphologically the "shift to the left" in the reticulocytes, characteristic of the response to liver extract and of the new production of erythrocytes, was only seen a few times. The authors conclude that under the conditions indicated by Jacobson the method is not reliable.

139 Histidine and Oxygen Consumption

C. TARANTINO (*Sperimentale*, October, 1937, p. 463) mentions several reports of increased oxygen consumption by surviving liver, kidneys, and skin after the addition of various amino-acids. The reports concerning histidine are conflicting, probably because the concentration necessary has been insufficiently considered. His work shows that the normal or regenerating skin of rats, studied by Warburg's method, consumes more oxygen in the presence of histidine, especially in the molecular concentration of m/90 and with pH values of 5.8 to 6.1; at the same time the histidine is destroyed. The consumption of histidine and oxygen by the excised skin is increased by previous injections of histidine into the intact animal. Probably the skin, like the liver, contains a histidinase. Excess of histidine does not increase the rate of oxygen consumption, and may lead to its storage in the skin either as histidine or as histamine.

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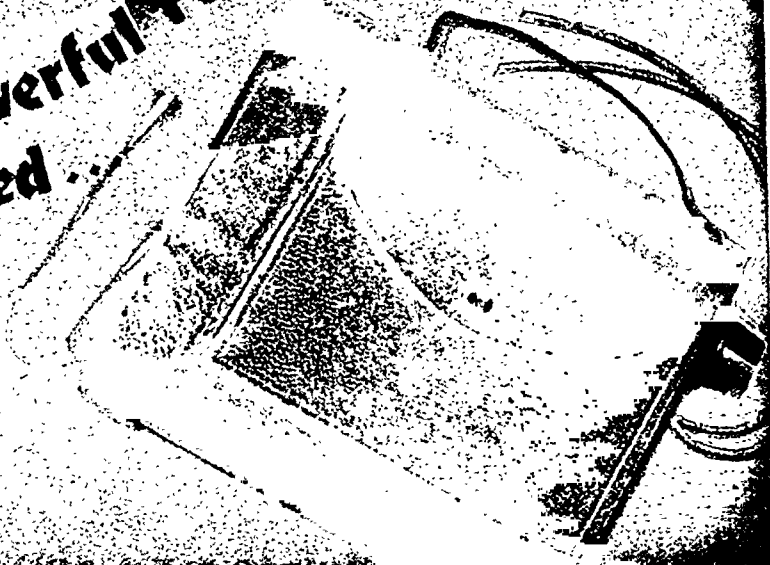


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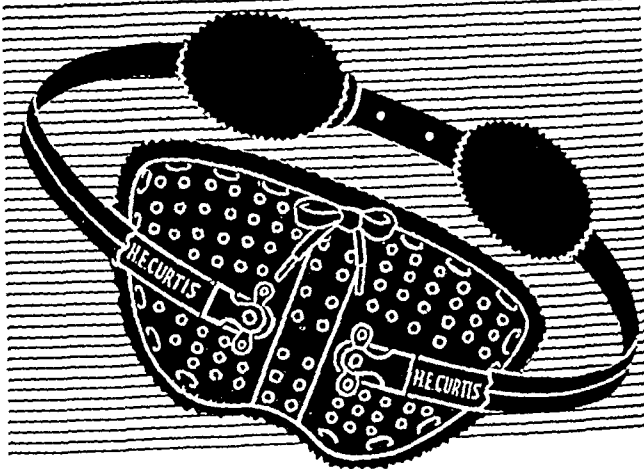


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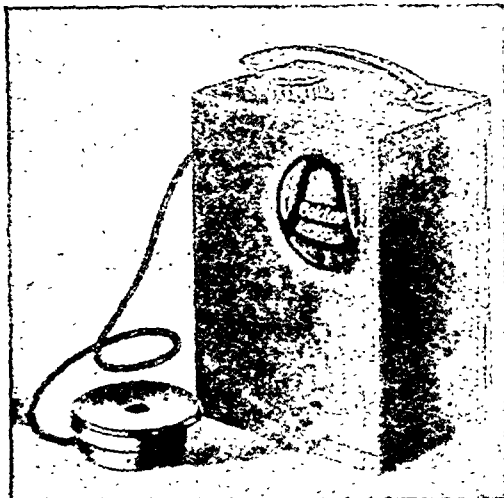
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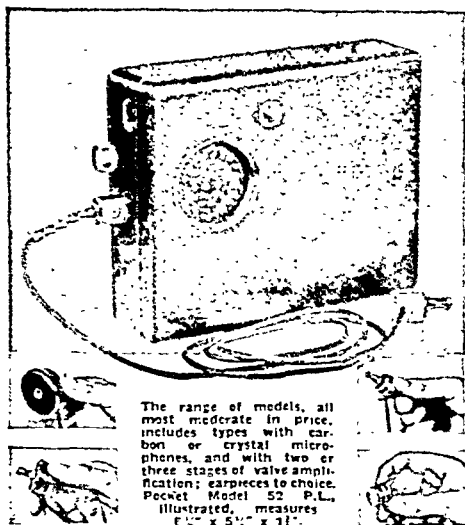


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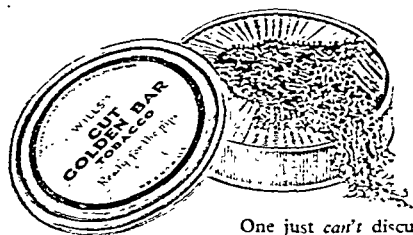
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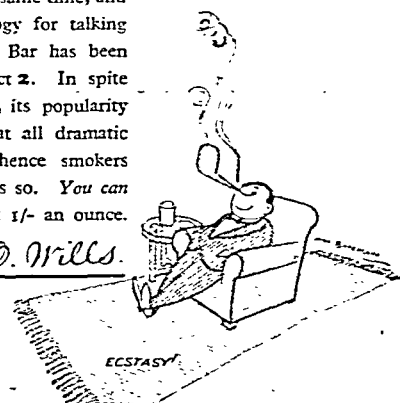
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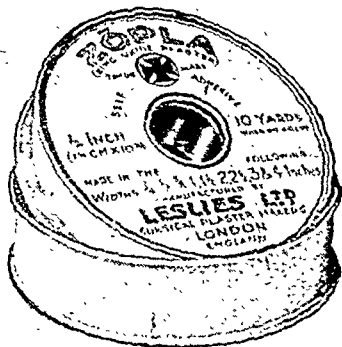
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Rendlesham Hall has 45 bedrooms and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated booklet giving particulars as to terms, etc., can be had on application to the

RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: WICKHAM MARKET 16. (Toll Call from London.)

Proprietors: The Norwood Sanatorium, Limited.

PECKHAM HOUSE, 112, Peckham Road, London, S.E. 15.

Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified-voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

CHEADLE ROYAL HOSPITAL

CHEADLE, CHESHIRE

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a Committee appointed by the TRUSTEES of the Manchester Royal Infirmary. In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds, and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 31 hours from London.

For terms and further particulars apply to the Medical Superintendent, who may be seen in MANCHESTER by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines)

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Including Alcoholism and other Addictions

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Telegrams: "PSYCHOLIA, LONDON."

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Telephone: Rodney 4252 (2 lines)

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The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

ST. ANDREW'S HOSPITAL FOR MENTAL DISORDERS NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

This Registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or wish to prevent recurrent attacks of mental trouble, temporary patients and certified patients of both sexes, are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm gardens and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

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The seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres, Llantairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate, a mile of sea coast forms the boundary. Patients may visit this Branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton), who can be seen in London by appointment.

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Phone: Ashton-in-Makerfield 7311.

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For further particulars, apply to the Medical Sup.

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The house is gloriously situated in wooded grounds of 20 acres with magnificent views of the City and the Avon Valley. (See Medical Directory, page 2322.)

For terms apply, A. GUIRDHAM, M.A., D.M., B.Ch., D.P.M., Resident Physician.

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A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness. Voluntary Patients, Temporary Patients, and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician. Apply to Dr. J. A. SMALL, Telephone: 80 Norwich. Telegrams: Small 80 Norwich.

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The Secretary
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'Phone: REDHILL 344.
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Terms include (with rare exceptions) all forms of treatment for which there are exceptional facilities, as there is a staff of Consultant Specialists, and the Central Laboratory of London County Mental Hospitals is attached to the hospital. Inquiries of EDWARD MAPOTHER, M.D., F.R.C.P., F.R.C.S., Medical Superintendent.

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For particulars apply to the Hospital, or to Hospitals Department, W.C.2.

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ROYAL COLLEGE OF PHYSICIANS OF LONDON

The next ordinary PROFESSIONAL EXAMINATION for the MEMBERSHIP will commence on WEDNESDAY, APRIL 6th, 1938.

Candidates are requested to give twenty-one days' notice in writing to the Registrar of the College, to whom all certificates and testimonials required by the Bye-laws must be sent at the same time.

Candidates who propose to submit published work under the Regulations now in force are required to give twenty-eight days' notice, and should apply in writing to the Registrar, without delay, for detailed instructions as to the procedure they should follow.

RAYMOND CRAWFORD, M.D., Registrar.
Pall Mall East, S.W.1.

EXAMINING BOARD IN ENGLAND by the ROYAL COLLEGE OF PHYSICIANS OF LONDON and the ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Notice is hereby given that the following Examination will commence on the date stated below:

DIPLOMA IN CHILD HEALTH
Friday, March 11th.

Candidates who have fulfilled the necessary conditions, and who desire to present themselves for Examination, must give notice in writing to the Secretary, Examination Hall, 8/11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination, transmitting at the same time such certificates as may be required by the Regulations of the Board.

HORACE H. REW, Secretary.

ROYAL SOCIETY

GOVERNMENT GRANT FOR SCIENTIFIC INVESTIGATIONS.

Applications for the year 1938 for grants for scientific apparatus, research expenses and materials, and travelling expenses incidental to research should be made on forms to be obtained from the Assistant Secretary of the Royal Society, Burlington House, London, W.1. Applicants must be of British nationality. Grants for maintenance do not fall within the scope of the Committee. Early application is desirable, and in no case should forms be submitted later than March 31st next.

J. D. GRIFFITH DAVIES,
Assistant Secretary.

UNIVERSITY OF BIRMINGHAM FACULTY OF MEDICINE

WILLIAM WITHERING LECTURESHIP.

SESSION 1937-38.
THREE LECTURES

CHEMICAL TRANSMISSION OF THE EFFECTS OF NERVE IMPULSES

will be delivered in the Large Theatre of the Medical Faculty Buildings, Edmund Street, as follows:

- (a) Two Lectures by Sir HENRY DALE, C.B.E., F.R.S., M.A., M.D., F.R.C.P. (Director of the National Institute for Medical Research, London), on Thursdays, February 17th and 24th, 4 p.m.
- (b) One Lecture by Professor FRANCIS R. FRASER, M.A., M.D. Medicine, University of Edinburgh, on Thursday, March 10th, 4 p.m.
- Members of the Medical Profession and Students of Medicine are invited to attend.

STANLEY BARNES, Dean.

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)
CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

MEDICAL CORRESPONDENCE COLLEGE

19, Welbeck Street, London, W.1.
PROVIDES COACHING FOR ALL MEDICAL
EXAMINATIONS

POSTAL, ORAL, CLINICAL, AND PRACTICAL

by a Staff of highly qualified Tutors, Honoursmen and Gold Medalists.

Courses may be commenced at any time for the newer Diplomas.

- Diploma in Anaesthetics.
- Diploma in Child Health.
- Diploma in Psychological Medicine.
- Diploma in Laryngology & Otology.
- Diploma in Radiology.
- Diploma in Tuberculosis.
- Mastery of Midwifery.
- M.C.O.G., and D.C.O.G.

Remarkable percentage of first attempt successes at all the higher medical examinations.

The Guide to Medical Examinations sent post free on application gives full information relating to the various higher examinations.

The following booklets may also be had post free:—

- How to Pass the M.R.C.P. London.
- How to Pass the F.R.C.S. England.
- Hints on Writing a Thesis for the M.D. degree.

SEND COUPON BELOW.

Name.....
Address.....
Examination in }
which interested }

THE LONDON SCHOOL OF DERMATOLOGY St. John's Hospital for Diseases of the Skin, 5 Lisle Street, Leicester Square, W.C.2.

Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations twice weekly during October and November, and again during January and February, and four times weekly during May. General Practitioners desiring to attend any particular lecture or occasional lectures can do so without paying a fee. Clinics daily at 2 p.m. and 6 p.m. Saturdays 2 p.m. only. The Laboratory is particularly well equipped and arrangements can be made for classes of individual instruction or for research work. Enquiries: The Dean or Secretary of the School.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes.—
H.C. ORRIN, F.R.C.S., Surgeon's Hall, Edinburgh.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.

FOUNDED IN 1882

by the late E. S. WEYMOUTH, M.A. (Lond.)

POSTAL OR ORAL PREPARATIONS FOR ALL
MEDICAL EXAMINATIONS.

SOME SUCCESSSES:

M.D. (Lond.).	1901-36 (9 Gold Medalists during 1913-36)	412
M.S. (Lond.).	1901-36 (including 4 Gold Medalists)	24
M.B., B.S. (Lond.).	Final 1918-36 (Completed Exam.)	251
F.R.C.S. (Eng.).	Primary 1919-36	188
	Final	183
M.R.C.P. (Lond.).	1919-36	270
D.P.H.	(Various) 1906-36 (Completed Exam.)	342
F.R.C.S. (Edin.).	1918-36	63
M.R.C.S., L.R.C.P.	Final 1919-36 (Completed Exam.)	587
M.D.	Various. By Thesis. Many successes.	

Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.C.H., D.A., D.M.R.E., M.N.S.A., I.M.S.S.A., D.C.O.G., and some exams. of Dominions Universities.

ORAL CLASSES

M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S. (Edin.), also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48 pp.)

CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses. Medical Prospectus gratis, along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

THE GROCERS' COMPANY OFFER EACH YEAR

ONE SCHOLARSHIP for the encouragement of the RCH into the study of DISEASE or as PREMATURE DEATH. The award, which is tenable for two years from September 1st, is of £300 for the first year and £450 for the second year, in addition to which the Court will grant up to £150 a year towards the cost of special apparatus, etc., required by the scholar. Candidates should not be more than 35 years of age, and should submit their applications to the undersigned before May 1st.

L. HICKMAN BARNES, Clerk.
Grocers' Hall, E.C.2.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

ROYAL AIR FORCE MEDICAL SERVICE.

Applications are invited from medical men for appointment to commissions in the Medical Branch of the Royal Air Force for entry in May, 1938.

Candidates must be of pure European descent. They must be British Subjects, the sons of British Subjects and registered under the Medical Acts.

Candidates must normally be under 28 years of age but as a temporary measure consideration will be given to candidates up to 31 years of age and will be selected after interview by a selection board without competitive examination.

Hospital appointments held since qualifying will, under certain conditions, qualify candidates for antedate of commission up to a maximum of one year; the age on entry may, if necessary, be increased by a period equal to the "antedate."

Selected candidates will be appointed to short service commissions (for three years extendible to five years) followed by four years' service in the Reserve, and will be eligible to be considered for Permanent Commissions after having completed their first year of service and during the whole period of their service on the active list. Officers selected for Permanent Commissions will be allowed to count their service on a short service commission towards retired pay or gratuity to permanent officers. Officers not selected for Permanent Commissions receive gratuity as follows on transferring to the Reserve:—

On completion of three years, £400. On completion of five years, £1,000.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, also form of application, may be obtained on application from:—The Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, W.C.2.

Completed applications from intending candidates for the vacancies in May, 1938, must be received in the Air Ministry not later than March 15th, 1938.

THE BRITISH MEDICAL JOURNAL

POST-GRADUATE COURSE IN VENEREAL DISEASES

LONDON COUNTY COUNCIL
(WHITECHAPEL) CLINIC,
TURNER STREET, E.1 (ADJOINING THE
LONDON HOSPITAL).

A THREE MONTHS' COURSE OF INSTRUCTION in MODERN METHODS OF DIAGNOSIS and TREATMENT OF VENEREAL DISEASES will be given by Lieut.-Colonel E. T. BURKE, D.S.O., the Director of the Clinic, during March, April and May, 1938. Attendance at this course will qualify, subject to the other conditions in the Regulations of the Ministry of Health, for the Certificate enabling the possessor to hold the post of a Venereal Diseases Officer under the Council of a County or County Borough. The course will consist of twenty-five systematic lectures, accompanied by lantern demonstrations, on Mondays and Thursdays at 2.30 p.m., beginning on February 28th and ending on May 26th. Every Wednesday at 2 p.m. cases will be demonstrated. Those taking the course will also attend the practice of injections, etc. During the three months 130 hours of attendance must be put in.

Those intending to take the course must send their names to the Director on or before February 21st, 1938. Fee: £10 10s.

THE UNIVERSITY OF MANCHESTER

SIR HENRY ROYCE RESEARCH FELLOWSHIP.

Applications are invited for the SIR HENRY ROYCE RESEARCH FELLOWSHIP, founded under the Will of the late Sir Frederick Henry Royce, Bart. The Fellowship, for research on either "THE COMMON COLD, its nature, prevention, and cure," or "INFLUENZA, its nature, prevention, and cure," is of the value of £500 per annum, and will be tenable in the first instance for a period of three years. Applicants must be graduates of a British University or otherwise registered Medical Practitioners or subjects qualified to undertake research in forms of application specified. Further particulars from the Registrar, the University, Manchester, 13.

All applications, to be made on a prescribed form, must be sent to reach him not later than February 28th.

LONDON HOSPITAL MEDICAL COLLEGE

F.R.C.S.

A COURSE OF INSTRUCTION for the FINAL FELLOWSHIP EXAMINATION will begin on Monday, February 21st, 1938. Fees (exclusive of Operative Surgery), 25 guineas.

Further particulars may be obtained from: Dr. A. E. Clark-Kennedy, M.D., F.R.C.P., Dean, London Hospital Medical College, Turner Street, London, E.1.

GUY'S HOSPITAL MEDICAL SCHOOL

FINAL FELLOWSHIP COURSE.

The next COURSE OF INSTRUCTION for the preparation for the FINAL EXAMINATION for the FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND will commence on MONDAY, FEBRUARY 21st. Intending applicants for admission to the Course should communicate with the Dean, Guy's Hospital Medical School, London Bridge, S.E.1.

THE QUEEN'S UNIVERSITY OF BELFAST.

LECTURER IN ANATOMY.

Applications are invited by Wednesday, March 2nd, 1938, for the post of LECTURER IN ANATOMY, at a salary of £450 per annum, with contributory pension; the duties of the lecturer will include teaching in Embryology to Medical and Science students; duties to be obtained from RICHARD H. HUNTER, Secretary, Queen's University, Belfast.

February 3rd, 1938.

UNIVERSITY OF LONDON.

The Senate invite applications for the UNIVERSITY READERSHIP IN EMBRYOLOGY, tenable at University College. Salary £750 a year. Applications (12 copies) must be received not later than first post on March 4th, 1938, by the Academic Registrar, University of London, W.C.1. from whom further particulars should be obtained.

UMTATA HOSPITAL BOARD.

SIR HENRY ELLIOT HOSPITAL.

APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.

Applications are invited from qualified Registered Medical Practitioners for the above-mentioned post. The salary attached to this position, which is whole-time, is at the rate of £600 per annum, plus free house, water, light and sanitation. A double-storied dwelling-house is shortly to be erected in which the successful applicant will be required to reside, but pending its completion he will be allowed an amount of £10 per month in lieu of quarters and incidental costs.

The successful applicant is to assume duty on July 1st, 1938, and to enter into contract of service for three years (which may be renewed), the first year to be on probation.

The Hospital has 154 beds (22 European, 132 Native), but this accommodation will be increased by approximately 60 beds in the near future. Duties include assisting at operations, anaesthetics, radiology, the general ward work of a resident medical officer, lecturing to nurses, and the general superintendence of the whole Hospital.

Applicants to state full particulars of: (1) Their Medical and, in particular, Radiological and Surgical experience.

(2) Nationality, age, and whether married or single.

(3) Whether fully conversant with both English and Afrikaans.

Applications, with copies of three recent testimonials and health certificate, must be lodged with the undersigned not later than noon on March 15th, 1938.

C. E. BEVAN, Secretary.

Umtata, Cape Province, South Africa.

THE UNIVERSITY OF LIVERPOOL.

The Council invites applications for the following posts:—Two DEMONSTRATORSHIPS (ungraded) in PHYSIOLOGY. Salary £300 per annum. The appointments will take effect as from October 1st, 1938.

Applications should be received by the undersigned not later than April 1st, 1938, from whom further particulars may be obtained.

STANLEY DUMBELL, Registrar.

February, 1938.

BOROUGH OF GRAVESEND.

ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications for this appointment are invited from registered medical practitioners of not more than forty years of age; commencing salary £600 per annum, rising by two annual increments of £50 to a maximum salary of £700 per annum. Candidates must have had at least three years' professional experience and special Child Welfare Ante-Natal and Maternity and School Medical Service work, and the work of the School Medical Officer and Oculist. The possession of a Diploma in Public Health is necessary.

The person appointed will be required to devote full time to the duties, and not to engage in private practice. Duties to be performed under the direction of the Medical Officer of Health, and to include work in connection with Air Raid Precautions.

The post will be designated as established for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the usual deduction of 5 per cent. will be made from salary. The successful candidate will be required to pass a medical examination by the Medical Officer of Health or an independent medical referee appointed by the Council.

Applications must be made on forms obtainable from the undersigned, to whom they must be returned (accompanied by copies of three recent testimonials) not later than the first post on Monday, February 28th, 1938, in envelopes endorsed "Assistant Medical Officer."

Canvassing, directly or indirectly, will disqualify. H. H. BROWN, Town Clerk's Office.

4, Woodville Terrace, Gravesend. February 7th, 1938.

CITY OF SHEFFIELD.

CITY GENERAL HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men for the appointment of Junior Assistant Medical Officer at the above hospital. The Medical Officer appointed will be required to take duty in the Medical, Surgical or Maternity Departments, as directed by the Medical Superintendent.

The appointment will be for one year only, and the salary offered is £200 per annum, with the usual residential allowances.

Previous hospital experience desirable. Applications, stating age, by not more than three testimonials of recent date, should be sent to the Medical Superintendent, City General Hospital, Sheffield, 5.

COUNTY COUNCIL OF MIDDLESEX.

RESIDENT CASUALTY MEDICAL OFFICER.

Applications are invited for the above appointment at West Middlesex County Hospital, Isleworth. Candidates must be registered medical practitioners who have held the post of both house physician and house surgeon at a general hospital, and have had considerable all-round experience.

Salary £350 per annum, with board, lodging and laundry, valued at £100 per annum.

The officer appointed will be required to deal with casualties and admissions to the hospital, and to carry out such other duties as may be allotted to him.

The appointment, which does not at present carry any superannuation rights, will be subject to medical examination, is for a period of six months in the first instance, and is terminable by an additional six months, and may be extended for one month's notice on either side.

The officer appointed will work under the direction of the Medical Superintendent and will devote his whole time to official duties.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Envelopes must be endorsed "Casualty Medical Officer, West Middlesex County Hospital." Relationship to any member or officer of the Council must be disclosed in the application.

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z," Clerk of the County Council.

Middlesex Guildhall, Westminster, S.W.1.

February 1st, 1938.

CANNOCK URBAN DISTRICT COUNCIL.

APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

The above Council invites applications from registered medical practitioners, of under 35 years of age, for the above-named post. The salary will be at the rate of £550 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700 per annum. Applicants must have had at least three years' experience in the practice of their own profession and special experience of practical midwifery, ante-natal, and Maternity and Child Welfare work, and hold a diploma in Public Health.

The person appointed will be required to devote the whole of his or her time to the duties, which will be performed under the direction of the Medical Officer of Health, and will consist chiefly of School Medical and Maternity and Child Welfare work, together with such other duties relating to Public Health as may be required.

The appointment is subject to the approval of the Board of Education, and will be determinable by one month's notice on either side.

The Council has, subject to the approval of the Ministry of Health, decided to adopt the Local Government and Other Officers' Superannuation Act, 1922, as from April 1st, 1938, and the successful candidate will be required satisfactorily to pass a medical examination.

Sealed applications, on forms to be obtained from the undersigned (upon receipt of a stamped envelope), accompanied by copies of three recent testimonials, and endorsed "Assistant Medical Officer of Health," must be delivered to the undersigned not later than Wednesday, February 23rd.

Canvassing, directly or indirectly, will be deemed a disqualification.

WM. C. SPEEDY, Clerk of the Council.

Council House, The Green, Cannock.

February, 1938.

JOINT COMMITTEE OF THE COUNTY COUNCILS OF DURHAM AND NORTHUMBRIA AND THE COUNTY BOROUGH COUNCILS OF GATESHEAD AND NEWCASTLE-UPON-TYNE.

HOUSE SURGEON AND JUNIOR CLINICAL ASSISTANT (Male, non-resident).

Applications are invited from duly qualified Medical Practitioners for the post of House Surgeon and Junior Clinical Assistant to the Joint Committee's Venereal Diseases Clinic and associated beds in the Newcastle General Hospital. Duties include assistance in the male and female out-patients' departments and in the in-patients' departments, and commence April 1st, 1938. Appointment is tenable for one year. Salary £250 per annum, plus an allowance of £100 per annum in lieu of residential emoluments. (Lunch and tea will be provided when on duty.) Applications, stating age, nationality, qualifications, special experience in Venereal Disease work (if any) should be forwarded to Dr. A. E. W. McLachlan, Clinical Medical Officer, Joint Committee's Clinic, Newcastle-upon-Tyne, 4, on or before February 26th, 1938.

CITY OF LEEDS

ASSISTANT MEDICAL OFFICER.

Applications are invited from qualified and registered medical practitioners for the post of Assistant Medical Officer for maternity and child welfare. Applicants must have had not less than three years' postgraduate experience, including experience in general medicine and surgery, and special experience in obstetrics and ante-natal work, and in the treatment of children's diseases and disease of women. Preference will be given to candidates possessing the D.P.H.

Under the present grading scheme of the Council, the commencing salary for the post is £200 per annum and the maximum salary £710, with annual increments of £25, subject to satisfactory service, and the first increment will take effect on April 1st, following the completion of twelve months' service.

The person appointed will be required to pass a medical examination, and to contribute to the superannuation fund established under the Local Government and Other Officers' Superannuation Act, 1922. The appointment will be terminable by one month's notice on either side.

Form of application and particulars as to the duties of the appointment may be obtained from the undersigned. Applicants endorsed "Maternity and Child Welfare Officer," together with copies of three recent testimonials, must be delivered at the Health Department, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10.30 a.m. on Saturday, February 19th, 1938. Canvassing in any form, either directly or indirectly, will be a disqualification.

J. JOHNSTONE JERVIS,
Medical Officer of Health

COUNTY BOROUGH OF BLACKBURN

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Assistant Medical Officer of Health (male), whose principal duties will be to act as Clinical Tuberculosis Officer for the Town and Resident Medical Officer of the Corporation Hospital, in which cases of tuberculosis and other infectious diseases are treated.

Applicants must not be less than 25 years of age and, subsequent to qualification, shall (1) have had at least three years' experience in the practice of their profession, (2) have spent in general clinical work a period of not less than eighteen months, of which not less than six months have been spent in a hospital as resident officer in charge of beds occupied by renal medical or surgical cases, and (3) have received special training for a period of not less than six months in the diagnosis and treatment of tuberculosis.

Preference will be given to candidates who, in addition to the requirements mentioned above, hold a diploma in Public Health, and who have held a Resident post in an Infectious Diseases Hospital. The salary will be £600 per annum, together with board and residence. Married quarters are not available.

A form of application and list of duties may be obtained from the Medical Officer of Health, Public Health Officer, Victoria Street, Blackburn, to whom applications, together with copies of three recent testimonials, endorsed "Assistant Medical Officer of Health," should be sent not later than noon on Saturday, February 19th, 1938.

Canvassing, directly or indirectly, will be a disqualification.

Town Hall, CHAS. S. ROBINSON,
Blackburn. Town Clerk.
January 25th, 1938

NORFOLK COUNTY COUNCIL.

CLINICAL TUBERCULOSIS OFFICER.

Applications are invited for the appointment of a Clinical Tuberculosis Officer for the western area of the county. Applicants must have had considerable experience of tuberculosis, including diagnosis, treatment, and artificial pneumothorax treatment.

Salary £750 rising, on satisfactory service, by annual increments of £25 to £937 10s. 6d. Traveling expenses in accordance with the Council's scale will also be paid.

The officer appointed will be on the staff of the County Medical Officer, must reside at a centre approved by the Council and devote his whole time to the work.

The appointment will be terminable by three months' notice by either side. The post will be a designated one under the Local Government and Other Officers' Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

Application forms can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they must be returned not later than February 19th, 1938.

H. C. DAVIES,
County Offices, Clerk of the Council,
Thorpe Road, Norwich.
January 22nd, 1938.

BOROUGH OF CHATHAM

ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications for the above post are invited from registered medical practitioners (male or female), under the age of 45 and holding the D.P.H. or its equivalent.

The commencing salary will be £500 p.a. rising, on satisfactory service, by annual increments of £25 to £700 per annum.

The post is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate passing a medical examination.

The person appointed will be required to devote his or her whole time to the duties of the office to act under the direction and supervision of the Medical Officer of Health, who is also School Medical Officer, and must have had at least three years' experience, subsequent to graduation, in experience in School Medical Inspection, Refraction, Dental Anaesthetics, Ante-natal and Child Welfare Clinics and Diphtheria Immunisation is very desirable, and full details of such experience should be given in the application.

The duties of the office will be chiefly Medical Officer for the various Clinics, and will include appointment, subject to consent of Minister of Health, as Deputy Medical Officer of Health.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must reach me by 10 a.m. on Tuesday, February 22nd, 1938.

Canvassing, directly or indirectly, will be a disqualification.
Town Hall, EDWARD B. TIE,
Chatham. Town Clerk.
February 12th, 1938.

COUNTY BOROUGH OF HUDDERSFIELD

Bradley Wood Sanatorium for Pulmonary and Surgical Tuberculosis.

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the above appointment from registered Medical Practitioners (married or single) who have had special experience in the diagnosis and treatment of tuberculosis. A good knowledge of Vray work is essential. Salary (male) rising to £700 per annum plus house rent of £100. The post is designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to satisfactorily pass a medical examination.

The engagement will be terminable on three months' notice from either side.

Applications should be accompanied by copies of not more than three testimonials and addressed to JOHN M. GIBSON, B.A., M.D., D.P.H., Medical Superintendent of Hospitals and Medical Officer of Health, so as to reach him not later than February 15th, 1938.

Forms of application are not provided.
Town Hall, SAMUEL PROCTOR,
Huddersfield. Town Clerk.
February, 1938.

CITY OF BIRMINGHAM.

SEELY OAK HOSPITAL (520 Beds.)

JUNIOR MEDICAL OFFICER (male).

Applications are invited from fully-qualified medical practitioners for the whole-time appointment of Junior Medical Officer (male) at the Seely Oak Hospital, Birmingham. The appointment will be for a period of six months in the first instance, but may be extended at the end of that time for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Seely Oak Hospital, to whom applications, stating age, experience and qualifications, with copies of recent testimonials, should be forwarded not later than Wednesday, February 23rd, 1938.

The Council House, F. H. C. WILSHIRE,
Birmingham. Town Clerk.
February, 1938.

COUNTY BOROUGH OF SOUTHEAST-ON-SEA

SOUTHEAST MUNICIPAL HOSPITAL.

The Health Committee of the Town Council invite applications for the appointment of an ASSISTANT MEDICAL OFFICER (Grade 2) at their Municipal Hospital situated at Rochford, Essex (Beds. 475). Salary £325 per annum, with full residential emoluments valued for superannuation purposes at £100 per annum.

The duration of appointment is limited to one year. Applicants must have had previous experience in the administration of Anaesthetics.

Applications, on forms to be obtained from the Medical Superintendent, Southeast Municipal Hospital, Rochford, Essex, should be returned to him on or before Monday, February 21st, 1938.

*Town Clerk's Office, H. J. WOODWARD,
Southeast-on-Sea. Town Clerk.

DEPARTMENT OF HEALTH FOR SCOTLAND.

APPOINTMENT OF REGIONAL MEDICAL OFFICERS

The Department of Health for Scotland are prepared to receive applications from registered Medical Practitioners (men and women) for two posts of Regional Medical Officers to be employed on combined clinical and administrative duties in connection with the National Health Insurance Medical Service and otherwise.

Qualifications

Applicants must be qualified practitioners of standing in the profession and with experience in hospital and general practice. They must be not more than 45 years of age on January 1st, 1938. Consideration will be given to extra diplomas in special branches of medicine.

Residence

Regional Medical Officers are required to reside in each part of Scotland as the Department may determine.

Remuneration

The rate of remuneration will be £800 by annual increments of £50 to £1100 per annum.

Duties

Regional Medical Officers are required to perform such duties as may be assigned to them from time to time by the Department, including:

- (a) Clinical work arising out of questions of incapacity for work or diagnosis and treatment among insured persons.
- (b) Administrative work in connection with the insurance medical service.

Further particulars and forms of application may be had from the Secretary, Department of Health for Scotland, 125, George Street, Edinburgh, 2. Letters applying for forms of application should have the words "Regional Medical Officer" boldly written in the top left-hand corner of the envelope. Applicants should reach the Department not later than February 25th, 1938. Any received after that date will not be considered.

DEPARTMENT OF HEALTH FOR SCOTLAND.

APPOINTMENT OF MEDICAL OFFICERS

The Department of Health for Scotland are prepared to receive applications from registered medical practitioners (men and women) for two posts of Medical Officer.

Qualifications

Applicants must hold the Diploma in Public Health or equivalent qualification and worth will be given to expert knowledge and experience in relation to general and fever hospital services, fever, infectious, child and school health, and nursing. Applicants must be not more than 45 years of age on January 1st, 1938.

Remuneration

The rate of remuneration will be £750 by annual increments of £50 to £1200 per annum.

Duties

Medical Officers are required to devote their full time to the public service and to perform such duties as may be assigned to them by the Department from time to time.

Further particulars and forms of application may be had from the Secretary, Department of Health for Scotland, 125, George Street, Edinburgh, 2. Letters applying for forms of application should have the words "Medical Officer" boldly written in the top left-hand corner of the envelope. Applicants should reach the Department not later than February 25th, 1938. Any received after that date will not be considered.

WEST SUSSEX COUNTY MENTAL HOSPITAL.

APPOINTMENT OF MEDICAL SUPERINTENDENT.

The Visiting Committee are desirous of receiving applications from duly registered and qualified Medical Practitioners for the office of Medical Superintendent from candidates whose ages do not exceed forty-five.

The accommodation of the Hospital is for 1045 patients.

The annual salary will be £1100 a year, rising by two annual increments of £50 each to £1200, with unfranked house, the Committee paying rates and taxes, light, washing, coal, and garden produce.

The candidate appointed will be required to enter upon his duties on or before June 1st, 1938, and to give up the whole of his time to the duties of his office, and not to attend to, or engage in, any professional or other business or employment except that of the Hospital, and not to have any interest, direct or indirect, in any establishment or house for the reception of any mental or other patients.

Applications, stating age, qualifications and experience, accompanied with copies of testimonials, not exceeding three (and which will not be returned) to be sent to me endorsed "Medical Superintendent" on or before February 25th, 1938.

Personal canvassing is strictly prohibited.

G. H. B. FLETCHER,
Clerk to the Committee.

9, Wes. Pallat.,
Chichester, Sussex.
January 29th, 1938.

THE BRITISH MEDICAL JOURNAL

COUNTY BOROUGH OF MERTHYR TYDFIL. APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from medical women (unmarried or widowed), under the age of forty, for the above post. The person appointed must be a registered Medical Practitioner, and registered in the Medical Register as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine. Preference will be given to a candidate who:

- (1) has had at least three years' experience in the practice of her profession;
- (2) has held the appointment of Resident Medical Officer in a Maternity Department for a period of not less than six months;
- (3) has had not less than one year's continuous experience in some branch of Obstetric work.

The duties will include School Medical Inspection, Supervision of Midwives, attendance at Ante-natal and Infant Welfare Centres, and other Public Health duties as may from time to time be prescribed. The duties of the respective Offices will be carried out under the general direction of the Medical Officer of Health.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum, together with out-of-pocket travelling expenses.

Applications, together with copies of three recent testimonials, must reach the undersigned on or before February 26th, 1938.

T. H. STEPHENS,
Town Hall, Medical Officer of Health.
Merthyr Tydfil.
February 5th, 1938.

LANCASHIRE COUNTY COUNCIL. SCHOOL MEDICAL AND CHILD WELFARE DEPARTMENT.

APPOINTMENT OF AN ASSISTANT COUNTY MEDICAL OFFICER.

The Lancashire County Council invite applications from registered Medical Practitioners for the post of an Assistant County Medical Officer. Applicants must not be over 40 years of age and must possess the Diploma in Public Health.

The duties of the post include the Medical Inspection of school children; work under the Maternity and Child Welfare Acts; general Public Health work; and such other duties as may from time to time be imposed by the County Council.

The candidate appointed will be required to devote his whole time to the medical examination, and to pass a medical examination, and to contribute to the Council's Superannuation Fund. The salary will be £800 a year, rising subject to satisfactory service, by annual increments of £50, to a maximum of £1,000 a year, together with travelling expenses.

Applications must be made upon a form which can be obtained, together with further particulars, from the County Medical Officer of Health, School Medical and Child Welfare Department, County Offices, Preston, to whom the completed forms should be returned not later than March 1st, 1938. All communications must be endorsed "Assistant County Medical Officer." Any form of canvassing is strictly forbidden, and will disqualify.

GEORGE ETHERTON,
County Offices, Clerk of the County Council
Preston.
February, 1938

LANCASHIRE COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

WHISTON COUNTY HOSPITAL, Nr. PRESCOT. SECOND RESIDENT MEDICAL OFFICER.

Applications are invited from Registered Medical Practitioners for the appointment of Second Resident Medical Officer at the above Institution (500 beds). Candidates must be unmarried.

Salary at the rate of £250 per annum, together with the usual residential emoluments. The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for reappointment for a further period of six months at the end of that period. Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, accompanied by copies of not more than two recent testimonials, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded so as to be received not later than Monday, February 21st, 1938.

GEORGE ETHERTON,
Clerk of the County Council.
County Offices, Preston.
February 2nd, 1938.

BRIDGWATER GENERAL HOSPITAL, Salmon Parade, Bridgwater, Somerset.

HOUSE SURGEON required. Salary £130 per annum, with board and residence. Applications, with copies of three recent testimonials, stating age, nationality, qualifications, to be sent to the Secretary by February 22nd.

SURREY COUNTY COUNCIL. ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant Medical Officer (male). Applicants must possess a qualification in Public Health, and have had experience in the medical inspection of School Children, in Maternity and Child Welfare, and in the examination and certification of mentally defective children. The officer appointed will be required to undertake such other Public Health duties as may be allocated to him; he will be on the staff of the County Medical Officer of Health, whose whole time to the work. Salary £600 per annum, rising by annual increments of £20 in accordance with the Council's scale will be allowed. The appointment will be subject to the approval of the Ministry of Health, and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the staffing regulations of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed forms, and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for the receipt of applications, Wednesday, February 16th, 1938, will disqualify. Canvassing, directly or indirectly, is prohibited.

DUDLEY AUKLAND,
Clerk of the County Council.
County Hall,
Kingston-upon-Thames.
February 1st, 1938.

KENT COUNTY COUNCIL. PUBLIC ASSISTANCE DEPARTMENT. COUNTY HOSPITAL, CHATHAM. APPOINTMENT OF CONSULTING PHYSICIAN.

Applications are invited for the appointment of Consulting Physician to the above Hospital. Applicants must be Graduates in Medicine of a University in the British Empire, and Fellows or Members of the Royal College of Physicians of London.

The person appointed will be required to attend at the Hospital for one half-day session a week, and will be remunerated at the rate of £170 a year, and will be travelling expenses will be paid.

First-class travelling expenses will be paid. Applications, stating age, qualifications, and experience, with copies of three testimonials, should be sent to the Public Assistance Officer, Tonbridge Road, Maidstone, by not later than February 21st, 1938.

W. L. PLATTS,
Sessions House, Clerk of the County Council.
Maidstone.
January 31st, 1938.

KENT COUNTY COUNCIL. RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer at the County Hospital, Farnborough (889 beds).

The salary for the appointment is £250 a year, with residential emoluments which are valued at £120 a year.

The appointment is a whole-time one and will be for a period of one year only, and not renewable.

Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by 10 a.m. on Monday, February 21st, 1938.

W. L. PLATTS,
Sessions House, Clerk of the County Council.
Maidstone.
February 3rd, 1938.

KENT COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE. COUNTY HOSPITAL, CHATHAM. APPOINTMENT OF CONSULTING SURGEON.

Applications are invited for the appointment of Consulting Surgeon at the above Hospital. Applicants must be Fellows of the Royal College of Surgeons of England.

The person appointed will be required to attend at the Hospital for one half-day session a week, and will be remunerated at the rate of £170 a year, and will be travelling expenses will be paid.

First-class travelling expenses will be paid. Applications, stating age, qualifications, and experience, with copies of three testimonials, should be sent to the Public Assistance Officer, Tonbridge Road, Maidstone, by not later than February 21st, 1938.

W. L. PLATTS,
Sessions House, Clerk of the County Council.
Maidstone.
January 31st, 1938.

ADMINISTRATIVE COUNTY OF NORFOLK ASSISTANT COUNTY MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH for Wells Urban District, Docking Rural District, Walsingham Rural District.

The Norfolk County Council and the District Councils concerned invite applications from medical practitioners holding a diploma in public health, or similar qualification, for the joint whole-time appointment of ASSISTANT COUNTY MEDICAL OFFICER and MEDICAL OFFICER OF HEALTH for the Urban District of Wells-next-the-Sea, and the Rural Districts of Docking, and Walsingham. Population of area about 37,000; a further urban district (population 3,000) may be added later.

The salary for the combined appointment will be £800 per annum, with travelling expenses in accordance with the County Council scale. The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the salary will be subject to the statutory deduction for this purpose. The successful applicant will be required to pass a medical examination.

The officer will act under the County Medical Officer as Assistant School Medical Officer, Medical Officer to Infant Welfare Centres, and will be required to perform such other duties as may be assigned to him by the County Council. As regards his duties as Medical Officer of Health he will be subject to the control of the District Councils concerned and be required to live at or near an approved centre in his area.

The appointment will be subject to three months' notice to be given, or received, by the Clerk of the County Council.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, Norfolk, to whom they should be returned, accompanied by copies of not more than three recent testimonials, not later than February 19th, 1938.

Canvassing in any form will be a disqualification. H. C. DAVIES,
Clerk of the County Council.
W. A. WILLIAMSON,
Clerk to the Wells Urban District Council.
J. H. MARSHALL,
Clerk to the Docking Rural District Council.
A. E. KERRISON,
Clerk to the Walsingham Rural District Council.
January 31st, 1938.

DERBYSHIRE COUNTY COUNCIL. ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Assistant County Medical Officer of Health. Candidates must possess a qualification in Public Health, have had both practical and administrative experience of the medical inspection of school children, the organization of school clinics and infant welfare centres, and have a sound knowledge of the provisions of the Midwives Acts and the rules of the Central Midwives Board.

The Officer appointed will be required to devote the whole of his time to the duties of the office and to work under the direction of the County Medical Officer.

The salary will be £700 rising by annual increments of £25 to £800 a year, and the appointment will be subject to the approval of the Minister of Health and the Board of Education.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

The appointment will be determinable by three months' notice on either side.

Applications, stating age, qualifications and previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 3rd, 1938. Application forms are not provided.

W. M. ASH,
County Offices, County Medical Officer of Health.
Derby.
February 3rd, 1938.

COUNTY BOROUGH OF HUDDERSFIELD. ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the above post, for which a good knowledge of diseases of children and experience in bacteriology are essential.

Salary according to scale—£500 per annum increasing to £700. The commencing salary will be based on the candidate's previous Superannuation Act, 1922, and the appointment, therefore, is subject to a satisfactory medical examination.

Applications, stating age and giving full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, along with copies of two recent testimonials, so as to reach him not later than Friday, February 25th.

CORNELIA AND EAST DORSIT HOSPITAL. Poole, Dorset (120 Beds)

HOUSE PHYSICIAN

Applications are invited from single men for the post of House Physician.

Period ending September 30th, 1938. Salary at the rate of £150 p.a., with usual emoluments.

Reappointment may be applied for, and if granted the salary is at the rate of £175 per annum. Duties to commence as soon as possible.

The Hospital is recognized by the Royal College of Surgeons of England in connection with the Final Examination for the Fellowship.

Applications, stating age, nationality, experience and qualifications, together with copies of three recent testimonials (which will not be returned) should reach the undersigned at the Hospital immediately.

Preference will be given to applicants who have already held a resident appointment in a Hospital.

E. S. FOLEY.

Secretary.

CUMBERLAND INFIRMARY, CARLISLE (131 Beds)

Applications are invited from men only for the following posts:

HOUSE PHYSICIAN

TWO HOUSE SURGEONS

HOUSE SURGEON to Special Departments (Eye, Ear, Nose and Throat).

Appointments are for six months from April 1st, 1938, and holders will be eligible for a further term. Salary in each case at the rate of £170 per annum, with board, residence and laundry.

The posts of House Surgeon are recognized by the Royal College of Surgeons of England under the regulations for the Final Fellowship Examination.

Applications, on forms obtainable from the undersigned, together with copies of not more than four testimonials, to be received not later than February 25th.

J. S. RIPPET.

February 7th, 1938. Secretary-Superintendent.

ARGYLL AND BUTE DISTRICT MENTAL HOSPITAL, Lochalsh.

Applications are invited for the post of RESIDENT ASSISTANT MEDICAL OFFICER (male). Commencing salary £300 to £350 per annum, according to previous experience and special qualifications. An additional £50 per annum will be paid if in possession of the D.P.M. (Furnished apartments will be provided, with board and laundry. The appointment will be subject to the provisions of the Asylum Officers' Superannuation Act, 1909.)

Applications, stating age and experience, accompanied by seven copies of testimonials, to be addressed to the Clerk to the Joint Board of Management, County Offices, Lochalsh, not later than February 16th, 1938.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of House Surgeon. The appointment will be for six months from March 15th, 1938, but is terminable at an earlier date by one month's written notice on either side. Salary will be at the rate of £130 per annum, with board, residence and laundry. Candidates (male) who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned on or before Wednesday, February 23rd, 1938.

J. A. BEARDSALL.

Secretary-Superintendent.

KENT AND SUSSEX HOSPITAL. Royal Tunbridge Wells. (210 Beds.)

Applications are invited for the appointment of HOUSE PHYSICIAN (male). Salary £150 per annum. Board, residence, and laundry in the hospital.

The hospital is approved by the University of London for the purpose of the M.B. examination. Successful candidate will be required to take up duty on March 1st, 1938, and applications, stating qualifications, together with Certificate of Registration and copies of not more than three recent testimonials, should be sent to the undersigned immediately.

TOM B. HARRISON.

Superintendent-Secretary.

February 3rd, 1938.

DEWSBURY AND DISTRICT GENERAL INFIRMARY, DEWSBURY.

Applications are invited for the post of SECOND HOUSE SURGEON (Male). The duties are principally those of a House Physician and Casualty Officer. Salary £150 per annum, with board, residence and laundry.

Applications, stating age and hospital experience, together with copies of recent testimonials, to be sent as immediately as possible.

FRED SMITH.

Secretary-Superintendent.

EAST SUSSEX COUNTY MENTAL HOSPITAL, HILLINGDY.

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the above post from duly qualified registered medical practitioners (unmarried).

Salary £350 a year, rising by four annual increments of £25 to £450, together with board, lodging, washing and attendance, valued for superannuation purposes at £10 a year, an additional £50 a year will be paid to any candidate appointed who holds the Diploma in Psychological Medicine, or a similar Diploma.

The appointment is subject to one month's notice on either side, and to the provisions of the Asylum Officers' Superannuation Act, 1909.

Applications, marked "A.M.O.", giving particulars of previous experience and copies of not more than three recent testimonials, should be addressed to the Medical Superintendent not later than February 17th, 1938.

KING EDWARD VII HOSPITAL, WINDSOR (200 Beds)

HOUSE SURGEON required, beginning March (preferably with Ear, Nose and Throat experience), also a HOUSE PHYSICIAN. Applicants must be fully qualified men or women, and registered.

Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than February 15th.

The Surgical appointment is recognized by the Royal College of Surgeons of England for the six months' training required of candidates before admission to the final examination for the Fellowship.

A. L. CHURCHER

Secretary.

KENT AND CANTERBURY HOSPITAL, Canterbury

The Board of Management will shortly proceed to the election of an HONORARY DERMATOLOGIST.

Candidates must be engaged solely in the practice of Dermatology.

Applications, with copies of three testimonials, should be addressed to the undersigned, from whom particulars of the appointment can be obtained. The closing date for the receipt of applications is March 7th, 1938.

I. F. KENT

Superintendent and Secretary.

KELLING SANATORIUM, HOLT, NORFOLK

SECOND ASSISTANT RESIDENT MEDICAL OFFICER (Male), unmarried, required at above Sanatorium to take up duty on April 1st next. First appointment twelve months (renewable), with three months' notice on either side. Salary £350, with apartments, board and laundry.

Candidates must be duly registered Medical Practitioners.

Applications, in candidate's own handwriting, stating age and qualifications (with one copy of three recent testimonials) to be sent to the Medical Superintendent, Kelling Sanatorium, Holt, Norfolk, not later than March 5th.

GLASGOW CORPORATION MENTAL HOSPITALS.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted for the Hawkhead Mental Hospital, previous experience unnecessary, but preference will be given to one who has engaged in pathological work or has been house physician, and opportunity afforded for research. Salary to commence at £300 per annum, with board, lodging, and laundry. Full particulars on application to the Medical Superintendent, Hawkhead Mental Hospital, Crookston Road, Glasgow, S.W.2.

HEREFORDSHIRE GENERAL HOSPITAL, HEREFORD. (152 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) in charge of Casualty and Ear, Nose and Throat Departments.

Salary at the rate of £100 per annum, with board, residence and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned on or before February 21st.

T. W. UPTON.

Secretary.

EAST SURREY HOSPITAL, REDHILL, Surrey.

Applications are invited for the post of VISITING CONSULTANT TO THE EAR, NOSE AND THROAT DEPARTMENT. Honorarium £75 per annum. All particulars can be obtained from Secretary.

ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

The House Committee by Resolution declare vacant the office of HONORARY ASSISTANT SURGEON.

According to statutory provision every candidate must be a registered Graduate in Surgery of any University recognized by the General Council of Medical Education and Registration of the United Kingdom, or a Registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner.

Applications should state age and appointments held at present time, and must be received by the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than Thursday, February 24th, 1938.

The appointment will be made on March 1st, 1938.

Personal canvassing will be considered a disqualification for office.

S. DUNSTAN.

House Governor and Secretary.

February 4th, 1938.

NORTH STAFFORDSHIRE ROYAL INFIRMARY Stoke-on-Trent. (140 Beds)

HOUSE SURGEON (GENERAL)

The Committee invite applications for the above post.

Salary at the rate of £150 per annum, with board, residence and laundry.

The appointment will be made for six months renewable.

Previous hospital surgical experience essential. Applicants, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,

W. STEVENSON.

Secretary and House Governor.

February 7th, 1938.

ROYAL VICTORIA HOSPITAL, FOLKESTONE. (Extending to 155 Beds)

The Committee of Management invite applications for the appointment of an HONORARY ANAESTHETIST. Candidates must be—

(1) Doctor of Medicine or a Graduate in Medicine of one of the Universities of Great Britain, Ireland, or one of His Majesty's Dominions.

(2) A Fellow, Member, or Licentiate of the Royal College of Physicians of London, Edinburgh or Ireland, and who holds the Diploma of Anaesthetics.

Applications, stating age, qualifications and experience, and enclosing copies of three recent testimonials, to be forwarded to the undersigned not later than March 1st, 1938.

T. WILTON.

February 7th, 1938. Secretary-Superintendent.

ROYAL EYE HOSPITAL, Percy Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith. Salary £100 per annum, and allowance in lieu of board-residence £100 per annum.

Applications, stating age, qualifications and Ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement, candidates have to be interviewed by appointment by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE.

Secretary.

SOUTHAMPTON CHILDREN'S HOSPITAL AND DISPENSARY FOR WOMEN.

The Board of Management invite applications for the post of RESIDENT MEDICAL OFFICER (lady). Six months' appointment. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, accompanied by copies of testimonials, to be sent to the undersigned not later than February 15th. The selected candidate will be required to take up her duties at the beginning of March.

ELLA K. MATTHEWS.

Secretary.

SOUTHPORT GENERAL INFIRMARY. (150 Beds.)

Special Departments for Eye, Ear, Nose and Throat, X Rays, Massage, Skin, Pathology, etc.

Wanted, to take up duties on March 1st next, a JUNIOR HOUSE SURGEON. Salary £150 per annum, with residence, board, and laundry.

Applicants to be fully qualified, registered, and unmarried. Applications, stating age and experience, with copies of testimonials, to be sent in by February 21st to the Superintendent and Secretary, Infirmary Office, Pilkington Road, Southport.

COUNTY COUNCIL OF MIDDLESEX. PHYSICIAN—GRADE I. REDHILL COUNTY HOSPITAL, EDGWARE.

Applications are invited from registered medical practitioners for the above appointment on the pensionable staff. The appointment is a senior one in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments, who are devoting their time wholly or chiefly to the practice of clinical medicine. The officer appointed will work under the direction of the Medical Superintendent of the Hospital and will give his whole time to the duties of the post. He must be prepared to undertake the teaching of nurses and, if required, of students and to carry out such other duties as the Council may from time to time direct.

The Hospital is one of 225 beds for acute medical and surgical cases and for maternity. Large extension of over 300 further beds are nearing completion. In addition to a full-time physician, surgeon, obstetrician and pathologist, there is a resident medical staff of five and a part-time radiologist pathologist, and dental surgeon.

Salary £1,000 per annum, rising by annual increments of £50 to £1,500 per annum. The salary is inclusive and any fees received by the officer appointed must be paid over to the Council.

The appointment is non-resident, but the successful candidate will be required to reside within a short distance of the Hospital. The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms must be enclosed in the application. Envelopes must be addressed to "Physician, Redhill County Hospital."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.
Middlesex Guildhall,
Westminster, S.W.1
February 3rd, 1938.

SURREY COUNTY COUNCIL. PUBLIC HEALTH DEPARTMENT. KINGSTON COUNTY HOSPITAL. (530 Beds.) RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Resident Assistant Medical Officer at the Kingston County Hospital, Kingston-on-Thames.

The Medical Officer appointed should preferably have had previous experience as House Physician or House Surgeon. The appointment is for a period of six months, and renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum, making an aggregate of £375 per annum.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Kingston County Hospital, Wolverton Avenue, Kingston-on-Thames, so as to be received not later than February 23rd, 1938.

DUDLEY AUKLAND,
County Hall, Kingston-on-Thames.
February 4th, 1938.
Clerk of the Council.

CITY OF LEICESTER. RESIDENT MEDICAL OFFICERS.

The Health Committee of the City of Leicester invite applications for the position of two Resident Medical Officers (male) at their CITY GENERAL HOSPITAL for a period of six months.

Successful candidates will be required to commence March 9th and April 1st respectively. Reference will be given to those with, or reading, high qualifications.

The Hospital is a modern building, with 550 beds, four Resident Medical Officers and one Deputy Medical Superintendent. The work that will be required of these Resident Medical Officers will be chiefly Medical; there may, however, be some general Surgical work.

Salary £300 per annum, together with full residential emoluments. Further particulars of the appointment may be obtained from the undersigned, and applications (on forms supplied), accompanied by copies of three recent testimonials, must be received not later than February 21st, endorsed "R.M.O.," addressed to the undersigned.

E. K. MACDONALD,
Medical Officer of Health
Health Department, Grey Friars, Leicester.

COUNTY COUNCIL OF MIDDLESEX. OBSTETRIC SURGEON.

Applications are invited from registered Medical Practitioners for the appointment on the pensionable staff of an Obstetric Surgeon, Grade II., at West Middlesex County Hospital, Isleworth. The appointment is a senior one in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments, who have devoted their time wholly or chiefly to the practice of obstetrics and gynaecology. The successful candidate will work under the direction of the Medical Superintendent of the Hospital, and the whole of his time must be given to his official duties. He must be prepared to undertake the teaching of midwives and students, if required, and to carry out such other duties as the County Council may from time to time direct.

Salary £650 per annum, rising by annual increments of £50 to £900; and after eight years' service in this grade, two additional annual increments of £50 each. The salary is inclusive, and any fees received by the officer appointed must be paid over to the County Council.

The appointment is non-resident, and the successful candidate will be required to reside within a short distance of the Hospital. In the case of an unmarried officer, if accommodation is available, board, lodging, laundry and service may be provided by the County Council, and in this event a deduction of £150 per annum will be made from the officer's salary.

The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Relationship to any member or officer of the Council must be disclosed in the application. Envelopes must be addressed to "Obstetric Surgeon, West Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.
Middlesex Guildhall,
Westminster, S.W.1
February 3rd, 1938.

BOROUGH OF KEIGHLEY. APPOINTMENT OF LADY DEPUTY MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the above whole-time appointment from registered lady medical practitioners of at least three years' standing and holding the D.P.H. or equivalent qualification. Salary £500 per annum, rising by annual increments of £25 to a maximum of £700; the emoluments of £25 to be fixed according to previous service.

Applications, on the form which may be obtained from the undersigned, giving full particulars and conditions of appointment, must be received by the undersigned not later than February 19th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.

S. WALKER,
Town Clerk's Office, Keighley.

LONDON COUNTY COUNCIL.

Applications invited from Medical Practitioners of at least one year's standing to undermentioned position. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

MARY'S HOSPITAL FOR CHILDREN, QUEEN CARSHALTON, SURREY. (1,284 beds.)

There are special departments for rheumatic and orthopaedic conditions, for congenital malformations and for nutritional diseases.

ASSISTANT MEDICAL OFFICER (Grade II.). Salary £250 a year. Appointment for one year lodging and washing. Appointment for a second year only in first instance (renewable for a second year under certain conditions).

Application forms, obtainable (stamped addressed under certain conditions) from Medical Officer of Health, Staff division 2A, County Hall, S.E.1, returnable by February 21st.

Canvassing disqualifies.

GENERAL INFIRMARY, SALISBURY. (Voluntary Hospital—194 beds, now in course of extension to 215 beds.)

HOUSE SURGEON (MALE) required to commence duty March 17th, 1938.

The appointment is for six months, with the right of applying for reappointment for a further period of six months. Candidates must be unmarried, fully qualified, and registered.

Salary £125 per annum, with board residence. Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be obtained.

BOROUGH OF CHATHAM EDUCATION COMMITTEE. DENTAL SURGEON.

Applications are invited for the post of Dental Surgeon from ladies and gentlemen under the age of 45, holding a registered Diploma or Degree in Dental Surgery. The successful applicant will be required to carry out duties in connexion with the dental inspection and treatment of school children, Maternity and Child Welfare mothers and children, and will also be required to perform other dental work as may be required by the Education Committee.

The successful candidate will be required to devote his or her whole time to the duties of the office under the direction of the Medical Officer of Health, and will not be permitted to engage in private practice.

Salary £500 per annum, rising subject to satisfactory service by annual increments of £20 to £600 per annum. The post will be designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate must pass a medical examination.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should reach the undersigned not later than 10 a.m. on February 22nd, 1938.

R. L. WILLS,
15, New Road Avenue,
Chatham.
February 7th, 1938.
Education Officer.

CITY OF PLYMOUTH. CITY GENERAL HOSPITAL (570 Beds.)

Applications are invited from duly qualified and registered medical practitioners for the following posts:

(1) ASSISTANT MEDICAL OFFICER.
Salary at the rate of £300 per annum, with full residential emoluments. All fees received by the Officer must be refunded to the Council.

The appointment will be for a period of twelve months, terminable by one month's notice on either side. Previous experience in a general hospital is essential. As the duties of the post also include general work, preference will be given to candidates who have had such experience.

(2) JUNIOR ASSISTANT MEDICAL OFFICER.
Salary at the rate of £250 per annum, with full residential emoluments. All fees received by the Officer must be refunded to the Council.

The appointment will be for a period of six months in the first instance, and will be terminable by one month's notice on either side.

Forms of application may be obtained from the undersigned, and should be forwarded, together with copies of not more than three recent testimonials, not later than February 25th.

T. PEIRSON,
Town Hall, Plymouth.
Medical Officer of Health.
Stonchouse, February 5th, 1938.

ESSEX COUNTY COUNCIL. JUNIOR ASSISTANT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of Junior Assistant Medical Officer at the Black Notley Sanatorium, near Braintree.

This Sanatorium has 300 beds for the treatment of pulmonary and non-pulmonary tuberculosis in men, women and children, and has all modern facilities for diagnosis and treatment, together with a staff of visiting Specialists.

The appointment is for a period of one year, and the salary will be at the rate of £250 per annum, together with board, lodging and laundry.

The successful applicant will be required to pass a medical examination, and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications, stating age, qualifications and experience, accompanied by copies of not more than three recent testimonials (which will not be returned), should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Thursday, February 24th, 1938.

E. S. HOLCROFT,
County Hall, Chelmsford.
Clerk of the County Council.
February 7th, 1938.

WEST KENT GENERAL HOSPITAL (Incorporated). Maidstone. (136 Beds.)

Applications are invited for the post of HOUSE SURGEON, who must be a male of British nationality, and unmarried.

Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess registered qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before March 1st, 1938.

The successful candidate will be required to take up residence on March 10th, 1938.

EDWARD J. GREGG,
House Governor and Secretary.

APPOINTMENTS—Important Notice

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District	Town or District
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
APERTYSSWG MEDICAL AID SOCIETY. (Medical Officer)	MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer)	OAKDALE, MON. (Medical Officer for Medical Aid Association)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.)	NEATH AND DISTRICT (Medical Aid Association)	PUBLIC HEALTH
LLWYNTHIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme)	OGMORE VALLEY, GLAMORGAN. (Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme)	SALOPMENTAL HOSPITAL SHREWSBURY (Assistant Medical Officer, Male)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES (All Friendly Society Appointments)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Locum Practitioner)	The Hon. Sec. Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec. Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

February 9, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

THE GLOUCESTERSHIRE—ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester. (225 Beds. Five Residents.)

Applications are invited for the post of HOUSE SURGEON (male) to the Ear, Nose and Throat Department. Salary at the rate of £150 per annum, with board, residence and laundry. The Hospital is recognized for the D.L.O. and the F.R.C.S. Final Examinations. The appointment is for six months, which may be extended for similar period by re-election from time to time.

Applications, stating age, qualifications, experience and nationality, with copies of not less than three recent testimonials, should be received by the undersigned not later than Wednesday, February 16th. The elected candidate will be required to enter upon his duties on March 1st.

F. J. SYMONS,
Secretary.

February 3rd, 1938.

THE GENERAL INFIRMARY AT LEEDS. RADIO-SURGICAL HOUSE SURGEON (male or female).

Applications are invited for the above post. Salary £50 per annum, with board, residence and laundry. The appointment is for six months, subject to renewal. Candidates must be legally qualified and registered.

Applications, with copies of testimonials, to be sent in at once to the undersigned.

S. CLAYTON FRYERS,
House Governor and Secretary.

HARTLEPOOLS HOSPITAL, HARTLEPOOL. (96 Beds.)

Applications are invited for the post of HOUSE SURGEON (male). Salary £150 p.a. with board, residence and laundry.

The appointment is for six months (commencing February 25th).

Applications, stating nationality, age, qualifications and experience, should be addressed to the undersigned.

NORMAN O. DEANS,
Secretary.

HULL ROYAL INFIRMARY.

Applications are invited for the post of SECOND CASUALTY OFFICER (male) vacant February 15th.

Salary £150 per annum, plus board, residence and laundry.

In addition to carrying out duties in the Casualty Department the officer appointed will act as House Surgeon to one of the Honorary Assistant Surgeons, and will thus obtain Ward and Theatre experience. He will be eligible for promotion to a more senior post when a vacancy occurs.

The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving particulars of age, experience and nationality, together with copies of testimonials, should be addressed to the undersigned.

R. J. CARLESS,
House Governor.

January 31st, 1938

KETERING AND DISTRICT GENERAL HOSPITAL. (105 Beds.)

Applications are invited for the post of HOUSE PHYSICIAN.

Salary £150 per annum, with board, residence and laundry. Candidates must be fully qualified and registered.

The appointment is for six months, with eligibility for a further period.

Applications, stating age, nationality, and qualifications, together with copies of three testimonials, to be sent to the undersigned as soon as possible.

G. W. JACKSON,
Secretary-Superintendent.

ROYAL LANCASTER INFIRMARY. (140 Beds.)

JUNIOR HOUSE SURGEON (male, British, single) required for March 1st 1938. Salary £120 per annum with board, residence and laundry. The appointment is for six months.

Applications with copies of testimonials, should be addressed to the Hon. Secretary, Royal Lancaster Infirmary.

WILSON HOSPITAL, MITCHAM, SURREY. (72 Beds.)

RESIDENT MEDICAL OFFICER, male or female, required from March 31st next. Salary £150 per annum, with board, residence and laundry.

The appointment is for six months, renewable for a further six months at the discretion of the Committee. The Hospital is quite modern and exceptionally well equipped, and carries out work of a character which gives the Resident Medical Officer a considerable amount of experience.

Applications, with copies of three testimonials, stating age, qualifications and experience (particularly anaesthetics), should be sent to the Hon. Secretary, "Greenview," Lower Green, Mitcham, on or before Saturday, February 26th, 1938.

CHILDREN'S HOSPITAL, NOTTINGHAM.

Applications are invited for the post of RESIDENT HOUSE PHYSICIAN (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on April 1st.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlemere Gate, Nottingham, on or before Tuesday, February 15th. Selected candidates will be required to attend at the Hospital for a personal interview.

CHILDREN'S HOSPITAL, NOTTINGHAM.

Applications are invited for the post of RESIDENT HOUSE SURGEON (woman). The salary will be at the rate of £150 per annum, with apartments, board and laundry. The appointment will be for six months, duties to commence on May 1st.

Applications, together with testimonials, stating age, qualifications and experience, to be sent to the Honorary Secretary, 1, King John's Chambers, Bridlemere Gate, Nottingham, on or before Tuesday, February 15th. Selected candidates will be required to attend at the Hospital for a personal interview.

(Appointments continued on p. 60.)

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth. (Formerly South Devon and East Cornwall Hospital.) 264 Beds.

Applications are invited for the post of **RESIDENT ANAESTHETIST AND HOUSE SURGEON** to the Special Departments. Salary £120 per annum, with board, residence and laundry.

Appointment is tenable for six months and is subject to renewal. Duties to commence March 10th. The Hospital is officially recognised for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Acts. Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than February 25th.

ARTHUR R. CASH,

February 7th, 1938. Secretary.

THE CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE, Withington, Manchester 20

Applications are invited for the post of **RESIDENT MEDICAL OFFICER** to the above Hospital and Institute for duty with the Radio-therapy Department to commence April 1st. Appointment is for six months in the first instance, but is renewable. Salary at the rate of £150 per annum, plus residence (private suite), board, etc.

The appointment offers an excellent opportunity of obtaining experience in Radium and X-ray Therapy. Candidates must have had previous Medical and Surgical experience.

Applications, stating age, qualifications and previous experience, to be received by the undersigned not later than March 1st.

PERCY N. GLASS,

Superintendent

THE RADCLIFFE INFIRMARY, OXFORD.

Applications are invited from qualified men or women for the post of **RESIDENT MEDICAL OFFICER** to that section of the Hospital, consisting of 52 beds and dealing with the diagnosis and treatment of pulmonary tuberculosis, known as the Oster Pavilion, Headington, Oxford, as from March 15th, 1938.

Appointment will be for six months in the first instance. Salary at the rate of £120 per annum, with board, etc.

Applications, with copies of testimonials, must be forwarded to the undersigned at the Radcliffe Infirmary not later than February 21st, 1938.

A. G. E. SANCTUARY,

February 7th, 1938. Administrator.

WARNEFORD GENERAL HOSPITAL, Leamington Spa. (164 Beds.)

Applications are invited for the post of **RESIDENT CASUALTY OFFICER AND HOUSE SURGEON** to one of the Hon. Surgeons. Six months appointment. Salary £150 per annum, with board and laundry.

Applications from qualified registered Medical Practitioners should be sent, together with three recent testimonials, to the undersigned by February 21st, 1938.

EDWARD L. WIRGMAN,
House Governor and Secretary.

THE GENERAL INFIRMARY AT LEEDS. (673 Beds.)

Applications are invited for the post of **RESIDENT ORTHOPAEDIC OFFICER**. Salary £149 p.a., with board, residence and laundry. The appointment is for twelve months, subject to renewal. Candidates must be legally qualified and registered, and have held a Resident Surgical post and had special experience in Orthopaedic work.

Applications, with copies of testimonials, to be received by the undersigned as soon as possible.

S. CLAYTON FRYERS,

House Governor and Secretary.

THE ST. HELENS HOSPITAL.

Applications are invited for the position of **JUNIOR HOUSE SURGEON (Male)** to this Hospital at a salary of £150 per annum, plus board, residence and laundry.

Applications, stating age and nationality, accompanied by copies of three recent testimonials, to be sent to the Secretary, the St. Helens Hospital, St. Helens, Lancashire, not later than Tuesday, February 22nd.

The successful applicant will be required to commence duties on March 1st next.

THE STAFFORDSHIRE GENERAL INFIRMARY, STAFFORD. (143 Beds.)

SECOND HOUSE SURGEON required immediately. Salary £175 per annum, with board residence.

Applications, stating age and experience, accompanied with copies of three recent testimonials, should be sent to me on or before first post on Thursday, the 17th instant.

A. E. COLLINS,

February 1st, 1938. Secretary.

NOBLE'S ISLE OF MAN HOSPITAL AND DISPENSARY.

Douglas, Isle of Man. (112 Beds.)

The Committee of Management invite applications for the post of **MALE RESIDENT HOUSE SURGEON**. Candidates must be single, have double qualifications and be registered under the Medical Acts. The duties, in addition to Ward and Dispensary Work, comprise about 300 visits per annum to Out-patients in their own homes. Salary (with board and laundry in addition) £175 per annum, which is usually augmented to about £250 per annum through opportunities which arise for special services.

Applications, stating age and experience, with copies of recent testimonials, must reach the undersigned before February 17th.

Westmoreland Road, E. K. KELLY,
Douglas, Isle of Man. Hospital Secretary.
February 2nd, 1938.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.

Applications are invited for the posts of Two Non-resident **ASSISTANT MEDICAL OFFICERS** at the Out-Patients' Department, Garside Street, Manchester. Salary at the rate of £150 per annum, and the appointments are for a period of six months, one from March 1st, 1938, and one from April 1st, 1938. Candidates must be on the Medical Register.

Particulars of duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number about 100,000 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned immediately. Canvassing, directly or indirectly, may disqualify.

By Order,

H. HEARDMAN,

Secretary.

ANCOATS HOSPITAL, MANCHESTER. 4.

CASUALTY OFFICER (Lady or Gentleman), twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred.

Salary £175 per annum, with board, residence, laundry, etc. The successful candidate will do duty for the Resident Surgical Officer at alternate week-ends and other scheduled times.

Applications, stating age, qualifications, experience, and full particulars, to be forwarded to the undersigned on or before February 23rd, together with copies of three recent testimonials.

By Order of the Board,

HERBERT J. DAFFORNE,

General Supt. and Secretary.

ROYAL BERKSHIRE HOSPITAL, READING. (338 Beds.)

Applications are invited for the post of **FULL-TIME ASSISTANT** in the Orthoptic Clinic. Candidates must have the Diploma of the Ophthalmic Board.

Commencing salary £200 p.a., rising by two instalments of £12 10s. each to £225 p.a.

Applications, giving full particulars, stating age and qualifications, to be sent to the undersigned on or before February 19th, 1938.

H. E. RYAN,

Secretary and House Governor.

HASLEMERE AND DISTRICT HOSPITAL, Haslemere, Surrey. (64 Beds.)

RESIDENT MEDICAL OFFICER (British) required immediately. Appointment to September 30th, 1938. Renewable for six months. Salary at rate of £150 per annum, with board, residence and laundry.

Applicants must be fully qualified, registered, and have had experience of Anaesthetics.

Applications, stating age and Medical School, to be sent to C. O. TREW, Secretary.

MERTHYR GENERAL HOSPITAL. (118 Beds.)

RESIDENT HOUSE SURGEON required for a period of six months.

Salary at the rate of £150 per annum, with board and laundry. Applications, stating age, nationality, qualifications, and accompanied by three (copies only) recent testimonials, should be addressed to the Secretary of the Merthyr General Hospital.

DONCASTER ROYAL INFIRMARY AND DISPENSARY. (185 Beds.)

CASUALTY HOUSE SURGEON (Male) required immediately. Salary at the rate of £175 per annum, with residence, board and laundry.

Applications, accompanied by not more than three testimonials, to be sent to the Secretary-Superintendent.

CHESHIRE COUNTY COUNCIL.

CLATTERBRIDGE (COUNTY) GENERAL
HOSPITAL (nr. Birkenshead).
(300 Beds.)

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications (male or female) are invited for the above appointment, which falls vacant on March 24th. The appointment is for a period of six months at a salary of £200 per annum, together with the usual residential allowances.

The appointment may be renewed for a further period of six months.

There is a Non-Resident Medical Superintendent, a Resident Deputy Medical Superintendent, and a Consulting Staff from Teaching Hospitals.

Applications to be made on forms obtainable from the undersigned, and returned not later than February 23rd, 1938.

24, Nicholas Street, JAN MACKAY,
Chester. County Medical Officer of Health.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL. (220 Surgical and Medical Beds.)

CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.

Applications are invited from fully qualified men for the above post, to commence March 1st, 1938. The appointment is for six months, salary at the rate of £200 per annum, with board, apartments and laundry. The duties include the post of House Surgeon to the Director of the Fracture Clinic, under whose care the whole of the fractures, both in- and out-patients, are treated, and deputy to the Resident Surgical Officer. Candidates for this post should have had special fracture experience.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

M. H. BOONE,

February 8th, 1938. Superintendent and Secretary.

SWANSEA GENERAL AND EYE HOSPITAL. (336 Beds.)

Applications are invited for the appointment of whole-time **ASSISTANT PATHOLOGIST** (male or female) non-resident. Salary £500 rising to £600 per annum.

Candidates must be graduates in medicine of a recognized British University or members of a College of Physicians of the British Isles.

Duties to commence April 4th, 1938.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before February 28th.

O. C. HOWELLS,

Secretary-Superintendent.

INGHAM INFIRMARY, SOUTH SHIELDS.

Wanted, **HOUSE SURGEON (male)**. Salary £150 per annum, with board, residence and laundry. No out-visiting. Candidates must hold registered qualifications in medicine and surgery. The appointment will be terminable by one month's notice.

Applications, stating age, and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER,

Secretary.

LEEDS PUBLIC DISPENSARY & HOSPITAL.

Applications are invited for the post of:—

HOUSE PHYSICIAN (male).

Appointment for six months. Salary at the rate of £150 per annum, with board, residence, and laundry. Applications, with copies of three recent testimonials, to be sent on or before Friday, March 4th, addressed to the undersigned, Public Dispensary and Hospital, North Street, Leeds, 2.

CHARLES F. J. MAURY,

Secretary and Superintendent.

LONDON HOSPITAL. E.1.

There is a vacancy for the post of **ASSISTANT PHYSICIAN** at this Hospital.

Candidates must be Members of the Royal College of Physicians in London.

Applications should be sent to the House Governor, and should arrive not later than Saturday, March 12th, 1938.

ARTHUR G. ELLIOTT,

House Governor.

LONDON HOSPITAL. E.1.

A vacancy occurs for the post of **PHYSICIAN** to the London Hospital. An Assistant Physician is a candidate for the post.

ARTHUR G. ELLIOTT,

House Governor.

A LADY DISPENSER BOOKKEEPER SUP-
plied immediately on request, qualified
and with practical experience in private practice
and dispensary work, also trained in Bacteriological
Laboratory of the LONDON COLLEGE OF
PHARMACY FOR WOMEN. Preparation for
Examinations—Wine, wine, or (Phone (Bays-
water 6666) Secretary, 7, Westbourne Park
Road, W.2.

MEDICAL WOMAN, NORTH LONDON.
requires PART-TIME WORK SURGERIES,
etc. Own car.—Address, No. 3527, B.M.A. House,
Tavistock Square, W.C.1.

OPHTHALMOLOGIST WITH EXPERIENCE
required for formation of a voluntary policy
of specialists for the near East. For infor-
mation and data apply—The Secretary, Military
Physicians, The Vicarage, Rivington, Barmston,
Herts.

RESEARCH WORKER, WITH SPECIAL
training in Asthma investigation, would like
to CO-OPERATE with Physicist REQUIRING
ASSISTANCE.—Address, No. 3595, B.M.A. House,
Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS
ASSOCIATION, 35, Eccleston Square,
S.W.1 (Telephone: Victoria 7722), supply of
qualified Dispensers, Bookkeepers, Laboratory
Assistants, Sanitary Assistants, Male Nurses,
Mental and Special Treatment Orderlies, Dental
Clark Orderlies, Porters, Caretakers, etc., without
charge to prospective employers.

YOUNG QUALIFIED LADY DISPENSER
desires POST with doctor, receptionist, book-
keeping, can drive a car.—Address, No. 3502,
B.M.A. House, Tavistock Square, W.C.1.

YOUNG LADY REQUIRES POST AS A
DISPENSER, either with a Doctor or in a
Hospital, Apothecaries Hall qualification.—Address,
No. 3529, B.M.A. House, Tavistock Square,
W.C.1.

LOCUMS

EXPERIENCED G.P. WISHES LOCUMS IN
West of England.—Address, No. 3614,
B.M.A. House, Tavistock Square, W.C.1.

MEDICAL MAN WISHES TO ACT AS
LOCUM TENENS. Experienced G.P. and
Panel. Energetic, loyal. Phone, Bayswater 1154,
extension 6, or write address, No. 3605, B.M.A.
House, Tavistock Square, W.C.1.

PARTNERSHIPS

GLAMORGAN.—HALF-SHARE OLD-
established PRACTICE. South London. Receipts
averaging over £3,000 p.a. Large panel and grounds.
Premium 2 years' purchase.—Apply, PEACOCK AND
HADLEY, Ltd., 67/68, Chandos Street, Strand,
W.C.2.

HALF-SHARE OLD-ESTABLISHED COUNTRY
PRACTICE. South London. Receipts
have never fallen below £1,500 during past ten years.
Applicant must be English, and between
30 and 40 years old; good personality and social
status essential.—Address, No. 3305, B.M.A. House,
Tavistock Square, W.C.1.

LINCOLNSHIRE. PARTNERSHIP IN OLD-
established country practice. No opposition.
Vendor retiring owing to ill health. Gross part-
nership receipts £2,200. Panel 1,100. Scope for
considerable increase. Charming house and
grounds for sale or rent on lease. Good hunting
district. Premium two years' purchase.—Address,
ANDREW, RACE, MIDGLEY AND HILL, Solicitors,
Lincoln.

M.B., B.S.(LOND.), AGE 30, ENGLISH.
well connected, five past hospital ap-
pointments, requires immediately PARTNERSHIP
or PRACTICE in Kent, Surrey, or Sussex. Income
£1,000 upwards.—Address, No. 3535, B.M.A.
House, Tavistock Square, W.C.1.

NEAR HARLESDEN, N.W.—HALF-SHARE
of well-established Practice. Receipts average
£1,600 p.a., panel 2,300. Nice house available.
Premium £1,600.—Apply, PEACOCK AND HADLEY,
Ltd., 67/68, Chandos Street, Strand, W.C.2.

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Applications, giving particulars of age, experience, qualifications, and enclosing copies of three recent testimonials, should reach me not later than February 25th.

D. H. EADIE,

Secretary.

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SURGICAL REGISTRAR.

The Council invite applications from candidates, who must be registered Medical Practitioners (Male), for the post of Second Surgical Registrar. Honorarium £150 per annum.

A copy of the regulations can be obtained from the undersigned, to whom applications, together with copies of three recent testimonials, must be submitted not later than Monday, February 25th, 1938.

GEORGE J. JONES,

Secretary.

Charing Cross Hospital, London, W.C.2.

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The appointments are for six months from April 1st, 1938. There are six Resident Officers.

Application forms can be obtained from the Secretary, and must be returned not later than February 15th, 1938.

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Candidates must possess a registered medical and surgical qualification of the United Kingdom.

Form of application may be obtained from the undersigned. Applications must be returned by Friday, February 15th.

FRANK JENNINGS,

House Governor and Secretary.

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Applications are invited for the post of **HONORARY ASSISTANT OBSTETRIC AND GYNAECOLOGICAL SURGEON** at the above Hospital.

Candidates must be Fellows of the Royal College of Surgeons of England and Members or Fellows of the British College of Obstetricians.

Applications, with copies of three recent testimonials, should be forwarded to the undersigned not later than Thursday, February 25th, 1938.

RAPHAEL JACKSON (Major),

Secretary.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the appointment of **RESIDENT SURGICAL OFFICER (Male)**, which becomes vacant on April 1st next. Candidates should have been qualified not less than two years, and should have had one year's experience of hospital appointments. Preference will be given to those holding a senior surgical qualification. The appointment is for twelve months at a remuneration of £200 p.a., with the addition of Resident Staff Panel Fees.

Applications, with copies of testimonials, should reach the undersigned not later than Tuesday, March 5th.

J. C. GILBERT,

Secretary-Superintendent.

CENTRAL LONDON OPHTHALMIC HOSPITAL,

Judd Street, St. Pancras, W.C.1.

Applications are invited from registered medical practitioners for the posts of **SENIOR AND JUNIOR HOUSE SURGEON**, vacant on March 1st. The Junior House Surgeon is a candidate for the Senior post. Salary £120 and £160 per annum respectively, with board and residence.

Applications, with copies of three testimonials, should reach the Secretary on or before February 28th.

THE LONDON HOMOEOPATHIC HOSPITAL.

(Incorporated by Royal Charter)
Great Ormond Street, Bloomsbury, W.C.1.
(A General Hospital, 200 Beds.)

APPOINTMENT OF GYNAECOLOGICAL HOUSE SURGEON.

Applications are invited for the appointment of **Gynaecological House Surgeon** (with charge also of Gen. Throat, Nose and Ear Beds), vacant April 1st, 1938.

The appointment is one of four Resident Medical posts which occur periodically during the year, and is for a period of six months, with salary at a rate of £100 per annum, and board, apartments, and laundry.

Candidates must be legally qualified and registered. Selected candidates will be required to attend a meeting of the Medical Committee for interview on March 6th.

Applications, stating age, with copies of testimonials, to be sent to the undersigned not later than March 1st.

L. I. KNOWLES,

Secretary.

THE LONDON HOMOEOPATHIC HOSPITAL

(Incorporated by Royal Charter)
Great Ormond Street, Bloomsbury, W.C.1.
(A General Hospital, 200 Beds.)

APPOINTMENT OF HOUSE SURGEON.

Applications are invited for the appointment of **House Surgeon** vacant April 1st, 1938.

The appointment is one of four Resident Medical posts which occur periodically during the year, and is for a period of six months, with salary at the rate of £100 per annum, with board, apartments and laundry.

Candidates must be legally qualified and registered. Selected candidates will be required to attend a meeting of the Medical Committee for interview on March 6th.

Applications, stating age, with copies of testimonials, to be sent to the undersigned not later than March 1st.

L. I. KNOWLES,

Secretary.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

ASSISTANTS IN THE OUT-PATIENT DEPARTMENT.

There are the following vacancies—

Third Assistant to attend on Mondays at 2 p.m.

Third Assistant to attend on Tuesdays at 5 p.m.

Third Assistant to attend on Fridays at 2 p.m.

The duties are to assist the Surgeon in seeing the patients, and the posts are honorary.

Applications, which may be for periods of three, six or twelve months, should be sent to the undersigned immediately.

JOHN H. YOUNG,

Secretary-Superintendent.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.1.

RESIDENT HOUSE SURGEON (Male).

There is a vacancy for a **Third Resident House Surgeon** to enter on duty immediately. The appointment will be for a period of ten months, four months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon. Remuneration at the rate of £75 per annum.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned immediately.

JOHN H. YOUNG,

Secretary-Superintendent.

WESTMINSTER HOSPITAL,

Broad Sanctuary, S.W.1.

A vacancy has been declared in the office of **PHYSICIAN** to the Hospital.

Candidates must be Fellows of the Royal College of Physicians of London, and they are required to submit a certificate of age, thirty copies of their applications, with thirty copies of each of three testimonials, to the undersigned not later than Monday, February 21st, 1938.

Candidates will be required to attend the House Committee on Tuesday, February 22nd, 1938, at 4 p.m. The Senior Physician in charge of out-patients is a candidate for the office.

By order of the House Committee,

CHARLES M. POWER,

Secretary.

SOUTH LONDON HOSPITAL FOR WOMEN,

Clapham Common, S.W.4.

Applications are invited from medical women as **CLINICAL ASSISTANTS** for Gynaecological out-patients to attend on Monday afternoons; for Orthopaedic out-patients to attend on Thursday afternoons; and for Medical out-patients to attend on Friday afternoons.

Applications, with testimonials, to be sent to the Secretary at the Hospital.

ST. BARTHOLOMEW'S HOSPITAL.

APPOINTMENT OF DENTAL HOUSE SURGEON.

Applications are invited for the office of **House Surgeon** to the Dental Department. Candidates must hold a respectable Dental qualification, and a Medical qualification in addition is desirable but not essential. Candidates will be required to call upon the three Dental Surgeons and the three Assistant Dental Surgeons. Appointment will be made for six or twelve months as from May 1st, 1938. The salary attaching to the office is £80 per annum (non-resident).

Twelve copies of applications, with testimonials, should be left with the undersigned not later than Monday, February 25th, 1938.

February 19th, 1938. C. C. CARUS-WILSON.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

The following Resident posts will be vacant on March 15th, 1938:

(a) ONE JUNIOR HOUSE PHYSICIAN.

(b) TWO JUNIOR HOUSE SURGEONS.

Salary at the rate of £90 per annum, board, residence and laundry.

Appointments held for six months, but holders are eligible for a further term as Senior.

Candidates (male and unmarried) must be fully qualified and registered, and applications (on the prescribed form), together with copies of three recent testimonials, should be sent to the undersigned on or before March 1st, 1938.

J. C. BURDETT,

Director and House Governor.

February 1st, 1938.

THE ROYAL EYE HOSPITAL,

St. George's Circus, Southwark, S.E.1.

SENIOR HOUSE SURGEON AND TWO ASSISTANT HOUSE SURGEONS required at the above Hospital. The appointment is in the first instance for a period of six months, with board and residence, as from April 1st.

Salaries: Senior House Surgeon at the rate of £150 per annum. Assistant House Surgeons at £160 per annum.

Candidates must be registered practitioners.

Applications, with copies of three recent testimonials, should be sent to the Secretary not later than Tuesday, March 1st.

F. E. DALTON,

Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN,

Hackney Road, E.2.

CLINICAL ASSISTANT to Medical Out-Patients required. Attendance on Saturday at 9.30 a.m. for about 2½ hours. An honorarium of 5s per attendance will be paid. The appointment will be for six months in the first instance and cannot be held for longer than two years.

Applications, with copies of not more than three testimonials, should be addressed to the undersigned.

CHARLES H. BESSILL,

February 3rd, 1938.

Secretary.

ELIZABETH GARRETT ANDERSON HOSPITAL,

Easton Road, N.W.1.

Applications are invited from fully qualified medical women for the post of **MEDICAL REGISTRAR (non-resident)**. Honorarium £100 per annum. Duties to commence April 1st, 1938.

Particulars of the post can be obtained from the undersigned, to whom applications, with testimonials (copies of three), should be sent before February 25th, 1938.

JEAN R. MURRAY, Secretary.

THE WILLESDEN GENERAL HOSPITAL,

Hatfield Road, N.W.10.

The Council of Management invite applications for the appointment of **GYNAECOLOGICAL REGISTRAR**.

Candidates must be Fellows of the Royal College of Surgeons of England.

Five copies of application, containing the names of three referees (testimonials should not be sent) to be received not later than the first post on Thursday, February 17th, 1938, by the Secretary of the Hospital, from whom a copy of the Regulations may be obtained.

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

Applications are invited for the post of **HONORARY MEDICAL REGISTRAR**.

Honorarium £100 per annum. Candidates must be Graduates in Medicine of a British University, or be Members of a Royal College of Physicians.

Applications, together with copies of three testimonials, to be sent to the undersigned on or before March 1st, 1938.

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February, 1938.

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Applications are invited for the post of MEDICAL REGISTRAR to the Children's Department for a period of one year, eligible for re-election annually for a total period of not more than three years. An honorarium at the rate of £100 a year is attached to the post.

The duties include attendance in the Out-Patient Department on four mornings a week, acting as deputy for the Physician to the Children's Department when required, and such teaching for the West London Hospital Medical School as the Board may approve.

Candidates, who may be male or female, must be registered under the Medical Act, and should have had wide experience in children's work.

Applications, with copies only of testimonials, should reach me not later than Thursday, February 17th. Candidates must attend the meeting of the Medical Council at 4.30 p.m. on Friday, February 18th, and prior to that date call upon and send copies of their application and testimonials to each member thereof. They must not canvass members of the Board, but nevertheless should send copies of their application and testimonials to each member thereof and, if so notified, be in attendance at a meeting of the Board at 5 p.m. on Tuesday, February 22nd, when the election will be made.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL, Hammersmith Road, W.6. (239 Beds.)

Required March 1st, one RESIDENT ANAESTHETIST (male). The appointment is tenable until September 30th, 1938, subject to one month's notice on either side. Salary at the rate of £100 a year, with board, lodgings and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than first post on Friday, February 18th. Selected candidates will be required to call upon such members of the Medical Staff as directed; to be in attendance at the Medical Council meeting on Friday, February 25th, at 4.30 p.m. and the House Committee meeting at 5 p.m. the same day, when the appointment will be made.

H. A. MADGE, Secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

Applications are invited for the post of SENIOR RESIDENT OFFICER.

Candidates must be registered Medical Practitioners and must be prepared to begin duties on May 1st, 1938.

Salary at the rate of £150 per annum, with board and residence in the Hospital. Additional income will accrue to this post, the care of private patients being included in the duties.

In the event of the First House Surgeon being appointed, other candidates are requested to state whether they would accept the office of First House Surgeon at the rate of £150 p.a., Second House Surgeon at the rate of £125 p.a., or Third House Surgeon at the rate of £100 p.a. The candidate elected as Third House Surgeon must be prepared to begin his duties with the present officer on April 1st, 1938, and will be non-resident until May 1st, 1938.

The appointments are for a period of six months as from May 1st, 1938.

Applications, with testimonials, stating age and qualifications, must be received not later than February 25th, 1938, by

A. J. M. TARRANT,
Secretary.

ST BARTHOLOMEW'S HOSPITAL. WHOLE-TIME CHIEF ASSISTANT IN THE X-RAY DIAGNOSTIC DEPARTMENT.

Applications are invited for the post of Whole-time Chief Assistant in the X-ray Diagnostic Department of the above Hospital.

The salary will be at the rate of from £400 to £500 per annum, and appointment will be made as from March 1st, 1938.

Candidates, who must possess a Diploma in Medical Radiology, should send in their applications to the undersigned not later than Saturday, February 19th, 1938.

C. C. CARUS-WILSON,
January 22nd, 1938. Acting Clerk to the Governors.

ROYAL FREE HOSPITAL, GRAY'S INN ROAD, W.C.1.

Applications are invited from duly qualified and registered medical women for the following post: RESIDENT CASUALTY OFFICER.

Duties to commence April 1st, 1938, for six months. Salary £150 per annum. Candidates must have held previous resident hospital appointments. Application form may be had from the undersigned and should be duly filled in and returned on or before March 5th, 1938.

RICHARD T. BARTLEY,
Secretary.

METROPOLITAN BOROUGH OF FULHAM. MATERNITY HOME AND CLINIC.

RESIDENT MEDICAL OFFICER AND ASSISTANT MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

Applications are invited from unmarried qualified medical practitioners of either sex, with special obstetric experience, for the appointment of Resident Medical Officer and Assistant Medical Officer for Maternity and Child Welfare at the Council's new Maternity Home and Clinic (25 Beds). The officer appointed will also have medical charge of certain ante-natal, post-natal, infant welfare and ultra violet light clinics, and experience in these and the possession of the Diploma in Public Health will be additional qualifications.

The scale of salary will be £350 per annum, rising by annual increments of £25 to £550 per annum, plus emoluments valued for superannuation purposes at £150 per annum. The commencing salary will be within the above scale at a point in accordance with the qualifications and experience of the person appointed as determined by the Council.

Detailed particulars of the terms and conditions of the appointment, together with a form of application, will be sent on receipt of a stamped, addressed, foolscap envelope.

Applications must be delivered to me not later than February 19th. Canvassing is strictly prohibited and will disqualify.

WILFRED TOWNEND,
Town Hall, Fulham, S.W.6. Town Clerk.

THE HOSPITAL FOR SICK CHILDREN. Great Ormond Street, London, W.C.1.

A RESIDENT AURAL REGISTRAR is required duties to commence not later than April 1st, 1938.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Monday, February 21st, 1938, with copies of not more than three testimonials given specially for the purpose.

The appointment will be made for one year, but the holder may be re-elected for a further period of one year. Salary £150 per annum, laundry allowance £10, board and residence in the hospital. The duties will be those of a house officer to the Aural In-Patients, and of a registrar in assisting in the Aural Out-Patient Department. Opportunity will be afforded for acquiring operative experience.

Candidates must be unmarried and possess a legal qualification to practise, and must have held a responsible resident appointment at a General Hospital.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, March 2nd, 1938, at 4.45 p.m. precisely.

Forms of application and copies of the Rules can be obtained from the undersigned.

HERBERT F. RUTHERFORD,
January, 1938. Secretary.

GOLDEN SQUARE THROAT, NOSE AND EAR HOSPITAL, London, W.1.

Applications are invited for the post of HONORARY ASSISTANT DENTAL SURGEON. Candidates, who should be Licentiate in Dental Surgery (R.C.S.), should apply on or before February 28th, 1938, to the undersigned, stating age and experience, and sending copies of testimonials.

F. P. CARROLL,
Secretary-Superintendent.

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars.

The Committee of Management will shortly appoint an additional member of the HONORARY STAFF. Candidates must either be Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before March 15th to L. MUNDY, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars.

Applications are invited for positions as CLINICAL ASSISTANTS. Preference will be given to those with dermatological experience.

Applications, with testimonials in support, must be sent before March 15th to L. MUNDY, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

THE ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Road, S.E.1.

ANAESTHETIST. There is a vacancy for an Anaesthetist (male) at the above hospital. Honorarium £52 per annum.

Applications, accompanied by three testimonials, should be sent to the Secretary at the Hospital not later than February 16th.

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Practices and Partnerships for Disposal (continued).

25 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

26 DEATH VACANCY.—CUMBERLAND.—Old-established good-class non-dispensing PRACTICE, over £700 p.a., in rapidly growing town. No panel. Large house for sale or rent. Good scope.

27 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30/35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,000 p.a. at first at two years' purchase.

28 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,900. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £500.

29 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

30 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 303. House (5 bedrooms), with large garden and garage. Price freehold, £2,750, or rent £150 p.a. Scope. Premium £2,000.

31 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year, £2,277. Expenses light. Premium £2,460 cash or £2,600 terms (English currency). Purchaser should be at least 30 years of age with experience.

32 SEASIDE TOWN, within an hour of London.—Very old-established PRACTICE about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), with large garage and garden, for sale or rent. Good scope. Premium £1,000.

33 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

34 S. WALES.—Old-established PRACTICE, £765 p.a., in country district near coast. Appointments worth nearly £100 p.a. and panel about 360. Specially built house (5 bedrooms, etc.), with garage and garden, for sale. Very good prospects of increase. Premium one year's purchase.

35 S.W. OF ENGLAND.—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.). Large house (3 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting, golf, etc. Premium one and three-quarter years' purchase.

36 W. OF ENGLAND.—Old-established middle-class PRACTICE, about £1,400 p.a., in good town. Selected panel about 300. Visits 5/- to £1 1s., medicine extra. Very convenient and well-situated detached non-basement house (7 bedrooms), with nice garden and large garage, to rent. Premium one and a-half years' purchase.

37 EASTERN COUNTIES.—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 2½ acres) with 7 bedrooms, etc., garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.

38 S. COAST.—PARTNERSHIP in mixed Practice, averaging £2,600 p.a., in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one half-share two years' purchase.

39 W. OF ENGLAND Inland Waterring Place.—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.

40 LONDON, E.1.—Old-established PRACTICE of about £800 p.a., including appointments about £150 p.a. and panel 1,300. Good house (6 bedrooms, etc.), to rent or purchase. Very good scope for increase. Premium £1,600, to include contents of surgery and waiting room, etc.

41 NORTHERN IRELAND.—Middle and working-class PRACTICE in suburb of important seaport. Receipts past year, £963. Panel nearly 1,200. Well-situated house (5 bedrooms), garage, etc., to rent. Practice capable of expansion. Premium £1,400.

42 HOME COUNTY.—PARTNERSHIP in country town Practice, averaging over £4,000 p.a. (increasing), within 25 miles of London. Good appointments and panel about 2,000. Suitable house obtainable. Incoming partner should not be over 30 and must have had one year's P.G. work. One-fourth share at first at two years' purchase.

43 MIDLANDS.—Unopposed country PRACTICE in very pleasant hunting district. Cash receipts last year, £1,097, including good appointments and panel about 500. Well-built house (5 bedrooms, etc.), with good garden and garage. Main electric light and water supply. Price £1,100 freehold. Golf, etc. Premium £1,600.

44 MIDLANDS.—Easily worked PRACTICE in very attractive village about 70 miles from London. Cash receipts, 1937 (to November 25th), £696. Panel 500. Detached modern house (4 bed and dressing-rooms), gas, electricity and main drainage, garden over an acre. Price freehold, £1,500. Premium one and a-half years' purchase, to include stock of drugs.

45 AUSTRALIA.—PRACTICE in small township in Victoria. Receipts last year, £850. Specially built house to rent at £20 p.a. Good climate. All kinds of sport. Premium, £500 English currency, including drugs and dispensary fittings.

46 SURREY.—PARTNERSHIP in sound old-established and steadily increasing Practice, averaging £4,445 p.a., in outlying residential suburban district. Panel 2,000. Visits 3/6 to 2/1-. Suitable house obtainable. Premium for share of 11/39ths £2,500.

Purchasers can raise additional capital for the purchase of approved practices or shares. Particulars will be forwarded on application.

All communications to be addressed to The Manager.

Manager:
W. M. SCOTT.

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B. SOUTH OF SCOTLAND OR ENGLAND.—

For further details apply The Manager, 21, Alva Street, Edinburgh.

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C. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,300.

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FULL TERMS ON APPLICATION

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- 1 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-room), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.
- 2 S. OF ENGLAND.—PRACTICE, doing about £1,400 in beautifully situated small town (clubs and panel return about £600 p.a.). Very attractive Georgian house (6 bedrooms), garage and $1\frac{1}{2}$ acres garden. Price £2,000. Scope. Premium £2,000.
- 3 S. MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,800. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.
- 4 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.
- 5 S. COAST, Favourite Watering Place.—PRACTICE doing about £1,500 p.a. Panel about 700. Detached house (6 bed and dressing-rooms), garage and nice garden. Rent £150 p.a. Premium two years' purchase.
- 6 LONDON, S.E.—PARTNERSHIP in rapidly growing district, 20 minutes from Charing Cross. Receipts average £4,275 p.a. Panel about 3,000. Specially designed modern labour-saving house (4 bedrooms), garage and good garden. Rent £110 p.a. Hospital facilities. Premium one-fourth share £2,250, to include drugs, etc. Possible further share in about 12 months.
- 7 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 0d. Good house, containing 14 rooms with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.
- 8 LONDON, S.E.6.—PRACTICE doing at rate of about £770 p.a. in thickly populated district. Panel 670 and P.M.S. Rent of small house (3 bedrooms), £80 p.a. Branch surgery. £40 p.a. Premium £1,150, to include drugs, etc.
- 9 CHELSEA.—Medical Woman's PRACTICE. Receipts, 1937, £200. Panel 70. Non-dispensing. Self-contained maisonette. Rent £150 p.a. Scope. Premium £150.
- 10 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £5,000 p.a., in county town. Panel over 5,000. Main surgery premises (4 bedrooms, etc.), garage and garden, to rent. Premium one-fifth share two years' purchase. Further share in seven years. Short Assistantship.
- 11 HOME COUNTIES.—Old-established PRACTICE, £2,450 p.a., in town within easy distance of London. Panel over 2,800. Large detached double-fronted house (7 bedrooms), with garage and garden. Rent £150 p.a. Premium £5,000.
- 12 HOME COUNTIES.—PARTNERSHIP in sound old-established Practice, averaging about £4,800, in beautifully situated country town. Panel about 2,000. Visits 3/6 to £1 1s. Incoming partner should preferably be a graduate of Oxford or Cambridge, must have held hospital appointments and be experienced in surgery. Excellent hospital. Share worth about £1,000 (or more) at two years' purchase with good prospects of increase.
- 13 LONDON, S.E.2.—Old-established PRACTICE in growing suburban district. Receipts average over £1,500 p.a. (appointments worth about £100 and panel over 1,050). Visits 3/6 to 6/-. Semi-detached corner house (3 bedrooms), with separate surgery accommodation, garage and small garden, for sale. Premium two years' purchase.
- 14 HOME COUNTIES.—PARTNERSHIP in good-class Practice, about £3,000 p.a., in favourite market town. Small select panel. Visits 5/- to £1 1s. Charming modern labour-saving residence (5 bedrooms, etc.), garage and beautifully stocked garden. Price £3,000. Very good society. Scope. Premium one-half share two years' purchase.
- 15 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-. majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.
- 16 MIDDLESEX.—Medical Woman's PRACTICE in rapidly growing residential district within 15 miles of London. Cash receipts, 1937, £528. Panel 69. Excellently situated modern house (5 bedrooms), with large garage and garden. Rent £125 p.a., or might be sold. Ample scope. District rapidly increasing. Premium £750.
- 17 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.
- 18 E. COAST.—PARTNERSHIP in middle-class Practice, doing nearly £4,000, in progressive, rapidly growing town, within 75 miles of London. Panel about 800. House (8 bedrooms), with garage and small garden. Price £2,500, or rent £120 p.a. Scope for increase. Good hospital. Three-eighths share at first at two years' purchase.
- 19 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,800 p.a. Panel 4,600. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.
- 20 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.
- 21 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.
- 22 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of London. Receipts last year just over £700. Panel 60/70. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.
- 23 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, panel or midwifery. Premises to rent at £135 p.a. Premium £500.
- 24 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third share at two years' purchase.

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1. WITHIN 100 MILES NORTH OF LONDON.—COUNTRY TOWN.—Old-established chiefly non-panel better-class PRACTICE averaging over £2,000 p.a. Fees 5/- to 21/-. Good house with ample accommodation. Premium 2 years' purchase.
2. EAST ANGLIA.—PLEASANT COUNTRY AND MARKET TOWN.—Old-established non-panel PRACTICE producing nearly £1,000 p.a. with good scope. Suitable house with ample accommodation on rental. Premium 1 year's purchase.
3. COUNTRY TOWN WITHIN 50 MILES OF LONDON.—A ONE-FIFTH SHARE (after short preliminary assistantship) is offered in well-established practice producing nearly £5,400 p.a. with large panel. Suitable house on rental. Premium 2 years' purchase.
4. NORTH LONDON.—Well-established PRACTICE producing nearly £2,000 p.a. including panel and appointments. Suitable house available.
5. LADY DOCTOR'S PRACTICE.—OUTLYING EASTERN SUBURB.—Increasing PRACTICE producing at present £1,070 p.a. including panel of 700. Suitable house. Premium 2 years' purchase.
6. BORDERS OF CAMBS. AND NORFOLK.—Old-established country PRACTICE producing between £1,250 and £1,300 p.a. including panel of about 800 and appointments worth nearly £200 p.a. Good house in nearly an acre of garden (3 reception, 6 bedrooms, Professional accommodation, etc., electric light, garage). Rent on lease £70 p.a. Premium 2 years' purchase. Illness reason for sale.
7. LONDON.—WESTERN DISTRICT.—Old-established PRACTICE held by vendor 12 years. Gross receipts last year £2,335. This year state of about £3,700 p.a. Panel of 1,550 to 1,500. House in good position on rental. Premium 2 years' purchase.
8. SOUTH DEVON.—COAST TOWN.—Well-established PRACTICE producing last year over £1,000 (this year at rate of about £1,200 p.a.). Freehold house with 2 reception, 6 bedrooms, etc., for sale or might rent. Premium 1 year's purchase.
9. SOUTH-WEST COUNTY.—A ONE-SIXTH SHARE is offered in old-established Practice producing nearly £7,000 p.a. Incoming partner must have made a special study of medicine and preferably hold the M.R.C.P. or have held a medical registration. Short preliminary assistantship. Suitable house available. Premium 2 years' purchase.
10. SOUTH WELSH COAST.—PARTNERSHIP.—A ONE-HALF SHARE in old-established Practice producing over £3,000 p.a. Large panel. Very good house. Freehold for sale. Premium 2 years' purchase.
11. EASTERN COUNTIES.—A QUARTER SHARE (with increase later) after preliminary assistantship of about 3 months. Practice producing over £4,600 p.a. 11 appointments. Very nice house available 2 years' purchase.
12. MIDDLESEX.—Recently established PRACTICE producing £700 p.a., with considerable scope. Very nice house on rental. Premium £1,250 or near offer.
13. LONDON, EAST.—Exceptionally sound chiefly working-class PRACTICE producing about £1,200 p.a., over £1,000 from Panel and appointments. Suitable house, rent £100 p.a.
14. NEAR BIRMINGHAM.—A ONE-THIRD SHARE (after preliminary assistantship) is offered in sound steadily increasing mixed-class Practice producing £3,700 p.a. Panel of nearly 5,000. Premium 2 years' purchase.
15. LONDON, SOUTH-WEST.—Middle and working-class PRACTICE. Receipts last year £705 p.a. Panel of 940. Suitable house, rent £75 p.a. Premium 2 years' purchase or near offer.
16. PARTNERSHIP.—A TWO-FIFTHS SHARE, with increase to one-half later, is offered in old-established good country Practice within about 70 miles of London. Gross receipts for past 12 months approximately £5,500 p.a., including large panel. Moderate expenses. Very nice house with ample accommodation and all modern conveniences. Freehold for sale or might be rented. Premium 2 years' purchase.
17. NORTH WALES.—(Welsh not essential).—Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £295 from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price for freehold, £1,500. Premium £3,600. Partnership introduction will be given.
18. LIVERPOOL.—Old-established PRACTICE producing about £1,500 p.a., including panel of 1,300 and appointments worth about £170 p.a. Good house in excellent position. Premium for Practice and house £3,500 (or house might be rented).
19. SURREY.—DEVELOPING TOWN.—Increasing PRACTICE producing for last year £655 and believed to offer considerable scope. Panel of about 450. Well-built semi-detached freehold house with 6 bedrooms, etc., or smaller house available if wished. Premium 14 years' purchase.
20. SOUTH-WEST OF ENGLAND.—COUNTRY TOWN.—A ONE-HALF SHARE is offered in old-established Practice producing over £1,400 p.a., but believed to be capable of considerable increase with the aid of an energetic partner. Panel of about 1,100 patients. Very good house with 2 reception, 4 bedrooms, etc., and all modern conveniences. Garden of about 1 acre. Premium for share and house, £2,500.
21. NORTHERN OUTSKIRTS OF LONDON.—PARTNERSHIP.—A ONE-THIRD SHARE (after preliminary assistantship) is offered in unopposed country PRACTICE producing last year stated to be £2,162 p.a. Receipts for last year £1,100. Appointments worth about £200 p.a. Suitable house with 2 reception, 3 bedrooms, etc. Premium £1,800.
22. NORTH LONDON.—Old-established mixed-class PRACTICE, averaging for past two years about £2,800 p.a. Panel of over 2,600. Suitable house with 2 reception, 4 bedrooms, small garden. Rent on lease £104 p.a. Premium 2 years' purchase.
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SATURDAY FEBRUARY 19 1938

PRINCIPAL CONTENTS

Effective Absorption of Hormones	P. 371	Leading Articles	p. 394
Otitis Externa	373	Correspondence	417
Hyperventilation Attacks	378	Surgery in General Practice: Boils and Carbuncles	400
Insulin-Tannic Acid-Zinc Suspension	380	Croydon Typhoid Inquiry: Mr. Murphy's Report	404
Treatment of Fractured Patella	383	Vital Balance-Sheet, 1935	402
Incidence of Sinusitis in Children	385	Treatment of Young Offenders	391
Table of Infectious Diseases	430	Reports of Societies	408
		Reviews	387

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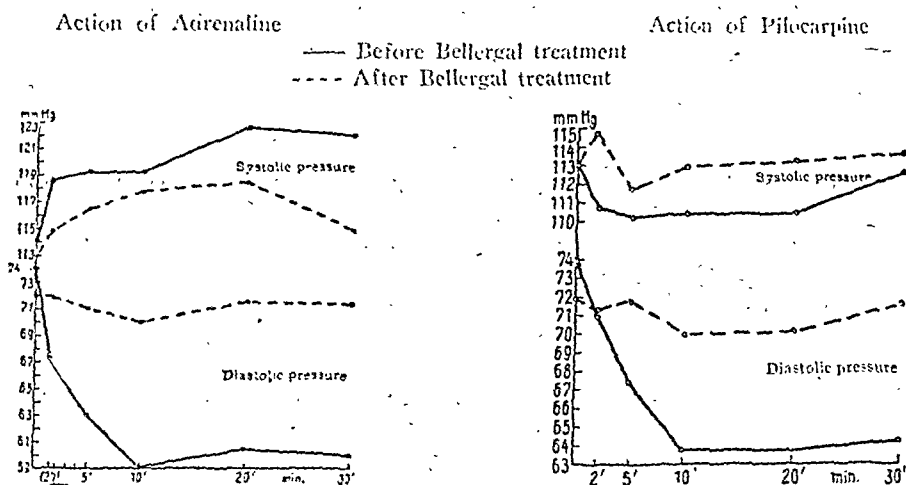
OCULOCARDIAC REFLEX, DERMOGRAPHISM, RESPIRATORY ARRHYTHMIA BEFORE AND AFTER BELLERGAL TREATMENT

Before Bellergal Treatment			After Bellergal Treatment		
Oculocardiac Reflex	Dermographism	Respiratory Arrhythmia	Oculocardiac Reflex	Dermographism	Respiratory Arrhythmia
- 6 + 13 ++ 1	r 15 w 4 r + w 1	- 2 + 17 ++ 1	- 17 + 3 ++ 0	r 19 w 1 r + w 0	- 19 + 1 ++ 0

Under oculocardiac reflex, ++ signifies not only slowing but also weakening of the pulse. Under dermographism, r = red, w = white, r + w = white dermographism with red margin.

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BRITISH MEDICAL JOURNAL

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

Effective Absorption of Hormones. A. S. PARKES, SC.D., F.R.S.....	371
Otitis Externa: "Hot-weather Ear." GEORGE MORLEY, F.R.C.S (With Chart).....	373
Hyperventilation Attacks. RUSSELL FRASER, M.B., M.R.C.P., and WILLIAM SARGANT, M.B., M.R.C.P.....	378
Insulin-Tannic Acid-Zinc Suspension in Treatment of Diabetes Mellitus. C. N. JENKINSON, M.Sc., M.D., and K. J. G. MILNE, M.D. (With Chart).....	380
Treatment of Fractures of the Patella by Excision. G. O. TIPPETT, F.R.C.S.....	383
Incidence of Sinusitis in Children. J. H. EBBS, M.D.....	385

SURGICAL SERIES

Treatment of Boils and Carbuncles. JOHN HOSFORD, M.S., F.R.C.S.....	400
--	-----

CLINICAL MEMORANDA

Tetanus Supervening on Middle-ear Disease. F. V. STONHAM, M.B.....	386
---	-----

REVIEWS

Encyclopaedia of Medical Practice.....	387
Henning's Gastroscopy.....	387
Conservative Obstetrics in Brief.....	388
A German Medical Pocket-Book.....	388
Clinical Chemistry.....	388
Uses and Abuses of Poisons.....	389
Notes on Books.....	389

GENERAL ARTICLES AND NEWS

Croydon Typhoid Inquiry: Report by Mr. H. L. Murphy, K.C.....	404
Prehistoric People of Mount Carmel: Lecture by Sir Arthur Keith.....	390
Nova et Vetera: Bartholomew Close, Newbury (Illustrated).....	403
Vital Balance-Sheet for 1935: Registrar-General's Review.....	402
Sympathetic Ophthalmia: Analysis of Cases from Blind Schools.....	393
Treatment of Young Offenders.....	391
HEALTH OF ROYAL AIR FORCE.....	391
GRANTS FOR SCIENTIFIC RESEARCH.....	408
ROYAL MEDICAL BENEVOLENT FUND.....	408
A HOSPITAL CLEARING HOUSE.....	427
MEDICAL NOTES IN PARLIAMENT— Progress of Slum Clearance.....	429
Medical Aid in China.....	429
Pasteurized Milk.....	429
UNIVERSITIES AND COLLEGES.....	423
MEDICAL NEWS.....	431

LEADING ARTICLES

Considerations from Croydon.....	394
Psychology Down the Ages.....	395

ANNOTATIONS

Administration of Hormones.....	396
Chronic Rheumatic Diseases.....	397
Excision of the Patella.....	397
An International Pharmacopoeia.....	398
Research into Dental Caries.....	398
Dr. Wu Lien-Teh.....	399
A Mere Flea-Bite.....	399

SUPPLEMENT

Gas Warfare and the Doctor's Responsibility. P. H. MITCHNER, F.R.C.S.

The PEP Report

INSURANCE PRACTICE MORE EFFECTING: Report of Debate PUBLIC HEALTH APPOINTMENTS MEETING OF A.P.I.M. DAIN TESTIMONIAL FUND CORRESPONDENCE POSTGRADUATE NEWS AND DIARY DIARY OF SOCIETIES MEETINGS OF BRANCHES AND DIVISIONS Association Notices: Vacancies and Appointments; Diary
--

REPORTS OF SOCIETIES

FELLOWSHIP OF MEDICINE: The Law Relating to Abortion.....	408
ROYAL SOCIETY OF MEDICINE: Insulin in Schizophrenia.....	410
Sex Hormone Excretion.....	411
Treatment of Otitis Externa.....	412
ROYAL SOCIETY OF TROPICAL MEDICINE: Vitamin B, Deficiency.....	413

OBITUARY

Sir F. Truby King, C.M.G., M.B. (With Portrait).....	424
Sir Josiah Court, J.P., M.R.C.S. (With Portrait).....	424
A. E. Hodder, D.S.O., M.A., M.B.....	426
C. Parker Stewart, M.D.....	426
Percy Coleman, M.B., B.S.....	427

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS.....	430
EPIDEMIOLOGICAL NOTES.....	431

CORRESPONDENCE

An English Pneumonia Service. W. G. BOOTH, M.D.....	417
Recovery in the Spinal Cord. JAMES PURDON MARTIN, M.D.....	417
A Warning against Excision of the Patella for Recurrent Dislocation. H. JACKSON BURROWS, F.R.C.S.....	418
Throat Carriers in Midwifery Prac- tice. J. L. MILLER WOOD, M.R.C.S., and F. E. CAMPS, M.D.....	418
Temporary Sterilization by X Rays. LOUISA MARTINDALE, M.D.....	419
Contraceptives and Fertility. G. H. ALABASTER, M.D.; V. B. GREEN- ARMYTHGILL, M.D.....	419
Time for Midwifery. ROBERT ANDERSON, M.D.....	419
Expulsion of Placenta Praevia in Advance of Foetus. KENNETH LINDSAY, M.D.....	420
Technique of Blood Transfusion. J. F. O'CONNOR, F.R.C.S.I.....	420
Continuous Intravenous Saline. GEOFFREY R. PEBERDY, M.D.....	421
Cancer and Vitamin A Deficiency. J. L. MOIR, M.B.....	421
Insulin for Local Sepsis. NEVILLE LEYTON, M.R.C.S.....	421
Two Unusual Cases. R. STEWART RENTON, M.D.....	422
The Radiologist's Range of Service. F. HERNIMAN-JOHNSON, M.D.....	422
A Word of Caution. ROBERT FORBES, M.B.....	423

LOCAL NEWS

SCOTLAND— Empire Exhibition, Glasgow.....	414
Edinburgh University.....	414
Scottish Committee on Nursing.....	414
Glasgow Western Infirmary.....	415
ENGLAND AND WALES— Hospital Almoners.....	415
Institute of Ray Therapy.....	415
Treatment of Delinquency.....	415
Co-ordination of Newcastle-on- Tyne Hospitals.....	416
Bradford Health Services.....	416
Fracture Services.....	416

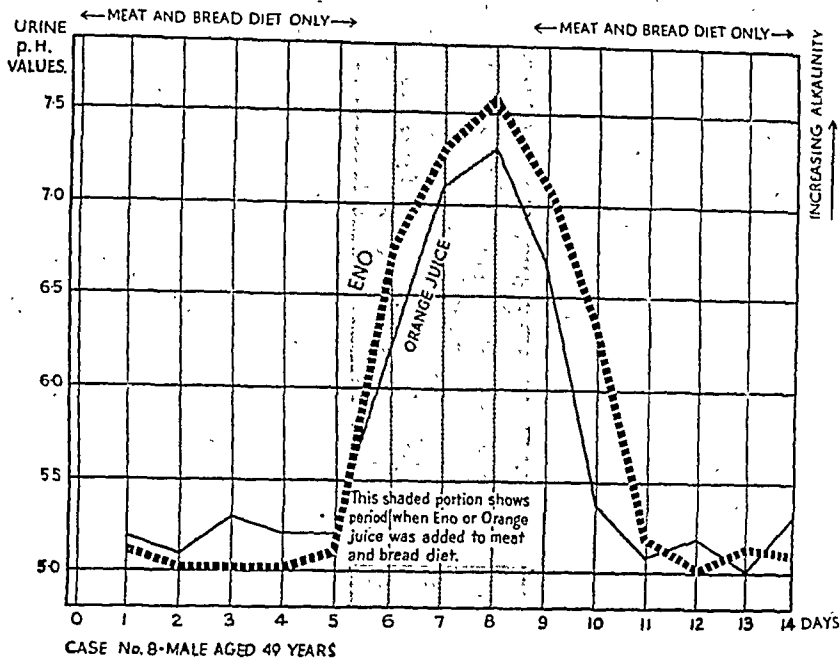
MEDICO-LEGAL

Effect of a Delusion on a Will.....	428
Liability of a Jeweller.....	428

LETTERS AND ANSWERS

Primary Vaccination at Age 12.....	432
Enlarged Foliate Papillae.....	432
Fomites et Alia.....	432
Herpes and Varicella.....	432
Sterilization of Catheters.....	432
Strength of Intravenous Saline.....	432

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SUMMARY OF CONTENTS

VOL. I
CARDIOVASCULAR SYSTEM. PETER KERLEY.
RESPIRATORY SYSTEM. E. W. TWINING.
URINARY AND MALE GENITAL TRACTS.
C. JENNINGS MARSHALL and S. COCHRANE SHANKS.

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ALIMENTARY TRACT. S. COCHRANE SHANKS.
BILIARY TRACT. PETER KERLEY.
ABDOMEN. S. COCHRANE SHANKS.
FEMALE GENITAL TRACT. R. E. ROBERTS and J. ST. GEORGE WILSON.
OBSTETRICS. R. E. ROBERTS.

VOL. III
CENTRAL NERVOUS SYSTEM. HUGH CAIRNS and M. H. JUPE.
ACCESSORY NASAL SINUSES, LABYRINTH AND MASTOID PROCESSES. H. K. GRAHAM HODGSON.
TEETH AND JAWS. H. M. WORTH.
BONES AND JOINTS AND SOFT TISSUES
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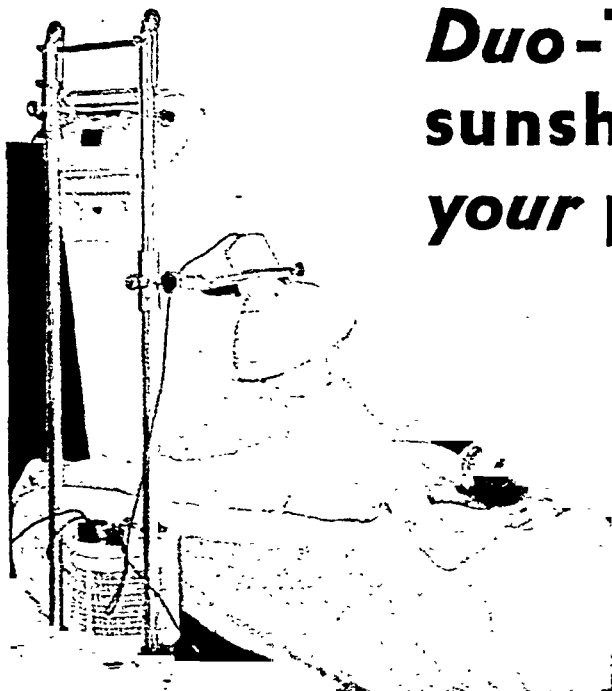


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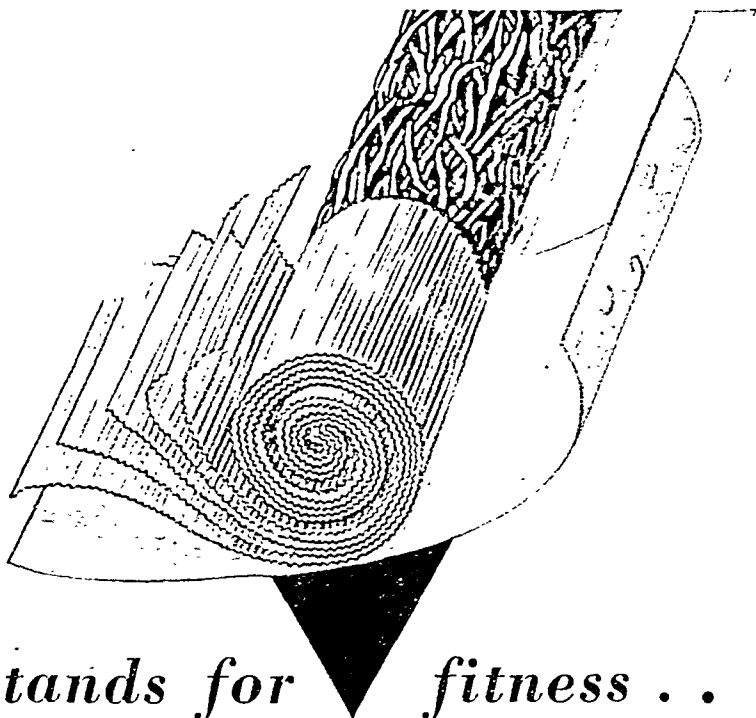
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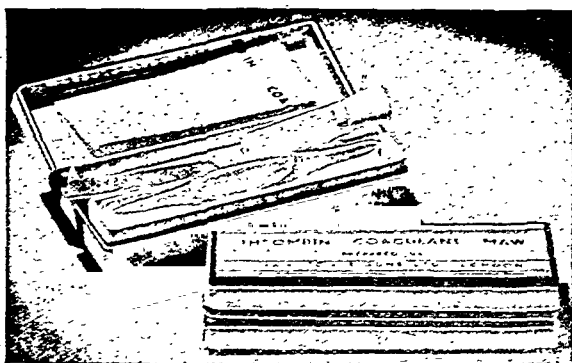
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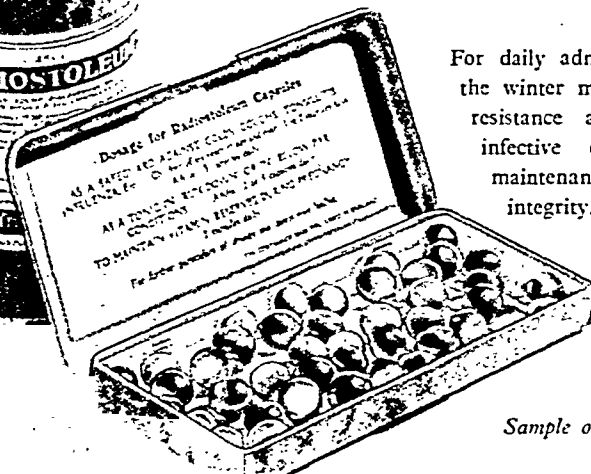
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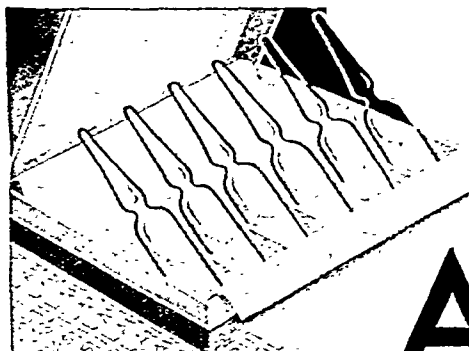
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P.S. Just write to us on your letterhead and we will be pleased to send you free a sample tin of delicious Dole Hawaiian Pineapple Juice.

Prevent the Cold and the attack of Influenza

The National Fitness Campaign is emphasising, among other things, the fact that adequate nutrition is essential for health. And there is ample proof to show that those who habitually take enough of the right kind of food are able to resist infection better than those whose diets are less well chosen.

It is well known that the modern diet tends to supply comparatively little of the B vitamins and that these factors play a special role in preventive medicine.

Marmite is prescribed extensively for it contains all the vitamins of the B group and has proved of particular value in combating winter illnesses.

Marmite served as a hot drink provides a popular means of fortifying the system. It helps to prevent illness, is beneficial to the patient, and is especially indicated during convalescence.

The MARMITE FOOD EXTRACT CO. LTD.,
35 Seething Lane, LONDON, E.C.3.

In jars: 1-oz. 6d., 2-oz. 10d., 4-oz. 1s. 6d., 8-oz. 2s. 6d., 16-oz. 4s. 6d. Special quotations for Marmite packed for use in hospitals, clinics, welfare centres, etc.

A + B + C + D

**All 4 vitamins needed for
healthy development**

'Nestrovite' is a well-balanced preparation containing vitamins A, B, C and D in definitely stated international units. It is recommended for aiding the growth of infants and developing children; for convalescence; for gastro-intestinal disorders; during pregnancy and lactation; and for combating lowered vitality in the Winter and Spring. The pleasant flavour will induce children as well as adults to take it regularly.

'Nestrovite' Tablets in boxes of 20 and 100.
Emulsion in bottles of 4½ fl. ozs.

NESTROVITE

Trade Mark

Vitamin Tablets and Emulsion.

Brand

Distributors: Roche Products Limited, London N. 13, and Welwyn Garden City

R O C H E



PLEASANT PROTECTION

'DETTOL' owes its ever increasing use to the fact that it combines high germicidal efficiency with cleanliness and pleasantness.

'DETTOL' can be used at really effective strengths without discomfort or even staining—marked advantages over

carbolic and cresylic antiseptics. Its high bactericidal power is maintained in the presence of blood and other organic matter.

'DETTOL' is a clean, clear, non-poisonous fluid, with a most agreeable odour.

Sold by chemists in bottles, 1/-, 1/9, 3/-, 5/- and 7/6; and in larger sizes for Medical and Hospital use. Sample, and full information on request.

'DETTOL'

TRADE MARK

THE MODERN ANTISEPTIC





*As an antiseptic and
analgesic spray in*

TONSILLITIS

In addition to possessing high germicidal power, T.C.P. Antiseptic exerts a pronounced analgesic effect, allaying the discomfort of inflamed tissues. The activity of T.C.P. is not affected by the presence of saliva or pus. It is, therefore, ideal for oral antiseptics.

* Literature and a clinical sample of T.C.P. will gladly be sent to any Physician on application to the address below.

SAFE - EFFECTIVE

REGD. (Trichlorophenylmethylidosalicyl)

* Prepared by—BRITISH ALKALOIDS LTD.,
Winchester House, London, E.C. 2

Trade
Mark

‘RETICULOGEN’

Brand

Parenteral Liver Extract with Vitamin B₁.

A new highly concentrated and refined solution of Liver Extract for the treatment of pernicious anaemia.

Dosage: For treatment of cases in relapse, at the time treatment is instituted, a dose of 0.5 c.c., given on three successive days, is usually indicated. After the initial injections on three successive days, a dose of 0.5 c.c. at intervals of one to two weeks usually suffices to maintain an adequate red cell response.

Supplied in packages containing three 0.5 c.c. rubber stoppered ampoules, and in 5 c.c. rubber stoppered ampoules.

ELI LILLY AND COMPANY LIMITED
2, 3 AND 4, DEAN STREET, : LONDON, W.1

Distributing Agent in Britain for
ELI LILLY AND COMPANY, INDIANAPOLIS, U.S.A.

'The Lancet' on **MOUSSEC**

"The wine has the appearance, composition and general properties of an ordinary dry French champagne. It is light and pleasant to the palate and has an agreeable aroma" ★ JULY 6, 1935 ★

● WHEN CONVALESCENTS NEED A PICK-ME-UP

Moussec can be recommended with confidence. Moussec is sparkling wine produced from selected champagne grapes, fermented and matured in this country by the authentic champagne process. A special process of refinement gives to Moussec a purity and digestibility specially suited to invalids. It provides the valuable stimulus of champagne at an everyday price. The shilling "baby" bottle, which fills one champagne glass, provides daily Moussec in convenient form and keeps the wine keen and full of life until wanted for use. (Other bottlings up to 6/6).



MOUSSEC LIMITED • 175 PICCADILLY • W.1

The new
non-poisonous
germicide

ZANT

For Surgical, Obstetrical, and Medical Purposes

A combination of para-chlor-meta-xyleneol with pine and other essential oils prepared by a suitable method of saponification.

ZANT HAS A RIDEAL-WALKER
CO-EFFICIENT OF SIX

NON-IRRITANT
and
NON-STAINING

Issued in:
Bottles 5 fld. oz. 1/- each
" 10 " " 1/9 "
" 20 " " 3/- "
Tins, 1 gall. 7/6 "
" 1 " 12/6 "

Made by

Evans Sons Lescher & Webb Ltd.
LIVERPOOL and LONDON



Doctors who have tested them, believe in Baxter's Intravenous Solutions in Vacoliters.

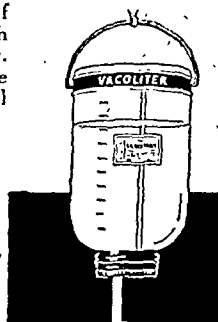
1. They are made from protein-free water—hence of constant pH value.
2. Baxter solutions are non-pyrogenic; free from any anaphylactic reactions. One of England's leading surgeons has said in a recently published article "they never produce fever or thrombosis."
3. All solutions are biologically tested after sterilisation. The vacuum sealed Vacoliter is made of special glass, treated by a special process, which ensures the solutions remaining sterile indefinitely. To confirm this, master samples are kept which are periodically re-tested by independent clinical authorities of the highest ethical standing.
4. Instantly available. From the stock room to the patient's vein is a matter of moments. Administration is as simple at the scene of an accident as at the patient's bedside. No special equipment is required.
5. There are many ways in which intravenous therapy helps to make a patient a better "risk." Because of their qualities, Baxter solutions will ensure the maximum results in this direction.
6. Intravenous solutions are Baxter's entire business. Four laboratories produce annually more than 3 million litres. Many leading institutions, well equipped to make their own up to earlier standards, have signed contracts standardising Baxter solutions each year. Fewer hospitals continue to make their own solutions.

Full details from sole distributors:

JOHN BELL & CROYDEN,
Wigmore Street, London, W.1.
DAY AND NIGHT SERVICE.

Telegrams and Telephone: Welbeck 5555.

EUROPEAN AGENTS FOR BAXTER LABORATORIES INC.:
GUY MAXWELL LIMITED,
Manfield House, Strand, London, W.C.2.



Vacoliter
ONE LITER (1000 CC) PACKED IN VACUUM

GONAD STIMULATION THERAPY IN MENSTRUAL DISORDERS



ANTOSTAB

Supplied in boxes containing ampoules of 100 mouse units, together with ampoules containing 1 c.c. of 0.90% Sodium Chloride Solution as a solvent for Antostab. Single ampoules and boxes of 6 ampoules.

ANTOSTAB is prepared from pregnant mares' serum and contains the follicle-stimulating factor which has a definite effect on the ovaries and in producing endometrial proliferation.

Clinical reports published in the *British Medical Journal*, 1937, November 6th, page 904, show that in cases of amenorrhoea, the menstrual cycle may be re-established by treatment with Antostab and that following treatment the menstrual rhythm continues normally.

PHYSOSTAB

Supplied in boxes containing ampoules of 100 mouse units, together with ampoules containing 1 c.c. of 0.90% Sodium Chloride Solution as a solvent for Physostab. Single ampoules and boxes of 6 ampoules.

PHYSOSTAB is prepared from human pregnancy urine and contains the luteinising hormone.

It is of value during the second half of the menstrual cycle when it stimulates the production of corpora lutea.

Successful results have been obtained with Physostab in the treatment of undescended testicles and of dystrophia adiposogenitalis.

LITERATURE SENT ON REQUEST

WHOLESALE & EXPORT DEPT.

BOOTS PURE DRUG Co. LTD.
NOTTINGHAM • ENGLAND

STREPTOCIDE

(p-aminobenzenesulphonamide Evans)

For oral administration

The value of Streptocide in Puerperal Fever
is fully described in a report to the

Therapeutic Trials Committee

(Vide *Lancet*, 27th November and 4th December, 1937)

Other indications include:

Erysipelas. Streptococcal Meningitis
Tonsillitis. Streptococcal Sore Throat
Gonorrhoeal and B.coli infections of the Genito-urinary Tract

Streptocide is issued in tablets as follows:

In bottles of 25 Tablets	0.5 gm. (7½ grains)	0.25 gm. (3½ grains)
" 100	2/-	1/9
" 250	6/6	5/3
	15/-	10/-

Please indicate the strength desired when prescribing

and as Powders, Boxes of 12 0.25 gm. 2/6 each
" 0.5 gm. 3/3 each

Made at EVANS BIOLOGICAL INSTITUTE by

Evans Sons Lescher & Webb Ltd.
LIVERPOOL and LONDON

ASTHMA

BRONCHITIS

EMPHYSEMA

"In cases where there is bronchitis, with morning cough and difficulty in bringing up sputum, a teaspoonful of EUPNINE on waking will often be helpful, and it should be continued throughout the winter."

"Treatment of Asthma," *Modern Treatment in General Practice*, Vol. II.

"EUPNINE VERNADE"

(ANTI-DYSPNOEIC)

The original stable solution of Caffeine Iodide

RELIEVES lung congestion

PROMOTES diuresis

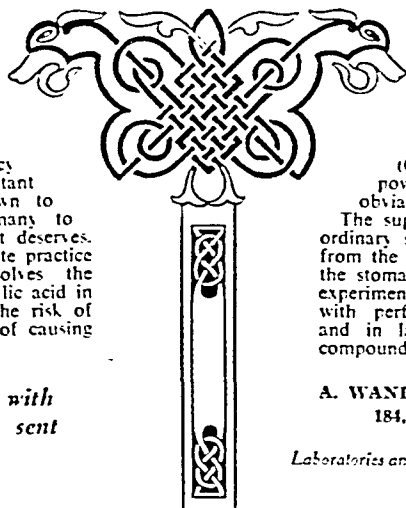
STRENGTHENS the heart

Reduced Prices: 100 c.c. 4/- 50 c.c. 2/4

WILCOX, JOZEAU & CO., LTD.,

North Circular Road, LONDON, N.W.2, and 19, Temple Bar, DUBLIN

FOR EFFECTIVE CONTROL OF PAIN



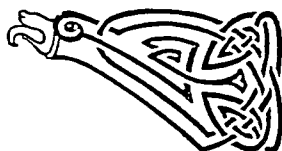
AMONG the many and diverse analgesics which have been evolved by modern chemical research, acetyl-salicylic acid retains its reputation as one of the safest and most effective. Its tendency to liberate salicylic acid—the irritant properties of which are well known to physicians—has, however, caused many to hesitate to employ it as widely as it deserves. Exhaustive trial in hospital and private practice proves that "Alasil" definitely solves the problem of administering acetyl-salicylic acid in an effective form, being free from the risk of irritating the stomach or bowels or of causing general reactions.

A supply for clinical trial with full descriptive literature sent free on request.

In "Alasil" the desirable therapeutic effects of acetyl-salicylic acid are well exhibited by its calcium acetyl-salicylate moiety, while the presence of "Alocol" (Colloidal Hydroxide of Aluminium), a powerful gastric sedative and antacid, obviates any tendency to gastric irritation. The superior absorbability of "Alasil" over ordinary salicylate compounds and its freedom from the risk of liberating free salicylic acid in the stomach have been well proved by careful experimentation. "Alasil" can be prescribed with perfect safety to patients of all ages and in larger doses than ordinary salicylate compounds.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W.7.

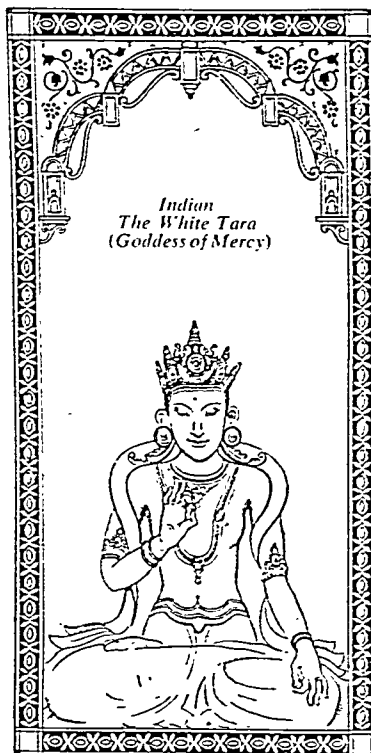
Laboratories and Works: KING'S LANGLEY, HERTS.



ALASI



M256



Indian
The White Tara
(Goddess of Mercy)

"ALOCOL"

Colloidal Hydroxide of Aluminium

Improved Antacid Therapy

SODIUM BICARBONATE, bismuth salts and other time-honoured antacids having each proved to possess individual disadvantages, an agent such as "Alocol" which combines the best therapeutic features of these with intrinsic merits of its own, must be of interest to the physician.

"Alocol" is a powerful antacid agent which forms with the stomach contents a colloidal jelly with the power of adsorbing free hydrochloric acid, thus fixing it and eliminating it from the system. It has a remarkably soothing effect on the inflamed or irritated gastric mucosa and is, therefore, rapidly effective in relieving pain. Being non-absorbable "Alocol" is free from any risk of "alkalosis."

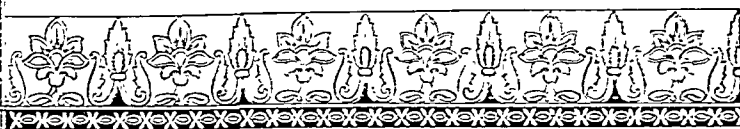
"Alocol" can be prescribed with confidence in all cases where alkaline therapy is indicated. Issued in tablet and powder form.

Complete chemical history of "Alocol" with convincing clinical reports and supply for trial, sent free to physicians on request.

A. WANDER, Ltd., Manufacturing Chemists,
184, Queen's Gate, London, S.W.7.

Works: KING'S LANGLEY, HERTFORDSHIRE.

M257



The Modern Point of View

"... so long as patients with subnormal temperature, low vitality and other evidences of depressed metabolic activity are re-animated after a course of treatment with glycerophosphates, just so long will physicians continue to prescribe them."

Pharmaco-Therapeutics: D. Appleton & Co.

NEURO PHOSPHATES

(ESKAY BRAND)

The ideal presentation of the glycerophosphates is Neuro Phosphates (Eskay Brand). Each dose (two teaspoonfuls) contains in acid state: Sodium Glycerophosphate, 2 grs.; Calcium Glycerophosphate, 2 grs.; and Strychnine Glycerophosphate, 1/64 gr.

PHYSICIAN'S SAMPLE ON REQUEST

Distributed by

MENLEY & JAMES, LTD., 64, Hatton Garden, London, E.C.1
for Smith, Kline & French Laboratories, owners of the Trade Mark

In Resistant Cases

In resistant cases of arthritis an increasing number of physicians report unusual success with 'Calsiod' (calcium ortho-iodoxy-benzoate) after stepping up the dosage considerably.

If you yourself have encountered any particularly unresponsive cases, may we remind you that the dose of 'Calsiod' can be increased according to the tolerance of the patient?

*Physician's sample and literature
on request*

CALSIOD

BRAND

TABLETS

Distributed by

MENLEY & JAMES, LTD.
64, HATTON GARDEN, LONDON
for Smith, Kline & French Laboratories,
owners of the Registered Trade Mark, 'Calsiod'

IODINE OINTMENT

"IODEX"

BRAND

This ideal presentation of iodine is even more active than the Tincture, has greater inflammation-reducing, resolvent, and antiseptic properties, yet is entirely bland and non-staining, and it conserves unimpaired the vital qualities of the skin. "Iodex" can therefore be applied with perfect confidence wherever an iodine ointment can be of service, even upon mucous or extremely sensitive surfaces.

Method of Application.—Wherever possible, the ointment should be gently rubbed into the skin until its colour disappears. Where rubbing is inadmissible, it may be liberally applied under a light, loose bandage. Tight and air-excluding bandages should never be employed.

Samples sent to Medical practitioners on request.

MENLEY & JAMES, LTD., 64, Hatton Garden, London

TAMPAX

A NEW TAMPON FOR USE DURING MENSTRUATION

Many members of the medical profession consider Tampax more hygienic than other methods of caring for the menstrual flow. They also recognise that Tampax assures a comfort to women heretofore unknown.

Tampax is a tampon, worn internally, perfected by a physician for regular monthly use.

The wearer is unconscious of its presence. Binding belts, the discomfort of pins, and pads, chafing, are all eliminated. Menstrual odour is reduced to the minimum.

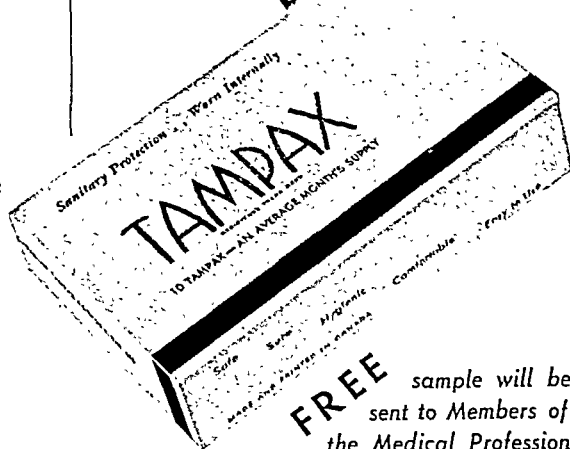
Each Tampax comes in its own applicator (complete in an individual sealed wrapper) assuring easy, hygienic insertion.

The tampon is made of highly absorbent sterilized surgical cotton, compressed by a patented process to one-third its original size—so that, while insertion is simplified, the

tampon expands when moist and can absorb approximately 1½ ounces.

A cord is sewed securely through the cotton, assuring easy and complete removal.

**WORN
INTERNALLY**
NO BELTS
NO PADS
NO PINS



FREE sample will be sent to Members of the Medical Profession on request

NEW COMFORT
NEW SECURITY
NEW FREEDOM

SOLE DISTRIBUTORS:

SPLENDOR LIMITED,
5, BEASTMARKET HILL, NOTTINGHAM.

TAMPAX LIMITED, 10, Bolton Street, LONDON, W.1.

A Package containing a month's supply costs 1/6, —small package 1/-

Measles Control with

IMMUNE GLOBULIN (HUMAN)

Lederle

BECAUSE of the frequency of complications, the mortality rate of measles is high—higher than that for whooping cough, diphtheria and scarlet fever.

Complications can be avoided by the use of IMMUNE GLOBULIN (HUMAN) *Lederle*, particularly those of broncho-pneumonia—responsible for about 50% of deaths in the infant age group (6 months to 3 years).

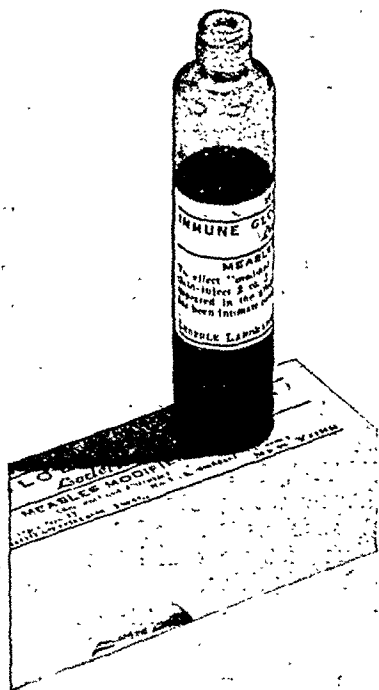
As a modification dose, one injection of 2 cc. is administered to patients in the infant age group from 6 to 8 days after exposure (for children in the same family this is 2 to 4 days after the appearance of rash in the exposing child). This dosage confers an active and lasting immunity in the majority of cases. For passive immunity of several weeks, a first dose of 2 cc. of IMMUNE GLOBULIN (HUMAN) *Lederle* is administered as soon as contact has been recognized; a second dose of 2 cc. four days later.

THE COMPARATIVE VALUE OF ADULT SERUM, CONVALESCENT SERUM, AND IMMUNE GLOBULIN PATIENTS TREATED FOR PROTECTION OR MODIFICATION

ALL TYPES OF EXPOSURE

Procedure	Cases	Per Cent. Protected	Per Cent. Modified	Per Cent. Failed
Adult Serum ...	584	56.4	23.8	19.8
Convalescent Serum ...	1,627	75.4	16.8	7.8
Immune Globulin ...	1,341	71.5	23.9	4.6

Eley, R. C., *N.E. Journ. Med.*, Aug., 1935, 213, 195



IMMUNE GLOBULIN (HUMAN) *Lederle* is distributed in 2 cc. vials and 10 cc. vials.

Chas. J. Haekray
LTD

The Old Medical School **LEEDS**
Telegrams and Cables "Aseptic Leeds" Telephone 20085 (3 lines)

252 Regent Street **LONDON W1**
Telephone Telegrams and Cables "Regent 1884 London"

Agents for Eire WILCOX, JOZEAU & CO 19 Temple Bar Dublin

Hæmatopoiesis



HEPATEX

Highly concentrated extract of fresh liver
for oral use.

Potent
*
Palatable
*
Readily Assimilated

Hepatex represents the full activity of 16 times its weight of fresh liver.

A 4-oz. bottle of Hepatex is sufficient for, at least, a week's initial treatment of Pernicious Anæmia or three weeks' maintenance.

Price 12/6 per bottle.



PREPARED AT EVANS BIOLOGICAL INSTITUTE BY

Evans Sons Lescher & Webb Ltd.

LIVERPOOL and LONDON.

Bronchitis, Winter Cough and Sequelæ

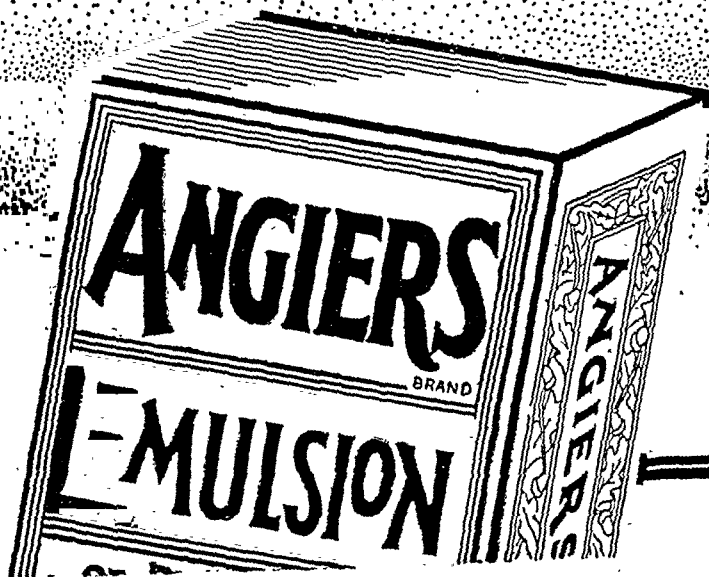
There is a vast amount of evidence of the most positive character proving the efficacy of 'Angiers' in sub-acute and chronic bronchitis. It not only relieves the cough, facilitates expectoration, and allays inflammation, but it likewise improves nutrition and effectually overcomes the constitutional debility so frequently associated with these cases. Bronchial patients are nearly always pleased with 'Angiers' and often comment upon its

soothing, "comforting" effects.

The unique soothing properties of 'Angiers,' its favourable influence upon assimilation and nutrition, and its general tonic effects, make it eminently useful both during and after influenza. It has a well-established reputation for efficiency in relieving the troublesome laryngeal or tracheal cough, correcting the gastrointestinal symptoms and combating the nervous depression and debility.

Free Samples to the Medical Profession

THE ANGIER CHEMICAL COMPANY, LIMITED
(Dept. C52), 86, CLERKENWELL ROAD, LONDON, E.C.1.



B.D.H. COMMON COLD VACCINES

The common cold is now regarded as being due to primary infection by a virus with secondary invasion by the organisms usually found in the upper respiratory tract. It is believed that these organisms which are normal inhabitants of the naso-pharynx may under certain conditions assume a pathological rôle.

No vaccine preparation against the infecting virus is at present available, and the value of the Common Cold Vaccines lies in their power to diminish the activity of the secondary invaders. Three vaccines against these invaders are prepared in the B.D.H. laboratories:

Common Cold Vaccine (Anticatarrrhal)
Influenza Vaccine (Mixed)
Influenza Vaccine (British Army Formula)

B.D.H. Common Cold Vaccine (Anticatarrrhal)

<i>N. catarrhalis</i>	200 million	} in 1 c.c.
<i>H. influenza</i> (Pfeiffer)	200 "	
Streptococci	400 "	
Pneumococci	800 "	
Staphylococci	400 "	
Bact. friedländeri (pneumobacillus)	200 "	

B.D.H. Influenza Vaccine (Mixed)

<i>H. influenza</i> (Pfeiffer)	1000 million	} in 1 c.c.
Streptococci	200 "	
Pneumococci	1000 "	
Staphylococci	200 "	

B.D.H. Influenza Vaccine (British Army Formula)

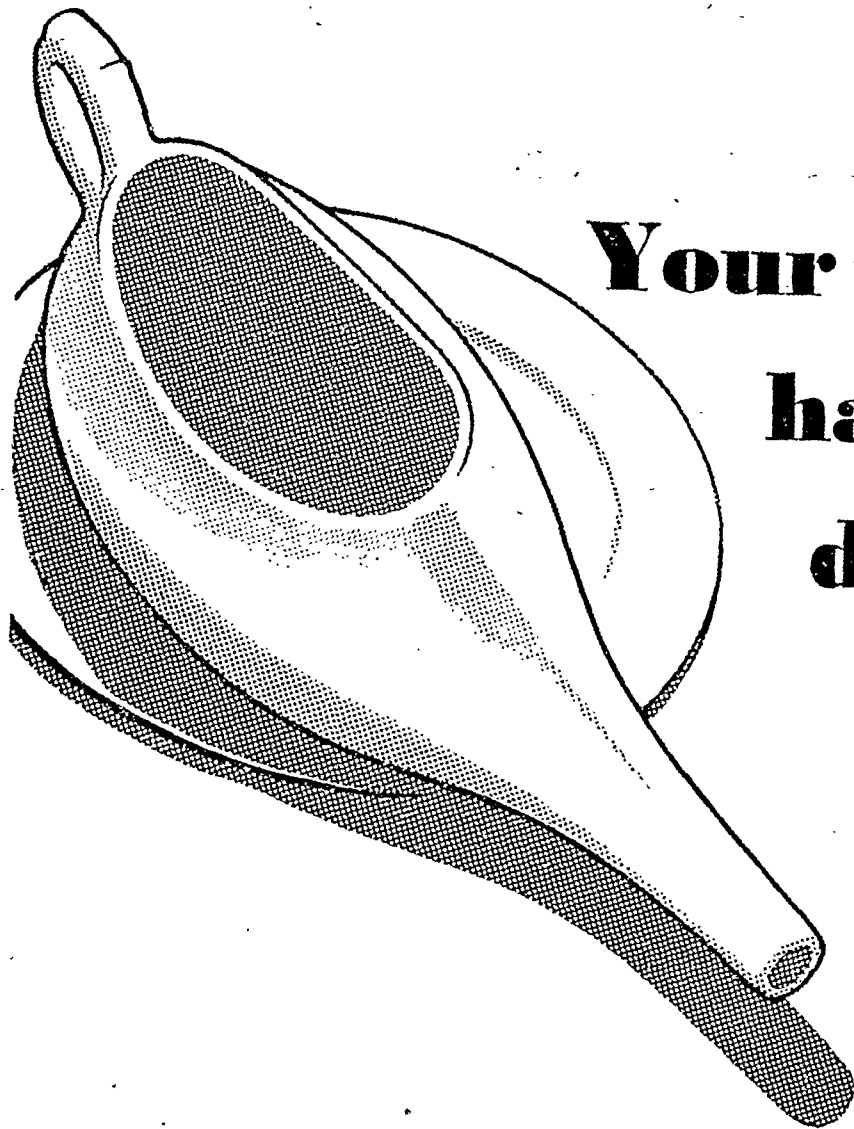
<i>H. influenza</i> (Pfeiffer)	60 million	} in 1 c.c.
Pneumococci	200 "	
Streptococci	80 "	

DOSAGE. The vaccines are generally used for prophylaxis, but they may be given in small doses as a therapeutic agent.

As a prophylactic a course of four injections is given: 0.25 c.c., 0.5 c.c., 1.0 c.c., 1.0 c.c. at weekly intervals.

Literature on request

THE BRITISH DRUG HOUSES LTD. LONDON N.1



Your patient has acute digestive trouble

You prescribe a strict diet. The patient must take nothing that can in any way aggravate his complaint. Milk and "slops" alone leave him depressed and weak.

When the digestion must be kept at rest, the unique stimulating properties of Brand's Essence are never contra-indicated. Brand's contains no meat fibre or any other irritant matter—precipitates no solids in stomach or intestines and is easily and quickly assimilated.

A copious flow of gastric juice is stimulated, but the acid is competently controlled at all times through adsorption by proteins. The Essence can safely be administered even in cases of gastric ulcer. Strength is maintained chiefly through Brand's protein-sparing action.

BRAND'S CHICKEN OR BEEF **ESSENCE**

is never contra-indicated

BRAND & CO., LTD., SOUTH LAMBETH ROAD, LONDON, S.W.8

POST-FEBRILE CONDITIONS

ENTERIC FEVER: By adding 'Sanatogen' to boiled and cooled milk the author found, in the dietetic treatment of typhoid (enteric) fever, that digestion and assimilation were easily accomplished, positive evidence being furnished by the steady improvement of his patients.

"Dietetic Treatment of Enteric Fever."

(PUBLIC HEALTH.)

INFLUENZA: "As a tonic-food 'Sanatogen' stands for pre-eminence. This is no mere expression of an individual opinion, but a fact firmly established by a vast array of clinical experience.... Whatever dietary may be decided on in the post-febrile period of influenza, it must always include 'Sanatogen.'"

(—M.D.)

DIPHTHERIA: "I am finding your Casein Glycerophosphate of great service to my patients in the Infectious Diseases Hospital, especially to Diphtheria cases who are put on it as a routine."

(—M.R.C.S., L.R.C.S., D.P.H.)

SCARLET FEVER: "I weighed, weekly, eleven children convalescent from scarlet fever to whom 'Sanatogen' was given, and fourteen other convalescent children of about the same ages, in as nearly as possible the same condition, living in hospital at the same time, and getting the same food. I found that the average gain in the weight of the children getting 'Sanatogen' was, in five weeks, 4 lbs. 2 ozs., and of those not getting 'Sanatogen' was just under 3 lbs. I have also weighed the same child at one time when not taking 'Sanatogen,' and at another when taking 'Sanatogen,' and I invariably found that the child improved considerably, and gained more weight when 'Sanatogen' was given in addition to its ordinary diet."

(THE PRACTITIONER.)

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

"The bactericidal action of the blood and its naturally protective powers against diseases are developed by 'Sanatogen.' The combination of a glycerophosphate with albumin, as it exists in 'Sanatogen,' produces a true physiological influence on nutrition."

(BIRMINGHAM MEDICAL REVIEW.)

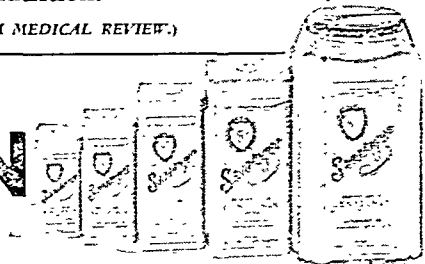
Sold by all
chemists
price 2/3
to 12/9

SANATOGEN

(Trade-Mark)

The word 'SANATOGEN' is the Trade-Mark of Genatosan Ltd., and denotes their brand of casein and glycerophosphate of sodium.

Clinical samples and literature available on request to
GENATOSAN LTD., LOUGHBOROUGH.

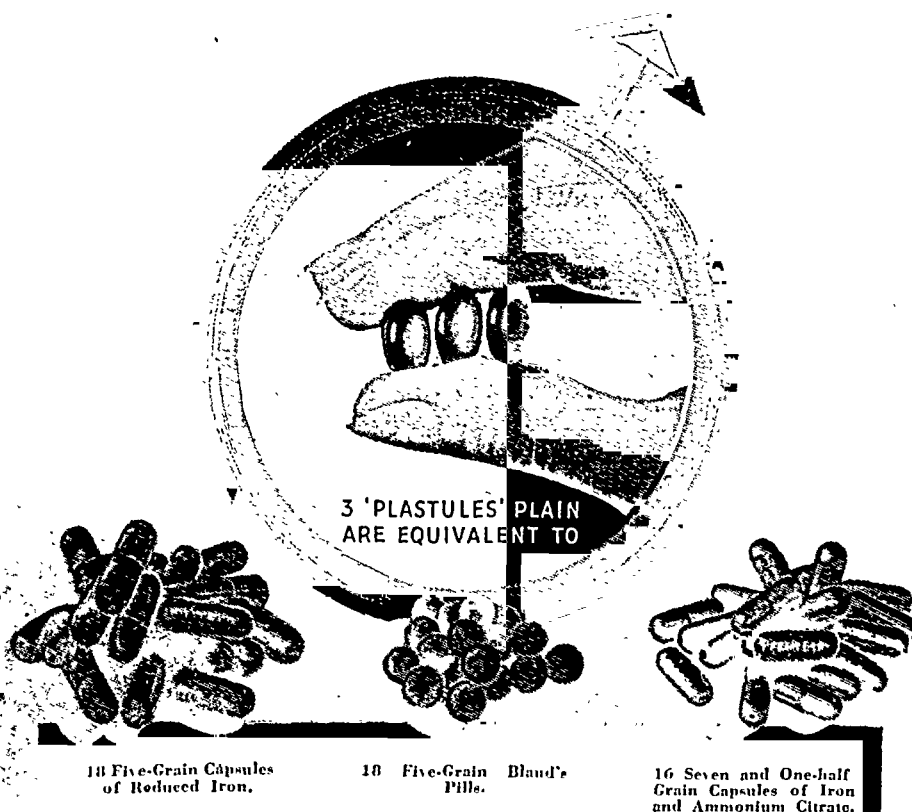


DOSAGE: For children and adults two teaspoonfuls three times daily, or according to circumstances. For infants 1 teaspoonful added to each bottle feed.

'PLASTULES'

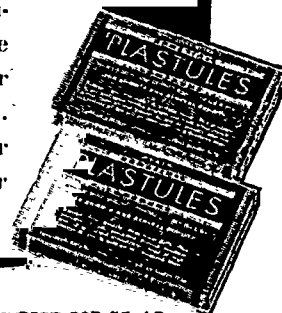
BRAND HÆMATINIC COMPOUND REGD

AN IMPROVED IRON THERAPY

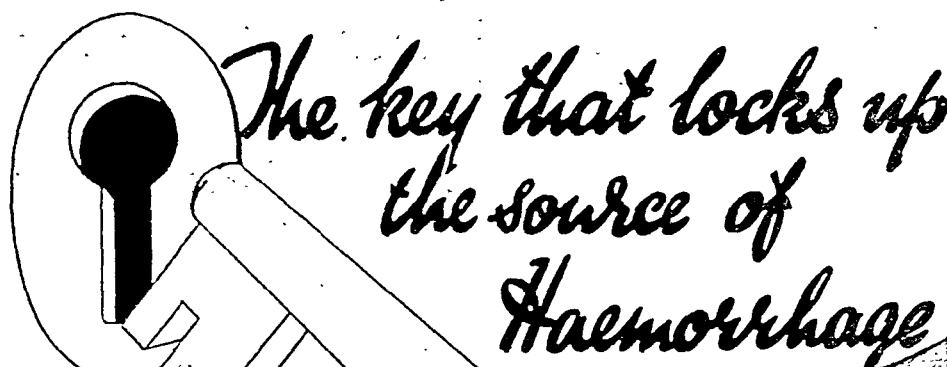


The soluble ferrous salt in 'Plastules' produces maximal results in small doses which obviates the unpleasant effects of the larger doses of ferric compounds. The average case requires only three 'Plastules' Plain daily. 'Plastules' are prepared by combining ferrous iron and vitamins B₁ and B₂ in soluble gelatin capsules. They are available in two types—plain or with

Liver Extract. . . . Prescribe 'Plastules' for patients under treatment for hypochromic anæmia and observe their rapid response without the usual side effects so frequently associated with the administration of large doses of other forms of iron. Send for samples for clinical trial.



JOHN WYETH & BROTHER LTD., 25, OLDHILL PLACE, LONDON. N. 16.



The key that locks up the source of Haemorrhage

INTERNAL HAEMORRHAGE

from the lungs, stomach, intestines,
bladder, kidneys, etc.,

GYNAECOLOGICAL HAEMORRHAGE

menorrhagia and metrorrhagia, post-
partum haemorrhage, haemorrhage
after miscarriage, myomic bleeding,
climacteric haemorrhage, haemorrhage
in operative gynaecology,

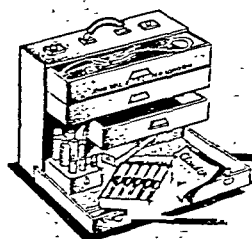
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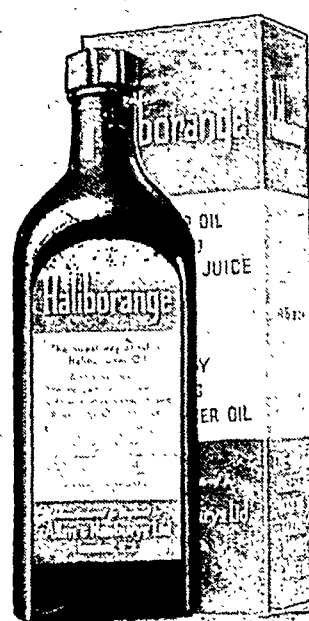
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 19 1938

EFFECTIVE ABSORPTION OF HORMONES

BY

A. S. PARKES, Sc.D., F.R.S.

(From the National Institute for Medical Research, London)

In the preparation of active extracts of the endocrine organs it has usually been found that very little of the active substance is contained in the gland compared with the amount which has to be injected to produce an effect in the test animal. This discrepancy is no doubt due largely to the fact that there is continuous secretion by the gland and little storage, so that the content at any given time may represent but a small fraction of a day's output. The amounts which it is necessary to administer are, however, often unnaturally high because of low efficiency resulting from the method of administration. The normal gland must be supposed to keep up a slow, steady secretion which maintains a threshold concentration in the circulation but avoids wasteful or harmful excess. The exogenous injected hormone, on the other hand, is usually absorbed rapidly and utilized, destroyed, or excreted. In these circumstances the concentration in the blood will be highest shortly after injection, and will then fall away till a sub-effective concentration is reached. In many cases there can be little doubt that this cycle occupies only a few hours, leaving the organism deficient of the hormone until the next injection. If the dose is raised so as to prolong the period during which effective amounts of the hormone are present, the wastage at the time of maximum concentration will be correspondingly greater. The effectiveness of a method of administration thus depends on the degree to which the necessary concentration in the blood can be maintained at a steady even level slightly above the threshold value. The problem of how to attain this end is one of the most important in endocrine therapy.

Oestrogenic Substances

The influence of method of administration on effectiveness was seen early in the work on ovarian extracts when Allen and Doisy and their co-workers (1924) found that a certain amount of active substance was more effective when given as a series of small doses than it was in one large dose. As preparations became more purified and semi-aqueous solutions were prepared, the advantage of divided dosage became very clear. Laqueur and de Jongh (1929) found that less than one-thirtieth of the active substance required to give a response as one injection was effective when given as six injections over thirty-six hours. Similar results were obtained by Allan *et al.* (1928), and Marrian and Parkes (1929). These facts are, of course, of importance from the points of view of both clinical dosage and biological assay.

The problem is further complicated by the fact that the various naturally occurring oestrogens are differently

affected by alteration of the method of administration. When oestrone and oestriol were first isolated from pregnancy urine no two observers agreed as to their relative activity. It was soon realized that this was due to the difference in the methods used for comparison and to the more rapid and less effective absorption of oestriol. At the first International Conference on the Standardization of Sex Hormones, held in 1932, a preparation of oestrone was established as an international standard for oestrus-producing hormones, but it was realized at the time that attempts to assay oestriol in terms of the international unit, defined as the specific activity of 0.0001 mg. of the oestrone standard, would lead to difficulties. The importance of the absorption problem was also recognized by a stipulation that, in assay work, absorption should be retarded either by the use of oily media or by multiple injections. The third of the important natural oestrogens—oestradiol—originally produced by reduction of oestrone but afterwards isolated from the ovary by Doisy, is more like oestrone in its behaviour than is oestriol: by the plumage test on brown leghorn capons it was not possible to demonstrate that it has a less prolonged action following a single injection than has oestrone. There is little doubt, however, that the activity relative to oestrone by the ordinary test on the ovariectomized rat or mouse may be influenced by the method of administration.

The necessity for multiple injections is shown to an increasing extent by oestrone, oestradiol, and oestriol, in that order. This is almost certainly due to increasing solubility in body fluids, and is in close relation to the number of hydroxyl groups present. The comparative inactivity of these compounds by mouth is probably caused by lack of absorption from the gut, since there is little evidence of destruction by the digestive enzymes. It might be expected that oestriol, the most water-soluble, would be the most active by mouth. The evidence available is concordant with this supposition (Rowe and Simond, 1936). Another method of administration, unction of an oily or fatty solution, tends to increase the duration of action of the hormone (Deanesly and Parkes, 1937), but the method is not efficient except where the responding structure is superficial and can be treated directly (as the mammary gland, comb, plumage, etc.). Even so, in the absence of detailed information, one must deplore the increasing tendency to add oestrogenic substances to face creams.

A method of obtaining optimum efficiency other than by multiple injections was demonstrated by Butenandt and Störmer (1932) when they showed that the benzoate of oestrone had a prolonged action. Oestradiol mono-

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reduction product of androsterone, which is very insoluble in body fluids, no fewer than thirteen successive implantations of the same set of 6-mg. tablets were made into successive sets of castrated rats for ten-day periods. The total time of each tablet in the animals was thus 130 days—about four calendar months. At the end of this time the tablets were reduced almost to nothing, but the remaining material was still physiologically active. The total weight of accessory organs produced in these experiments was incomparably greater than can be obtained by the injection of 10 mg. of the hormone in oil solution.

Tablet administration has the obvious advantage that there is no necessary fluctuation in the amount of material absorbed, such as must result from even frequent injection. Once absorption has begun it will continue week after week, or even month after month with substances of suitable solubility, declining steadily as the tablet decreases in surface area, but free from minor irregularities. There is no obvious local reaction in experimental animals following the subcutaneous implantation of tablets of oestrone, testosterone, or testosterone propionate. The evidence that neither testosterone nor oestrone is inactivated by long incubation at body temperature in the subcutaneous fascia is conclusive, and it would seem that where very prolonged effects are required a clinical trial of the technique is warranted.

Progesterone

The effectiveness of progesterone does not seem to be so much altered by conditions of administration, though possibly this is because the rabbit, the usual test animal, seems to make more economical use of injected gonadal hormones than does the rat (Deanesly and Parkes, 1937). So far as our preliminary experiments show, tablet administration of progesterone gives no increase of response in short duration experiments as compared with daily injections, possibly because absorption is extremely slow, but it is already obvious that a very prolonged effect from a single administration could be obtained by the tablet technique. In view of the difficulty of esterifying progesterone the technique may be of practical value.

Other Substances

Problems of absorption are not peculiar to gonadal hormones. It is well known that the effectiveness of gonadotropic extracts is raised by increasing the subdivision of the dose. Addition of a precipitant such as zinc sulphate to the solution also greatly increases effectiveness, presumably by retarding absorption (Maxwell, 1934). Unfortunately their high water solubility and their lability in contact with water at body temperature make gonadotropic preparations unsuitable for tablet administration. The observations of Bates and Riddle (1936) on the influence of route of administration on the effectiveness of prolactin, and those of Ch'en and van Dyke (1936) on increasing the action of thyrotropic extracts by the addition of merthiolate, are also relevant.

There are a number of well-known examples of the same principles applying to other hormones, notably the work leading up to the production of protamine insulin. In general it may be said of many of the hormones concerned in producing chronic effects that purification and isolation make the active substance so readily absorbed by the animal that in practical use high effectiveness can only be obtained by frequent injections or by retarding absorption in one of the ways described above.

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OTITIS EXTERNA: "HOT-WEATHER EAR"

AN INVESTIGATION OF 100 CASES AND A METHOD OF TREATMENT

BY

FLIGHT LIEUTENANT GEORGE MORLEY, F.R.C.S.

Royal Air Force, Aden

The scope of this contribution is limited to inflammation of the external auditory meatus apparently caused by hot humid climatic conditions and associated with an infection with *B. pyocyaneus* in pure culture. At the aural clinic of the Royal Air Force Hospital, Aden, a series of 100 cases was investigated, a line of treatment evolved on a simple practical basis, and search made for a common causative factor.

Occurrence

Infections of the external auditory meatus with *B. pyocyaneus* (*Pseudomonas pyocyanea*) among the troops in Egypt were described during the great war, and more recently have been reported from the Seychelles, Canton, Ascension, and East Africa (Hermitte, 1932), America (Greaves, 1936), and Australia (Bettington, 1934). Inflammations of the meatus are common in the troops generally,* and are often ascribed to a fungus infection. The conditions appear to be very similar and equally resistant to treatment, but as none of the cases which were bacteriologically examined in this series was found to have a fungus infection or any organism other than *B. pyocyaneus* and *Corynebacterium ceruminis diphtheriae*, no attempt is being made here to discuss any other infection.

It has not been possible to assess the incidence of the trouble in Aden. Many cases are treated as out-patients elsewhere than at the Royal Air Force Hospital, but all types seem to be affected, and it is by no means confined to the troops. A record of the monthly total of new cases was kept (see Chart), and it was noted that the majority were affected during the May-June and August-September

* This subject is dealt with in a joint discussion on the effect of aural conditions on fitness for active service, *Proc. roy. Soc. Med.*, 1937, 30, 1523.

benzoate behaves in much the same way. This prolongation of action is not seen if the compound is administered intravenously (Deanesly and Parkes, 1937), and it must therefore be due primarily to the esterification having decreased the solubility of the hormone in body fluids, and having thereby increased the time taken for absorption. Frequent injection is thus no longer necessary to achieve high efficiency with oestrogenic compounds.

A large number of esters of oestrone and oestradiol have been examined in a search for greater potency. David *et al.* (1935b) found that oestradiol diacetate has a more prolonged action than the free hormone, while oestradiol dibenzoate has a very prolonged action but requires a high minimal effective dose. Working with the feminization of plumage test, I (Parkes, 1937) found that oestrone acetate, oestradiol diacetate, oestradiol monobenzoate, oestrone benzoate, oestradiol-3-benzoate-17-acetate, and oestradiol dibenzoate showed increasing duration of action. Miescher, Scholz, and Tschopp (1937) have recently shown that a series of aliphatic esters of oestrone have durations of action proportional to the length of the acid chain. The higher esters, showing very prolonged action, have a high threshold dose. Deanesly and Parkes (1937) found that, so far as the plumage test is concerned, oestrone has the most prolonged action when administered by a single intramuscular implantation of a solid crystal of the free hormone. Given so, doses of 2 to 3 mg. continued to feminize plumage for about three months, a result far beyond those obtained with even the most effective esters in solution.

This body of facts makes it clear that it is not practicable to assay an ester in terms of the free hormone, since the result will depend entirely on the comparative test methods. In view of this fact, and of the increasing use of oestrone benzoate and oestradiol monobenzoate for clinical and experimental purposes, the second International Conference on the Standardization of Sex Hormones, held in 1935, established a preparation of oestradiol benzoate as an international standard for benzoylated preparations. The unit was again defined as the specific activity contained in 0.0001 mg. of the standard, but it was expressly stated that no equivalence of biological activity with the unit of free hormone was implied. The relation between 1 I.U. (international unit of free hormone) and 1 I.B.U. (international benzoate unit), whether clinically or experimentally determined, must depend on the method of administration and the test object employed, and can have no general significance. Further, it is doubtful whether it is practicable to standardize one ester in terms of another. As the number of market preparations of oestrone and oestradiol and their esters is likely to increase, and it is obviously impracticable to set up standards for every oestrogenic compound, it is highly desirable that the recommendation of the 1935 Conference should be followed by manufacturers, and that the precise nature and amount of the substance present should be marked on each ampoule. Only thus can the clinician have adequate data upon which to base an opinion as to the relative merits for clinical use of the various compounds available.

Male Hormones

Many of the facts described above for the oestrogenic substances apply with equal force to the various male hormone compounds. The first crystalline substance with androgenic activity was obtained from men's urine by Butenandt (1931). This had a fair activity on the capon comb but a low activity on rats, and it was noted by

Freud (1933) that, in relation to the activity on capons, the capacity of urine extracts to stimulate the accessory glands of the castrated rat decreased as the extracts were purified. A similar odd phenomenon was observed in the case of testis extracts. In comparison with androsterone or urine extracts, testis extracts were highly active on rats in relation to their activity on capons. When testosterone was isolated from testes it was found, as ordinarily injected in concentrated oil solution, to be less effective on rats than had been expected. David *et al.* (1935a) showed that recombination of the pure testosterone with discarded inert fractions of the testis extract led to greatly enhanced activity of the testosterone. Subsequently Miescher and his co-workers (1936a) showed that addition of any one of a large number of fatty acids to the testosterone solution led to the same effect, while Deanesly and Parkes (1936) found that increase of the volume of oily medium led to increased effectiveness of both androsterone and testosterone. It seemed clear, therefore, that the loss of effectiveness on rats of purified urine extracts, and the unexpectedly low effectiveness of crystalline testis hormone in concentrated oil solution, were caused by too rapid absorption from the site of injection, and that absorption could be delayed and the hormone made more effective by the re-addition of discarded fractions or fatty acids, or by increasing the volume of oil used for injection. The disturbance of the ratio of activity on capons to that on rats was due to the fact that effectiveness on capons is much less influenced by the presence of inert substances than is effectiveness on rats.

By analogy with the oestrogenic substances it seemed likely that a useful advance in the technique of administration might be made by esterification of the hormone. Miescher and his co-workers (1936b) made a series of aliphatic esters which showed an increasing duration of effect with increasing length of the acid chain. They were able to choose testosterone propionate as having the optimum combination of intensity and duration of activity. This compound, as examined by Parkes (1936), was more effective when a certain dose was given as two injections over ten days than when a corresponding amount of the free hormone was given as twenty injections over ten days. Since daily injection may be highly inconvenient for the clinician, testosterone propionate would seem to be a very suitable preparation in cases where male hormone therapy is indicated. Testosterone propionate, like oestradiol benzoate, shows no prolongation of effect if administered by intraperitoneal or intravenous injection, which ensures rapid or instantaneous entry into the circulation (Deanesly and Parkes, 1937), and it is evident that, as with the oestrogenic ester, the prolonged action is due primarily to slow absorption from the site of subcutaneous injection. Significant experiments are recorded by Deanesly and Parkes, who have shown that the effectiveness of free testosterone is greatly increased when it is administered by a single subcutaneous implantation of a compressed tablet of pure dry hormone. Under these conditions free testosterone becomes as effective as the propionate in oil solution. The propionate also shows a greater duration of action when given in tablet form. Even a small tablet of testosterone is only partly absorbed by the castrated rat in the course of a ten-day experiment, though great development of the atrophic accessory organs takes place during this time. The tablet can be recovered from the subcutaneous fascia and reweighed, and the dose absorbed by the rat calculated. The residual tablet can then be used for implantation a second time. With free testosterone this process has been repeated three times with a 2-mg. tablet. With androstenediol, a highly active

becoming acute. The complaint is of an aching ear, often associated with discharge from the meatus, which causes a yellow stain on the pillow-slip overnight. Slight adenitis may be present, and the auricle is tender on movement but not acutely painful. Hearing is only slightly diminished, but most distressing symptoms are caused in the hot humid atmosphere, and sleep is lost at night. Concentration at work is very difficult, and the condition may well be described as extremely aggravating. On examination the meatal walls are considerably swollen and "soggy," with plaques of white cheesy debris partly adherent and partly lying in the lumen. The tympanum can usually be seen through a narrow space and is generally normal. One very characteristic pitfall is a curtain of debris immediately lateral to the tympanum, usually incomplete, which very closely resembles a perforated tympanum with acute meningitis, the whole being bathed in purulent exudate. It is only when this has been removed that a normal tympanum is found to exist, and the differentiation of these conditions is largely a matter of familiarity with the appearances on auriscopy. For this reason the bright magnified view obtainable with an electric auriscope makes this the most useful method of examination. Removal of the sodden debris leaves excoriations which bleed very readily, and the ear then becomes more painful. Only those pieces which appear already detached can be removed without causing further trauma. There is in addition a thick purulent exudate, which lines the meatus and is very tenacious and difficult to remove efficiently. Most particularly is this true of the antero-inferior recess of the meatus immediately lateral to the tympanum. In long-standing cases this pus has been observed to assume a yellowish-green coloration with great regularity.

3. *Chronic*.—In this stage without treatment the condition in unfavourable circumstances readily relapses into the subacute phase. With treatment, however, and efficient careful removal of debris, the meatus assumes a slightly thickened red appearance, while scaly flakes of dead epithelium form on the walls. The tympanum is normal, but there is most frequently a sodden "subacute" area in the recess medial to the elevated floor of the meatus which is extremely difficult to eradicate. The chief symptom of this stage is most profound and distressing irritation, whilst the condition is aggravated by the rubbing and shaking of the auricle which this irritation provokes. There is a variable amount of discharge, which is of very thick greenish-yellow pus. Hearing is almost normal.

4. *Relapsing*.—In this stage the ear is to all intents and purposes normal both to the patient and on inspection. For a week or two after the chronic stage has been cleared after-treatment is necessary, as under very humid conditions the ear sometimes "feels wet again." If this is ignored recurrence is likely. In some cases this feeling persists during the hot season, and more acute symptoms can then be precipitated by the injudicious use of glycerinated ear-drops and wool plugs in the meatus (see below), designed to keep out irritating particles of foreign materials such as sand and dust. Cases under this heading are regarded as potential infections and are given prophylactic advice and treatment.

Bacteriology

Meatal swabs were taken from thirteen typical cases in varying stages. The reports upon each were of Gram-negative, non-sporing, motile bacilli with no evidence of fungus. Eight produced pyocyanine on culture and gave the sugar reactions of *B. pyocyaneus*. All contained

Corynebacterium ceruminis diphtheriae. A typical report of one of these cases in detail was:

A greenish-yellow pus, almost cheesy in consistency. Direct smear and hanging drop: numerous squamous epithelial cells. Actively motile coliform bacilli in large numbers, which were isolated in pure culture.

Characteristics of Gram-negative bacillus isolated:—Motility: + + +. Agar: Moist grey spreading growth. MacConkey: Moist grey spreading growth. Fluid MacConkey: No change. Glucose: Acid only. Lactose, saccharose, mannite, maltose, dulcitol: Minute bubbles of gas with no acid change, using Andrade's indicator. Peptone: No indole formed in five days; filmy grey pellicle. Litmus milk: Digested in twenty-four hours; no clot formation; greenish tinge developing to an intense blue-green by the fifth day. Glucose broth: Brownish wrinkled pellicle. Voges-Proskauer reaction negative.

Conclusions: The organism appears to be a true *B. pyocyaneus* in which, perhaps owing to oxygenation in the external ear, pyocyanthrose, a yellow pigment, is in excess of pyocyanine.

In many cases there was intense blue pigment production in most of the above media. Of the five remaining cases in which the full sugar reactions were not examined the reports were:

Actively motile, Gram-negative bacillus, giving the following reactions:—Glucose: Acid. Lactose: No change. Mannite: No change. Litmus milk: Slight acidity.

The cases which were examined were selected at random, and presented lesions typical of the condition. It has already been pointed out that the pigmentation of the pus in the later stages and the definite yellow staining of the pillow-slips due to discharge from the meatus are fairly well-marked clinical signs.

Treatment

In standardizing treatment cases were classified into the clinical groups described, and the routine was strictly followed according to the group.

ACUTE CASES

These cases, consisting of those with "boil" formation or obstructed meatus with excessive tenderness, were most frequently admitted into hospital, where treatment could be more intense, especially if pyrexia was present. With this group no effort was made to clean out the meatus; to attempt it is sheer brutality, as the pain is exquisite. The meatus is very gently syringed with boric lotion, as hot as the patient will tolerate. After this the meatus is allowed to drain by posture for a few minutes. The ear is next filled with warm 1 per cent. carboglycerin drops and a hot boric foment is applied, large enough to include the pre- and post-auricular glands. This treatment is carried out four-hourly, and is combined with initial purging by 4 grains of calomel in split dosage followed by salts. At first there was considerable diffidence in syringing with really hot lotion, lest vestibular disturbances should be caused. However, this does not appear to occur in these cases; most probably because the lotion does not freely reach the depths of the meatus. The relief is great and almost immediate, whilst the removal of small portions of debris makes the application of the carboglycerin more effective. The latter has been used only in 1 per cent. solution, and as such the analgesic effect has proved satisfactory when combined with the hot syringing and fomentation. The question of incision in these cases is interesting. In some earlier cases the pain was so acute that the meatus was examined under an anaesthetic. Sodium evipan was used, but no actual

periods, more particularly the former. At these times—the beginning and the end of the south-west monsoon—the temperature and the relative humidity increase, and there is scarcely any appreciable "cooling off" during the night. "Prickly heat" is also very common at this

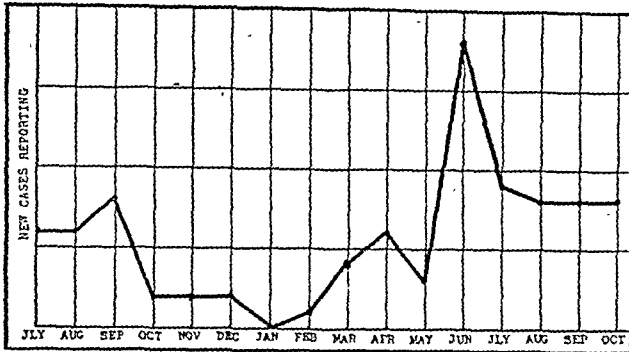


Chart showing in graphic form the new cases of otitis externa occurring monthly.

period; both conditions, however, improve under the fresher weather during July and August, and during the cool season they almost entirely disappear.

Aetiology

It has been thought desirable to investigate two popular theories—that of causation by bathing, and that of irritation by sand or interference. Of the 100 cases only forty-six had bathed in the sea within approximately one month previous to the onset of symptoms. Of these, thirty-five were regular bathers, the remainder taking only an occasional swim. Twenty-one used wool plugs in the ears while bathing, and twelve admitted to cleaning the ears with wool wound on match-sticks after bathing. The average number of bathes per week among the regular swimmers was 2.85. Figures were unfortunately not available for the total number of bathers at various times throughout the year, but as a matter of observation it is certain that there is no marked increase during the hot periods.

There are only one or two small private bathing pools of fresh water in Aden, so practically all bathing is in the sea. While it is admitted that the number of cases is small for the purpose of forming a definite judgment, these figures appear to discredit the sea-bathing theory. Fresh-water shower-baths were taken, on an average of two a day, by ninety-five of the patients, and ordinary slipper-baths by forty. The water used for this purpose is supplied from deep artesian wells and is also used for drinking. It is analysed regularly at the Royal Air Force Laboratory, and no evidence of faecal contamination has been evinced. Only twenty-five of the patients could fairly be considered to have been more exposed than other residents to sand in Aden, where the amount is not great: one or two minor sand-storms may occur in July, August, or September. It was observed that a few individuals had served for some years in India or Iraq and had been unaffected by real sand-storms, while at a time when personnel were encamped locally in bad drift sand the incidence of the condition did not increase. None of the cases had any gross disease of the ear, nose, or throat on examination, other than the meatitis.

The origin of the organism is still in doubt. Faecal contamination has been suspected, but there is hardly any water-borne sanitation in Aden at present, and, as has been noted, there is no evidence of a contaminated water

supply. It is, however, a fairly ubiquitous organism, and it appears that certain factors promote its growth and render it pathogenic. No suggestion can be given as to the reason why *B. pyocyaneus* in particular should be the infecting organism. It is believed that the chief of these factors are moisture and maceration of the epithelium, especially if devitalized by trauma. It is well known that these cases present a moist appearance clinically, and that the corollary in treatment is to keep the ear dry. Also it is shown that most cases are infected when the humidity of the climate is greatest.

As a ship surgeon, outward bound, I first met the condition in the Red Sea and to a lesser extent in the Java Sea, while cases improved in the cooler climates. This view has been confirmed by naval and ship surgeons passing through Aden, who also note that it is more common among stokers, some of whom report for treatment automatically, as the result of past experience in the tropics, when they arrive in the Red Sea. There is no evidence that all these cases are associated with *B. pyocyaneus* infection. For these reasons the term "hot-weather ear" has been maintained—a term used by Lieut.-Colonel Palmer, R.A.M.C., when he described it as a clinical entity (Palmer, 1934)—because this appears to be the strongest aetiological factor.

Clinical Aspects

Otitis externa has been described as clinically divided into two categories—the dry and the moist. This division has not appeared to be at all satisfactory, and for the purpose of description and treatment it has been found desirable to enlarge upon it. The classification adopted here is as follows: (1) acute; (2) subacute; (3) chronic; and (4) relapsing. The first two conditions and usually also the third are "moist," whilst the fourth is "dry." There is, however, considerable overlapping between these classes.

1. *Acute*.—The patient usually complains of acute pain in the ear, often of a throbbing character, that has developed after a variable period during which he will have noticed increasing discomfort and usually some discharge from the ear. Pyrexia of 101° to 103° F. and pre- and post-auricular lymphadenitis often occur. Occasionally there is a slight degree of trismus, and mastication is painful. On examination the auricle may be slightly oedematous, and any movement of it becomes acutely painful. The meatus is occluded by swelling of the epithelial walls, which appear white and sodden, and a white curdy covering is often observed externally. The tympanum is not visible by ordinary auroscopic examination, and there is moderate diminution of hearing. If the meatus is examined under an anaesthetic the inner part is seen to be covered with sodden white epithelial debris, removal of which shows an inflamed, red, and very angry-looking meatus; but only rarely is there a definite boil to be seen. The tympanum is usually only affected to a slight degree; the normal light reflex is diminished, and the external surface is most frequently granular in appearance. Sometimes there is moderate injection in the region of the malleus, but never any bulging or pulsation. In most cases the tympanum is normal and mobile. As the condition progresses under treatment there comes a point of relief from the acute symptoms which is sometimes associated with the liberation of thin sero-purulent fluid and resolution of the acute phase temporarily. Observation and incision have failed to locate definite pus during this stage.

2. *Subacute*.—The majority of cases are first seen in this stage, and a large number can be prevented from

the meatus with hydrogen peroxide, then drying with ether, and applying a solution of silver nitrate in spiritus aetheris nitrosi was tried. Then spirit and biniodide of mercury, 1 in 4,000, was substituted for the ether. Argylol (2 per cent.), mercurochrome (1 per cent.), and liquid iodex packs were given exhaustive trials, with disappointing results. Zinc ionization promised well: a course of five treatments each of 1/2 mA for one-half hour, a stronger current being uncomfortable, produced good results at first, but recurrences were numerous. Vaccine therapy was not tried, although recommended by some observers (Hermitte, 1932), because it was felt that a simpler and more practical method of treatment could be evolved which could be practised efficiently at out-stations. Phenyl mercuric nitrate (Greaves, 1936) was not used in this series.

Finally one case arose in which all efforts to obtain a cure appeared futile: the condition just continued to relapse. First one side would improve and the other commence to discharge, then the state would reverse. This man spent fifty-seven days in hospital, in addition to receiving 107 days of out-patient treatment. The organism was a typical *B. pyocyaneus*, and all the methods of treatment described were tried with no avail. In the end the meatuses were treated with boro-iodine powder on the lines now described, and after one application on each side the condition cleared up completely. He has since passed through the whole hot season without recurrence, and only occasionally applies a few boro-spirit drops at night-time. The routine treatment was then evolved and adopted, with results which have been very satisfying, although not always as spectacular as in this one case.

Results

Since the treatment described was adopted as a routine and applied to the later sixty-six of this series of cases the average number of daily attendances has been 8.27 per case (maximum, 24; minimum, 2). Previously, under the other forms of treatment, this was considerably greater, and in the earlier thirty-four cases of this series the average was 22.6, or, excluding the exceptional case to which reference has been made, 18.1, with a maximum of 72 and a minimum of 3. Admissions to hospital have totalled five from the earlier thirty-four cases (16.6 per cent.) and three from the sixty-six later cases (4.54 per cent.)

Published results of vaccine therapy are good after periods of weekly injections extending over some five or six weeks (maximum, 12; minimum, 3). The vaccines used were autogenous, but the suggestion is made that a stock vaccine might prove equally efficacious (Hermitte, 1932).

Phenyl mercuric nitrate, used 1 in 1,250 in 95 per cent. alcohol, is claimed to have a spectacular effect on the acute stage and to shorten the course and hasten recovery in the chronic and long-standing cases (Greaves, 1936).

Summary

1. A series of 100 cases of otitis externa occurring chiefly during the hot humid seasons of Aden was investigated, and a representative number of cases were found to be infected with *B. pyocyaneus* in pure culture.

2. The influence of sea-bathing and a sandy atmosphere as aetiological factors is discussed and discredited; whilst the seasonal incidence is held to justify the term "hot-weather ear."

3. A routine method of treatment with facility of application is described, based upon boro-iodine therapy. The use of cotton-wool plugs in the meatus is discouraged. Prophylaxis and after-treatment are described.

4. The results of this form of treatment as applied to sixty-six cases are given, and are compared as far as possible with those of some recently published methods.

I wish to acknowledge my indebtedness to Squadron Leader Lee-Potter, M.D., for having carried out the bacteriological investigations; also to the officer commanding the Royal Air Force Hospital, Aden, for his encouragement, and for permission to prepare this paper. The provision overseas of references and photostatic copies of publications by the librarian of the Royal Society of Medicine has been greatly appreciated.

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E. T. Ceder and L. Zon (*Publ. Hlth. Rep.*, Wash., November 5, 1937, p. 1580) issue a preliminary report on the treatment of psoriasis with massive doses of crystalline vitamin D and irradiated ergosterol. They point out the frequency of psoriasis, its tendency to occur in the winter, and its diminished prevalence in summer and in the Tropics. The benefit derived from ultra-violet irradiation combined with the application of coal tar is possibly due to the production of a substance similar to irradiated ergosterol. This substance may have toxic effects or produce deleterious effects in children, in rats, and in those who have a recently calcified tuberculous focus. Massive doses of vitamin D, 300,000 units daily, given for chronic arthritis, produced involution of the associated psoriasis. Fifteen established cases of psoriasis were treated with similar doses of vitamin D in sesame oil, given after meals by the mouth. Two brands were used: one produced involution in ten out of twelve and the other one out of three cases in six to twelve weeks. No other treatment was given. All the patients but one developed a progressive hypercalcaemia. Six out of ten in one group gradually relapsed in one and a half to five months. The benefit given may be due to any of the components of irradiated ergosterol, and if it is to be continued necessitates a small maintenance dose.

boil could be found. Once or twice the most turgid and inflamed region was incised without the liberation of definite pus. Despite the relief this procedure gives it is considered that incision is contraindicated. Even if a definite boil is seen, which is unusual, it seems better to allow it to burst under the conservative treatment described; the pain is relieved speedily by both methods, and convalescence is not hastened by incision. Except for these early cases no occasion to incise the meatus has arisen during the last two years.

SUBACUTE CASES

These are cases in which there is partial occlusion of the meatus that is sufficiently painless to permit the introduction of instruments. In this group the object of treatment is to tide over and shorten the gap between acute occlusion and the relative patency of the chronic infection. The meatus is gently cleaned by direct application of dry sterile cotton-wool on malleable wool-carriers, under direct vision with reflected light. The electric auriscope is used only for inspection in this stage. When moderately clear of debris the meatus is packed firmly, but not tightly, with sterile half-inch ribbon gauze soaked in 1 per cent. carboglycerin, being retained in position by an external wool plug. This procedure is repeated every twenty-four hours. The steady light pressure lessens the swelling, the glycerin loosens the dead epithelium, and the carbolic acts as a mild antiseptic and analgesic. This stage as a rule lasts only two or three days and leaves a clean but inflamed meatus, while debris persists in the recess near the drumhead.

CHRONIC CASES

This group comprises cases in which the condition has been present for some time; those recovering from an acute attack; and those in which the meatus is patent, pus is formed, and epithelial maceration is the rule. In this stage, in which the greatest difficulty has been experienced in ensuring successful and speedy recovery, various forms of treatment were tried and the basic principles of dryness and thoroughness were soon confirmed. Both present difficulties: the dry infected meatus produced the most aggravating irritation and distress to the patient, whilst excessive zeal in removing every piece of debris caused excoriations very easily and rendered the ear sore and difficult to treat.

The routine finally adopted has been as follows. First the ear is cleared of obvious gross debris: a day or two on the treatment described for subacute cases has been found most successful for this purpose. The meatus is then dried with either ether or boric and spirit drops. After mopping with dry sterile wool the patient inclines his head right over, to bring the affected ear uppermost, and is warned to keep his eyes tightly closed. A small quantity of boro-iodine powder is tapped well into the meatus and insufflated with a Siegle's speculum into all parts of the meatus. Care is taken to avoid blowing the powder into the operator's eyes. The meatus is then quickly packed with the powder until it is full, the whole being lightly tamped home. Without delay the meatus is now plugged with a firm pledget of wool.

The dressing is left undisturbed for forty-eight hours. It causes slight discomfort for the first hour or two, but in no case has this been intolerable. At the conclusion of this period the ear is very gently syringed to clear away the remains of the powder, the greater quantity of which has usually been dissolved, and the meatus is filled with boro-spirit drops for a few moments, after-

wards being drained by posture. It is sometimes necessary to detach dried pieces of dead epithelium with forceps, and occasionally small casts of the meatus are removed in this way; otherwise the use of instruments is avoided at this stage, and the meatus is not kept plugged with wool. Boro-spirit drops are applied twice daily for two days, and the treatment is repeated if it is then found necessary. As a rule only two such applications of boro-iodine powder have been indicated, although repetition has occasionally been necessary after about ten days.

Essential points are the drying of the meatus, speed in the application of the boro-iodine powder as the iodine evaporates rapidly in hot climates, and the subsequent avoidance of any form of plug in the meatus. The reason for the last-named is that the cartilaginous portion of the meatus contains sweat glands (Powell, 1934), and any plugging distal to these must cause increased humidity in the meatus and maceration of the epithelium, conditions which predispose to recurrence. With the use of only a thin film of powder it has been found that the iodine evaporates so quickly in a climate such as that of Aden that the filling of the meatus as described is regarded as essential. In no case has this caused any trouble: within a few hours the powder appears to be dissolved by the moisture of the plugged meatus.

After-treatment

Most cases are now discharged from the clinic with a bottle of boro-spirit drops, a small quantity of which they are advised to insert into the meatus last thing at night. Patients are instructed to dry the ears carefully after bathing, especially after taking a shower-bath, by gentle shaking with a towel inserted in the auricle on the tip of the little finger and with the head inclined over on the side. The insertion of wool plugs is strongly discouraged for the reasons mentioned above, although the question of using "a plug of cotton-wool soaked in olive oil during bathing" frequently arises. Unsterile oil and dirty wool are often used, and the plug is sometimes forgotten. It is of doubtful efficiency, and is needless if the ear is carefully dried.

Preparation of Boro-iodine Powder

The method described by Scott Stevenson was taken as a guide (Scott Stevenson, 1935) and modified to suit the climate of Aden. The following description has been prepared by the dispenser at the Royal Air Force Hospital, Aden:

"For the preparation of iodized boric powder sublimed iodine is used in a strength of 1 per cent. in acid. boric. pulv.; the iodine is first broken down with a few drops of alcohol 90 per cent. The boric acid is added in powder form in small quantities as quickly as possible, using a non-porous glass mortar and keeping the mixture moving all the time. As soon as the iodine appears to be evenly distributed the powder is transferred to a wide-mouthed dark glass-stoppered bottle, without waiting for complete drying. Evaporation of the iodine is very rapid; if any delay occurs all the iodine is lost, and the use of a glass-stoppered bottle instead of cork is necessary to preserve the iodine content."

Other Methods of Treatment

In many papers dealing with this and allied conditions there appear a variety of treatments, a number of which have been tried here in the hope of finding one more satisfactory than the others. At first diligent mopping of

and the tongue may then be bitten, and frothing at the mouth sometimes occurs. In the moderately severe cases tetanic spasms may appear in the extremities, but by no means always, and temporary hysterical paralyses are occasionally seen. Throughout the whole of the attack, whatever the severity, rapid and sometimes stertorous respiration continues and eventually subsides spontaneously; the fit then ceases. If left alone the patient remains drowsy and may suffer from headache for some hours afterwards. Sometimes a succession of fits will continue for two to three hours on end, always accompanied throughout by hyperventilation, which increases before each fit. Though attacks subside with a spontaneous reduction of the rate and depth of breathing, they can also be stopped artificially in one of three ways: (1) by closing the patient's nose and mouth and so controlling the rate of respiration; (2) by putting on a rebreather bag; (3) by intravenous injections of calcium chloride, 10 c.cm. of a 5 per cent. solution. Injections of saline given on several occasions to exclude suggestive effects of intravenous therapy were found to be ineffective in stopping a fit.

All these phenomena can generally be reproduced by a short period of voluntary hyperventilation, after which the respiration will suddenly jump into its own tempo and the other accompaniments of the attack follow automatically, as in the spontaneous ones. Though the severity of these induced attacks is rarely as great as with those coming on spontaneously, the two forms are similar in all respects.

Illustrative Cases

The following cases illustrate varying degrees of severity in the type of attack described above.

CASE I

This patient, a girl aged 18, had had hysterical "fits" for the past four months. She was described as being nervous and highly strung as a child, and for many years had been subject to fits of temper and unable to travel much alone. She always had to be taken to and from her work, where her record was unsatisfactory, with frequent illnesses and changes of occupation. The first fit occurred at work, when she collapsed into a semi-conscious state for about an hour; the fits recurred frequently from then on till the time of admission—a succession of attacks sometimes, lasting up to five hours. On admission she had a fit in the waiting-room and again soon after her arrival in the ward. There were further attacks in the presence of new doctors or when she was upset by ward routine. The attacks were described by her as commencing with a feeling of suffocation in the chest and tight feelings in the body; overbreathing then commenced, and the fit would start about sixty seconds later. She lapsed into a semi-conscious state with stertorous respiration, and lay tossing about on the bed without actual tetany of the hands. The fits would continue for an hour or more if she was left undisturbed, but they could always be stopped by an observer—by regulating the respiration or by injecting calcium. Fits of less severity, without loss of consciousness, could be induced by making her overbreathe for two minutes or more. Severe attacks followed the injection of adrenaline, which produced anxiety feelings: tetany would sometimes occur in these adrenaline-induced attacks. The fits gradually became less frequent, following explanation of the mechanism and the immediate stoppage of each fit as soon as it began. The patient was finally discharged—having been free of them for three weeks—to attend the out-patient department, and has not had any symptoms for two months. The ultimate prognosis was not considered good, as the patient had a bad previous personality and denied all overbreathing; it was considered probable that she would use this mechanism again when in difficulties.

CASE II

This patient, an unmarried woman aged 28, was admitted complaining of severe loss of weight and energy, vomiting, paraplegia, headache, irritability, frequent crying, and "fits." A diagnosis of hysteria was made. The history showed that she had always been shy and apprehensive, and the "delicate" spoilt child of the family. At 19 she won a scholarship to an art school, where she spent seven years and led a rather "wild" life, as opposed to her strict religious upbringing. This finally culminated in an entanglement with a married man.

The fits began soon after she went to the art school, occurring in difficult situations. In these she felt a tightness in the chest with a feeling of suffocation, which was followed by overbreathing. Her legs then "gave way" and she collapsed, with tingling, numbness, and tightness in the hands and feet, and giddiness. These attacks became more severe following the affair with the married man. A year before admission she lost control of her legs after a particularly severe fit and developed the other hysterical symptoms shown on admission. It was observed that the fits could be induced after three minutes' overbreathing and stopped by the usual methods. After explanation the patient found that she could prevent threatened attacks by inhibiting the overbreathing. After six months' treatment in the hospital she was discharged to satisfactory and interesting work, and has been free of all symptoms for nine months.

CASE III

A man aged 39 was admitted complaining of "fits" on and off for twenty years, during most of which time he had been in employment. The first fit occurred in a war hospital during a bout of coughing induced to maintain a pretence of bronchitis. Since then they had occurred off and on when he was run down. The fits commenced with cramp in the right abdomen associated with a feeling of suffocation. Overbreathing then followed, and soon resulted in a bursting feeling in the head and numbness in the body, and in fainting. At this stage he was convulsed with violent struggling movements which often took three nurses to control, and he was unresponsive to painful stimuli. Tetanic spasm of the hands and feet was not present. The fits usually lasted half an hour to an hour, but could be readily stopped at any stage by applying a rebreather bag. For three to four hours after a fit he was listless and suffered from a headache. During a short spell of in-patient treatment he was able to reduce the frequency of his fits considerably, but could not completely overcome this long-ingrained emotional reaction.

Diagnosis

Before the attack is actually observed the diagnosis is suggested by obtaining the history of the characteristic premonitory symptoms of tightness in the chest with feelings of suffocation, tingling in the extremities, and giddiness or other forms of disturbed consciousness. Many will deny that they hyperventilate during an attack, but when the overbreathing is actually seen the diagnosis is more obvious, and is finally confirmed by the cessation of the attack when the observer controls the patient's breathing or gives an intravenous injection of calcium. It is also usually possible to reproduce the phenomena by asking the patient to overbreathe voluntarily for several minutes, but some of them do not co-operate readily in this experiment.

True epilepsy can be distinguished by the general features of the fit, especially by the usual absence of the premonitory symptoms described above, the loss of the corneal reflex, the voiding of urine, the frequent occurrence of cyanosis, and the rarity of overbreathing throughout the fit. Hyperventilation fits must also be distinguished from other types of hysterical fit where an

HYPERVENTILATION ATTACKS

A MANIFESTATION IN HYSTERIA

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It is well known that overbreathing brings about tetany in certain susceptible subjects. Other somatic and psychological effects also result from hyperventilation, but these are apt to escape recognition in clinical practice. At the Maudsley Hospital and out-patient clinics during the last eighteen months over twenty patients were seen who had fits and fainting attacks with hyperventilation as a central feature. Since tetanoid spasms were not always present the part played by overbreathing in the production of the fits had generally been unrecognized.

Mechanism of the Condition

There have been many studies of spontaneous hyperventilation tetany (Goldman, 1922; McCance, 1932; Cumings and Carmichael, 1937; Fraser, 1937; and others). In most cases no pathology has been discovered for the condition, but it has sometimes been found in association with encephalitis lethargica (Barker, 1922; Harrop, 1923) and spontaneous hypoglycaemia (Wilder, 1934). It has also been reported by Goldman (1922) as occurring with pain, nausea, acute infections, and excitement. Changes of mood appear to play a part in certain susceptible individuals. Guttman (1927), discussing the occurrence of tetany in hysterical subjects, thinks that it is a pre-formed mechanism released by overbreathing following or accompanying "Angst," since both of these features are generally seen to precede an attack. Noikin (1930), considering the causation of fits diagnosed as hystero-epilepsy and affect-epilepsy, concludes that one of the mechanisms in the production of the convulsive state is the overbreathing that occurs in these psychopathic individuals under emotional stress and appears to lead up to the fit. It is probable that at least some of his cases are severe manifestations of the type of attack we are about to describe, though we have included none in our series that had true epileptic fits.

Some of our patients' "fits" were typical of those usually described as spontaneous hyperventilation tetany, but many had been diagnosed as fainting or hysterical attacks of varying degrees of severity and did not show tetanic spasms. In all cases, however, hyperventilation occurred throughout the attack, and closer examination revealed other features in common, such as the previous personality and constitution of the patient, and the mode of onset and cessation of the attack. The varying types of attack could also be stopped artificially in the same way. Ample evidence was present for grouping them together and postulating a common mechanism, since the only real difference lay in the severity of the attack, the degree of loss of consciousness, and the varying nature of the motor phenomena met with in individual patients.

The main biochemical change so far demonstrated during the hyperventilation attacks has been a gaseous alkalosis resulting from the overbreathing (Collip and Backus, 1920; Fraser, 1937). The blood calcium alters little, with a slight tendency to rise (Popoviciu *et al.*, 1933; Scott and Cantor, 1933). As yet we are ignorant of the actual mechanisms responsible for the spontaneous onset

of the overbreathing and the increased susceptibility to its effects shown by these patients. These problems are still being investigated.

Practically all our patients were found to have the hysterical personality, so far as this can be clearly defined. They were generally suggestible and emotionally unstable people who easily became apprehensive. They depended on the sympathy and help of others, and showed little persistence in the face of difficulty. Certain constitutional peculiarities were also found in most of them, such as a tendency to brisk reflexes and autonomic irritability. Nearly all were females between the ages of 15 and 30, but one was aged 45. Only two were males.

The attacks were sometimes the sole complaint of the patient, but usually only one of many symptoms in a psychological illness. In a few cases they had been present for many years and occurred regularly with emotional excitement, but generally they were seen only during the acute stage of a depressive or hysterical illness, and disappeared with recovery. The history of the initial attack often revealed that its onset coincided with some particularly severe emotional disturbance. Following the first one, attacks tended to recur whenever the patient's emotions were again aroused. After several fits the susceptibility to them often increased, and some subjects could apparently induce them at will. One man, for instance, had had his first attack in a war hospital, where he had been admitted with the symptoms of bronchitis. A hyperventilation fit occurred one day when he was keeping up the pretence of bronchitis by frequent and exaggerated bouts of coughing. During the last twenty years this mechanism has been so often used by him that it has now become an automatic response to stress of any sort; and though he was able to reduce the frequency of the fits considerably while under treatment he has never entirely got rid of them.

Description of Attacks

Though occurring more readily while under observation of others, they may happen at any time of the day or night. The initial features are very characteristic, and include vague anxiety features such as sinking feelings in the stomach, palpitations, generalized flushings, and trembling. These are followed by a tightness in the chest, by feelings of suffocation and the need for more air, and sometimes by "cardiac" pain. At this stage the patients can generally arrest the attack by not "letting themselves go," but when this stage has passed the attack progresses to its completion unless arrested by an observer. Overbreathing starts when the feeling of suffocation is experienced, and other phenomena then follow in rapid succession. The attacks have three further features after this initial stage which precipitates hyperventilation: (1) interference with consciousness, of differing degree; (2) tingling in the extremities; (3) various types of motor phenomena. In the mildest forms there may be merely some tingling and numbness in the extremities accompanied by mild giddiness. In the severer forms there is a feeling of being "far away," or actual loss of consciousness, and the patients collapse on the floor and lie unresponsive to the usual painful stimuli. In our cases the corneal and light reflexes and control of the sphincters were retained and plantar responses were normal, though the conjunctival reflexes were sometimes lost. The motor phenomena seen are variable: some patients lie limp, but others wave their arms and struggle restlessly; only in some of the more severe cases do periods of tonic opisthotonos occur at the height of the motor restlessness,

and was made up in rubber-capped bottles in sterile form, its strength being 40 units per c.cm. The stability of the mixture was such that its strength remained undiminished for several weeks at room temperature. The mixture consisted of insulin and tannic acid in the proportion of 1 to 2, with the addition of zinc, 1 gramme to 500 units of insulin.

The nine diabetic patients were stabilized on diet with twice-daily doses of ordinary insulin before the start of the investigation. The diets consisted of four meals a day, timed as follows: breakfast, 7.30 a.m.; dinner, 12.15 p.m.; tea, 4.30 p.m.; supper, 7.30 p.m.

Doses of the insulins were given as follows:

1st day of test: ordinary insulin at 7 a.m. and 4 p.m.

2nd day: protamine insulin-zinc at 7 a.m. only.

3rd day: no insulin at 7 a.m., but ordinary insulin at 4 p.m.

4th day: insulin-tannic acid-zinc at 7 a.m. only

5th day: no insulin at 7 a.m.; ordinary insulin at 4 p.m., and resumption of usual routine.

The dose of insulin-tannic acid-zinc was the same as the dose of protamine insulin-zinc.

Blood sugars were estimated by the Folin and Wu method, and were examined as follows:

1st day (ordinary insulin): hourly from 7 a.m. until 6 p.m.

2nd day (protamine insulin-zinc): hourly from 7 a.m. until 6 p.m.

3rd day: at 7 a.m. and 8 a.m. only.

4th day (insulin-tannic acid-zinc): hourly from 7 a.m. until 6 p.m.

5th day: at 7 a.m. and 8 a.m. only.

Case 9 was examined hourly on the second and fourth days from 7 a.m. until 9 p.m. The routine of the third, fourth, and fifth days was repeated in Case 8 on a second occasion, so as to obtain blood-sugar readings from 6 p.m. until 9 p.m.

On the third and fifth days no insulin was given at 7 a.m., so as to examine the action of the previous dose, twenty-four hours after its injection. The conditions of experiment for the second and fourth days were made the same by giving the injection of ordinary insulin at 4 p.m. on the previous day in both cases.

The results are set out in Table I. Those for Case 9 are illustrated graphically in the chart, which is character-

TABLE I

	Injection		Blood Sugar (mg. per 100 c.cm.)																	Diet	
	Preparation used	Units (single)	Hours after Injection																		
			B			D			T			S			B						
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	24	25		
Case 1... ..	I	40	157	176	230	223	145	85	136	223	167	151*	204	223	—	—	—	200	—	2,109 Calories	
	P-I-Z	35* 40	200	334	400	378	308	223	263	256	250	149	370	400	—	—	—	—	—	C 264 P 85 F 73	
	I-T-Z	40	185	308	333	278	209	185	227	243	192	166	294	322	—	—	—	—	—		
Case 2... ..	I	25	193	167	150	139	111	123	170	155	161	173*	153	145	—	—	—	—	—	1,060 Calories	
	P-I-Z	20* 23	187	250	274	188	159	117	109	100	93	119	209	100	—	—	—	—	—	C 107 P 56 F 46	
	I-T-Z	23	—	100	244	196	182	—	166	166	133	139	148	159	—	—	—	—	—		
Case 3... ..	I	30	286	351	267	182	110	61	119	136	143	147*	193	143	—	—	—	354	—	1,329 Calories	
	P-I-Z	20* 30	384	416	435	425	344	314	324	—	267	286	334	400	—	—	—	91	—	C 154 P 60 F 55	
	I-T-Z	30	91	260	267	210	172	122	210	296	200	197	270	333	—	—	—	154	—		
Case 4... ..	I	20	286	324	290	178	131	100	103	155	178	232*	267	196	—	—	—	278	—	1,931 Calories	
	P-I-Z	20* 20	278	344	358	344	290	238	215	—	196	178	236	275	—	—	—	80	—	C 631 P 100 F 143	
	I-T-Z	20	80	161	244	205	162	119	109	105	75	70	200	195	—	—	—	266	—		
Case 5... ..	I	15	95	134	143	90	56	60	134	146	135	106*	91	120	—	—	—	106	—	1,329 Calories	
	P-I-Z	12* 16	106	164	162	133	125	130	126	96	93	86	125	149	—	—	—	70	—	C 154 P 60 F 55	
	I-T-Z	16	70	84	133	62	57	60	120	87	95	95	202	250	—	—	—	—	—		
Case 6... ..	I	50	133	125	123	—	75	62	80	86	100	90*	91	105	—	—	—	122	—	1,329 Calories	
	P-I-Z	45* 50	122	166	270	264	222	238	204	244	208	190	213	208	—	—	—	185	215	C 154 P 60 F 55	
	I-T-Z	50	217	250	270	238	250	227	200	174	168	143	126	169	—	—	—	124	222		
Case 7... ..	I	20	116	103	46	45	75	80	200	170	161	144*	230	235	—	—	—	166	—	1,329 Calories	
	P-I-Z	10* 20	166	212	294	182	123	72	137	135	124	122	250	260	—	—	—	166	334	C 154 P 60 F 55	
	I-T-Z	20	100	233	263	222	143	106	162	125	113	93	166	267	—	—	—	125	232		
Case 8: (October, 1937)	I	20	286	313	313	—	228	156	147	164	182	185*	238	257	—	—	—	286	—	1,329 Calories	
	P-I-Z	10* 20	286	313	400	313	236	250	250	323	340	303	300	400	—	—	—	250	313	C 154 P 60 F 55	
	I-T-Z	20	328	400	403	364	303	282	290	313	244	244	274	313	—	—	—	303	351		
(November, 1937)	P-I-Z	20	274	—	—	—	—	—	—	—	—	—	274	317	286	270	317	256	315		
	I-T-Z	20	312	—	—	—	—	—	—	—	—	—	143	215	215	213	232	263	333		
Case 9... ..	I	30	143	180	253	206	166	133	200	267	267	282*	305	240	—	—	—	182	—	854 Calories	
	P-I-Z	25* 40	182	267	364	285	244	247	250	299	263	294	351	303	260	223	238	157	208	C 112 P 55 F 26	
	I-T-Z	40	137	244	295	250	233	238	266	236	250	238	270	263	217	194	270	150	240		

* Second injection of ordinary insulin.

I = Ordinary Insulin
P-I-Z = Protamine Insulin-Zinc
I-T-Z = Insulin-Tannic Acid-Zinc

B = Breakfast
D = Dinner
T = Tea
S = Supper

C = Carbohydrate (grammes)
P = Protein (grammes)
F = Fat (grammes)

audience is necessary and the manifestations of the attack are mainly an emotional display without overbreathing, which can be stopped by the patient at will.

Treatment

While the emergency treatment of the isolated attack is entirely along physical lines—restriction of the overbreathing by an outsider or the injection of calcium intravenously—nevertheless the prevention of further attacks almost always calls for the psychological adjustment of the patient. Also following an explanation of the mechanism, some patients can be persuaded to arrest the attack in the early stages by a conscious control of respiration. Others, however, deny that they consciously overbreathe or can control their respiration when they become over-anxious. Especially in those who have difficulty in arresting the attacks once the premonitory symptoms of anxiety have occurred, benefit frequently results from investigating the causes of their emotional upset: discussion of their maladjustments and steps taken to alter disturbing factors in their environment often bring about a rapid cessation of the attacks. We failed to persuade a few patients who were deliberately inducing fits to give up this useful refuge from their difficulties.

The giving of calcium, alkalis, or acids by the mouth did not diminish the rapid spontaneous onset of the attack. But the biochemical approach to treatment merits further investigation and offers an interesting subject for future research.

Conclusion

Our study of the above cases has suggested that many hysterical fainting attacks and fits have hyperventilation as a central mechanism. A wide variation is possible in the clinical features of the hyperventilation attacks in different patients, but they appear to fall within one syndrome. The individual variations seem to depend on the severity of the hyperventilation, the degree of autonomic dysfunction, and constitutional tendencies, both metabolic and neurological. Many problems remain as yet unsolved concerning the mechanism of this type of attack, but it is an interesting example of the way physiological abnormalities play a part in the production of apparently hysterical symptoms.

Summary

1. Over twenty cases have been collected in which fainting attacks or fits with hyperventilation were a central feature.
2. The attacks were generally precipitated by emotional disturbance in patients who showed personality and constitutional features suggesting hysteria.
3. The varying features of the attack are described.
4. Diagnosis and treatment are briefly discussed.

Our thanks are due to Professor Edward Mapother for permission to publish these cases.

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INSULIN-TANNIC ACID-ZINC SUSPENSION IN TREATMENT OF DIABETES MELLITUS

BY

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Much interest has been aroused during the last few years by the introduction into clinical practice of new preparations of insulin, such as protamine insulin ("insulin retard"), protamine insulin (with zinc) suspension, and zinc crystalline insulin. In use these preparations possess the characteristic features of delayed onset in action and prolongation of their maximum effect for several hours beyond that of ordinary insulin, phenomena which have been studied experimentally and clinically by previous workers (Bennett *et al.*, 1937). Suspensions of protamine insulin (with zinc) begin acting in nine to eleven hours, and achieve their maximum effect in fifteen to twenty hours. The value of these new insulins in the treatment of diabetes mellitus is now generally accepted, and has stimulated interest in the clinical potentialities of combinations of insulin with other organic substances and metallic salts. Among the substances studied in this connexion may be mentioned ferrous chloride, magnesium and other allied metals, lipoids, and—of special interest—tannic acid (Bischoff and Maxwell, 1935). The influence of tannic acid on the physiological action of insulin was first demonstrated by Bischoff (1936) during an investigation upon the precipitation of insulin by tannic acid. Insulin in combination with varying proportions of tannic acid, when injected parenterally into rabbits, produced delayed absorption of the insulin with a prolonged hypoglycaemic effect. Gray (1936) consequently gave to diabetic patients hypodermic injections of insulin-tannic acid mixtures (made immediately before use), and noted a delayed but prolonged action of insulin. He also observed that in certain patients erythema and subcutaneous swellings developed at the site of the injections. He did not, however, consider that the skin reactions were a significant drawback to the use of such mixtures. The action of the tannic acid-insulin in animals was further studied in this country by Bavin and Broom (1937), who confirmed the findings of Bischoff and further demonstrated that the properties of the mixtures were enhanced by the addition of zinc (*Lancet*, 1937, 2, 390).

It is the purpose of this communication to report upon a clinical trial of the Bavin and Broom preparation, with reference to the changes produced in the blood-sugar levels and the local results of subcutaneous injections.

The Effect on Blood-sugar Levels

The blood-sugar levels of nine selected diabetic patients were examined during three periods, in which the patients received exactly the same diet, given at the same times, but with hypodermic injections of different types of insulin. The first test was carried out after injection of ordinary insulin. This was followed by observations after injections of protamine insulin-zinc. Finally the routine was repeated after a dose of insulin-tannic acid-zinc. The latter was a stable light-brown suspension containing the insulin, tannic acid, and zinc already mixed,

TREATMENT OF FRACTURES OF THE PATELLA BY EXCISION

BY

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The treatment of fractures of the patella has been the subject of experiment for many years. None of the methods previously advocated has been so radical or so contrary to accepted principles as that recently described by Brooke (1937)—namely, removal of the broken bone. It is my intention to comment further on this recent operation and to add some cases to the dozen recorded by Brooke in his original article. No doubt since the publication of that article, with a commentary by Mr. Hey Groves in the same number of the *British Journal of Surgery*, other cases have been operated upon on the same lines. I cannot, however, trace any further references or articles on the subject since that time (Tippett, 1937).

Indications for Removal of the Patella

Mr. Brooke advocates the removal of the patella for all cases of fracture of the bone. This would at first sight appear to be a rather radical procedure. The results seem to justify it, as he amply proves by the follow-up of his cases. I would classify the following as indications for excision.

DIRECT INDICATIONS

1. Comminuted fractures, both recent and old.
2. Compound fractures.
3. Post-operative complications of other operative procedures—namely, failure to correct alignment—with late arthritis, etc.
4. Congenitally displacing patellae.

INDIRECT INDICATIONS

Arthritis: (a) mechanical; (b) osteo-arthritis. Mechanical arthritis may follow on a wiring or other fixative operation for a fractured patella. The arthritis may be caused by the trauma which broke the bone—giving rise to a degenerative type—or it may be caused by friction between the fractured patella and the femoral condyle. This latter may occur where there has been a failure to obtain an even articular surface to the back of the bone—that is, a failure to secure correct apposition or to correct the tilting of either fragment before they were fixed. A reactionary arthritis may be set up by the presence of a foreign body such as wire in the tissues about the knee-joint.

Osteo-arthritis is often seen in its earliest stages as a degeneration, and subsequent erosion, of the articular surface on the back of the patella and the intercondylar space of the femur. Creaking may be felt if the patella is rocked sideways with the quadriceps muscle relaxed (Warren Crowe's sign). In advanced cases much of the pain and weakness of the joint can be shown to be due to the erosion and exostosis about the patella. Removal of the bone, and thus removal of one of these eroded surfaces, will bring great relief, and possibly may for the time help to stem the progress of the disease by allowing fresh movement again to take place in the crippled joint.

Case I

A transverse simple early fracture in a fitter aged 45. Whilst ascending the station stairs he missed his footing and slithered down several steps, jarring his knee-cap. He continued his journey and did a full day's work. The next day, his knee being swollen, he rested, but later returned to work. As at the end of a week it was still swollen he went to his own doctor, who sent him to hospital. He walked a mile to get there. On examination he had a slight limp; the knee was swollen, suggesting a haemarthrosis. Extension of the knee was full and was done with moderate power. He could flex it only to 60 degrees before tension stopped him. An x-ray film showed a comminuted fracture of the patella. Operation of excision of the patella was advised and was carried out on May 18, 1937. The technique used was that described later in this article, with subsequent physiotherapy.

After-result.—In five weeks: no synovitis; flexes 45 degrees; quadriceps, power fair—extends 180 degrees; no limp; at work; no more treatment in massage department. After seven weeks: flexes 110 degrees; extends 180 degrees; power very good. After four months: flexes 120 degrees; extends 180 degrees; power excellent. After seven months: flexes 150 degrees; works at anything; knee is reliable; he can run, and I consider power 100 per cent. The absence of the patella causes no uncomfortable feeling when kneeling.

COMMENT

One will note the only slight disability and loss of power, in spite of the degree of comminution. This shows that the main pull of the quadriceps can just as easily be transmitted through the two lateral expansions of the tendon. That fact has not hitherto been adequately realized. This degree of comminution, if the fracture had been treated on the orthodox lines of rest on a back splint, must surely have resulted in a roughened posterior surface to the bone, with an inevitable acceleration of osteo-arthritis.

Case II

This was a transverse fracture of complicated type in a plumber aged 36. In 1925 he was knocked down and sustained a fracture of his femur and possibly also of his patella. His knee was never quite the same after the long period of immobilization necessary. In 1937 he fell down, and this time a radiograph showed a transverse fracture of the patella. He was treated in an infirmary on a back splint. Before coming to hospital he had been having an increasing amount of pain and fluid in the knee-joint. An x-ray film showed non-union of the bone four months later, with much backward tilting of the lower fragment. He could flex his knee only 20 degrees, while extension, though full, was very painful and was accompanied by much creaking. The patient localized the pain to behind the patella, and as this was obviously due to friction between the patella and the femur removal of the former seemed advisable. This would no doubt relieve the pain, and at this stage might improve the range of the movement of the knee-joint. Operation was carried out on July 11, 1937.

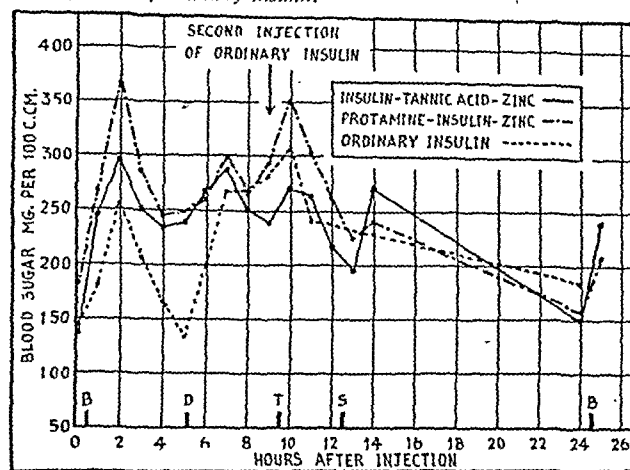
After-result.—In fourteen days he could flex to 60 degrees, with fair power, and extend to 180 degrees. He walked with a stick. Physiotherapy was continued. (This was a compensation case.) After three months he flexes to 60 degrees, and extends to 180 with fair power; he has no pain now, and walks as much as he likes. After five months he flexes to 80 degrees, with 60 per cent. power, and extends to 180 degrees. The patient is very pleased; he is back at work, climbs ladders, and has no pain.

COMMENT

I do not myself regard this result as disappointing, as it was not definitely known when he first fractured the patella, but the joint when opened at the time of the

istic of all the curves obtained. The effect of insulin-tannic acid-zinc is shown in the table and chart to be

Chart showing blood-sugar curves from Case 9; comparing the effects of a single morning injection of insulin-tannic acid-zinc and protamine insulin-zinc with a morning and afternoon injection of ordinary insulin.



B = breakfast. D = dinner. T = tea. S = supper.

similar to that of protamine insulin-zinc in that the single morning dose influences the blood-sugar level throughout the day as effectively as the two doses of ordinary insulin (morning and afternoon). The delay in onset of the hypoglycaemic effect of both protamine and tannic acid mixtures is illustrated, and after twenty-four hours the blood-sugar level remains low. In comparison with the blood-sugar levels obtained after protamine insulin-zinc, those with tannic acid-zinc are on the whole lower and show definitely less fluctuation from the mean. Thus insulin-tannic acid-zinc can effectively replace protamine insulin-zinc in the treatment of diabetic patients. No hypoglycaemic reactions were observed with any of the insulins used.

Skin Reactions

The local effect of hypodermic injection of the insulin-tannic acid-zinc preparation was tried in forty-five patients, including the nine diabetics. After subcutaneous injection of a small dose (10 single units) the site of injection was examined at intervals of a quarter to half an hour, one and a half to two hours, twenty-four and forty-eight hours afterwards. The results are shown in Table II.

TABLE II

Skin Reactions	Time of Onset of Reaction after Injection			
	1-1/2 hour	1 1/2-2 hours	24 hours	48 hours
Diabetics :				
Positive	1	2	3	1
Negative	8	7	6	8
Non-diabetics :				
Positive	13	16	33	13
Negative	23	20	3	23
Total Reactions :				
Positive	14	18	36	14
Negative	31	27	9	31

"Positive reactions" include erythema, subcutaneous swelling, soreness, and stinging.

The reactions noted were erythema (red wheals from 1 to 4 cm. in diameter), hard tender swellings, stinging and soreness on moving the arm. Thus while soon after injection only fourteen out of forty-five patients showed

any local reaction, after twenty-four hours thirty-six out of forty-five gave evidence of skin irritation. Many stated that they first felt and noticed a reaction about six to eight hours after injection; others experienced the first effects even later (about eighteen to twenty hours after). A further series of hypodermic injections were made with another batch of the preparation on eleven patients, with exactly similar results. One patient was given insulin-tannic acid-zinc daily for about three weeks and showed no such skin reaction and made no complaint throughout the whole of this period.

Conclusion

The delayed but prolonged action of insulin-tannic acid-zinc renders its potential utility in the treatment of diabetic patients comparable to that of the protamine insulin. Thus insulin-tannic acid-zinc may be used successfully in place of protamine preparations in patients who show no cutaneous reactions. Tannic acid is cheap and readily available; thus the cost of the preparation should compare favourably with that of the protamine insulins, which are considerably more costly than ordinary insulin. An objection to the general introduction of insulin-tannic acid-zinc in the proportions used in the present investigation is, however, the occurrence of skin reactions in some patients. In practice it thus becomes essential to give a trial injection to ascertain the sensitivity of the patient before embarking on a course of treatment with the insulin-tannic acid-zinc. Further work on the desirability of altering the composition of the suspension used in the present trials would seem worth while with a view to finding formulae for mixtures less apt to irritate the skin.

Summary

The blood-sugar levels of stabilized diabetic patients were examined after hypodermic injection of insulin-tannic acid-zinc suspension and compared with the levels following the use of protamine insulin-zinc suspensions and ordinary insulin respectively.

A delayed but prolonged hypoglycaemic effect was observed, the potential clinical application of which, however, is offset by its liability to produce irritant skin reactions in some patients.

We are indebted to Mr. W. A. Broom of Boots Pure Drug Co. Ltd. for supplies of the insulin-tannic acid-zinc suspension, and to Professor E. J. Wayne, University of Sheffield, for the interest he has taken in this investigation. Our thanks are also due to Dr. J. Clark, medical superintendent of the City General Hospital, for his permission to use the clinical records.

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W. Van Der Horst (*Nederl. Tijdschr. Geneesk.*, December 18, 1937) records the case of a man, aged 72, who had suffered from prostatic trouble with occasional acute retention for two years. The patient was in a very debilitated state, and refused operation. As no improvement took place after the administration of urinary antiseptics, a catheter was tied in for twenty days, and a male hormone preparation in the form of "neohombreol" in doses of 3 mg. daily was injected. After fourteen injections the catheter was removed, and after ten more injections micturition became normal and painless and general improvement took place. The prostate, though still enlarged, had shrunk to half the size it had been a month previously.

Reviews

ENCYCLOPAEDIA OF MEDICAL PRACTICE

The British Encyclopaedia of Medical Practice: including Medicine, Surgery, Obstetrics, Gynaecology, and other special subjects. Volume 6. Gonorrhoea to Hydrotherapy. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., D.Sc., D.C.L., LL.D. (Pp. 602; 7 plates, 89 figures, 35s. net.) London: Butterworth and Co., Ltd. 1937.

Of the sixth volume of this encyclopaedia, which deals with the subjects gonorrhoea to hydrotherapy, nearly one-third is taken up by a series of important articles on diseases of the heart. Various authors have contributed to a symposium on heart disease in its varied aspects. Drs. Evan Bedford and J. W. Brown deal with congenital heart disease, pointing out that foetal disease plays a relatively minor part in aetiology compared with developmental anomalies. They adopt the convenient clinical classification, introduced by Abbott and Dawson, into three groups: those without cyanosis in which there is no abnormal communication between systemic and pulmonary circuits; the potentially cyanotic in which such an abnormal communication exists through which the blood is shunted from left to right, cyanosis only occurring if the shunt is reversed by pulmonary embarrassment; and the cyanotic group in which there is permanent shunt of blood from right to left side of heart or in which cyanosis is due entirely to peripheral stasis. The constituent lesions of these groups give a very variable expectation of life, and in the article the individual lesions and defects are discussed in a practical manner. Dr. Reginald Miller deals with rheumatic heart disease in children, not only the clinical aspects of diagnosis and treatment but also the very important problem of prophylaxis among children in general and particularly in the rheumatic child. Established endocarditis is covered in general terms by Dr. A. G. Gibson, who discusses the so-called non-malignant forms, and by Dr. A. W. Falconer, who gives a neat description of the clinical picture, diagnosis, and treatment of bacterial endocarditis. The latter appears to be less common than just after the war, but the outlook is as serious and treatment still unsatisfactory. Diseases of the pericardium and myocardium have separate consideration: the former by Dr. Shirley Smith, who classifies pericardial diseases into acute, tuberculous, and chronic adhesive, and myocardial disease by Dr. A. G. Gibson. The adjectival use of pericardium and myocardium catches the eye in the heading of the sections; in the text the customary adjectives are adhered to. Dr. T. F. Cotton deals with mitral disease, Dr. Maurice Campbell with diseases of the aortic valve, and Dr. Parsons-Smith with those of the right side of the heart. This individualization leads to some overlap; it may be advisable, even necessary, in dealing with heart diseases systematically. Fortunately Dr. Miller, in his excellent article on rheumatic heart disease in children, and Dr. Crighton Bramwell on heart failure, do take a wider view of the subject, emphasizing in the one instance the lesion as a pancarditis, and in the other treatment by estimating, conserving, and improving the cardiac reserve. The articles on complaints associated with bleeding are of high quality. Haematemesis is dealt with by Professor Carmalt Jones, haemoptysis by Dr. Jenner Hoskin, haematuria by Dr. Gaskell, and haemophilia by Professor Davidson, while Dr. Letheby Tidy contributes the section on haemorrhagic diseases dependent usually on some unexplained tendency for spontaneous extravasation of blood

to take place into the skin and other tissues and from the mucous membranes. Sometimes this tendency is hereditary, sometimes due to environmental deficiency or an infection; in other instances its origin is unknown or primary. Practitioners confronted by such a type of case will find a perusal of this section most useful.

Flamboyant gout does not occur so often as it did; perhaps the community is more abstemious on the whole, certainly the occupational group has been lessened by improved hygiene. Dr. Buckley points to the constitutional factor as allowing a more ready disturbance of purine metabolism in some subjects. He would not allow general disorders to be regarded as gouty in the absence of raised blood uric acid. For treatment diet, hygiene, medicines, and spa treatment are dwelt on. Dr. M. B. Ray, in discussing hydrotherapy, gives a useful classification of the spas of Great Britain and Europe not only for gout but also for the diseases of the various systems. The principles of the external application of baths and use of mineral waters are dealt with. Dr. Cumberbatch describes the apparatus for application of radiant heat and its therapeutic uses. The infective complaints in this volume are capably dealt with by experts, gonorrhoea by Colonel L. W. Harrison, and ulcerative granuloma by Mr. R. V. Rajam. Professor H. R. Dew has succeeded in compressing into the space allotted a useful summary of the pathology and clinical aspects of hydatid disease. A readable and up-to-date account of lymphadenoma or Hodgkin's disease is offered by Dr. M. H. Gordon, Dr. A. E. Gow, and Sir Humphry Rolleston. A good deal of research has failed to determine the cause, though much misunderstanding has been cleared up. It is possibly a virus disease. Two useful and broadminded discussions of surgical subjects are contributed by Professor Grey Turner on hernia, and Mr. Norman Lake on injuries, infections, and deformities of the hand. The subjects on the nervous system comprised in this volume are headache and hydrocephalus by Dr. C. P. Symonds, hemiplegia by Dr. Blake Pritchard, hemiatrophy and hemihypertrophy by Dr. Denis Brinton, and hepato-lenticular degeneration by Drs. F. M. R. Walshe and J. G. Greenfield. Dr. Cockayne brings together very clearly and helpfully the facts of Mendelian inheritance in their application to human disease. So far it has not been possible to associate the constitutional inheritance with proneness to a particular disease.

This volume carries on the admirable characters which we have remarked in regard to those that have already appeared. The preparation is made with great care; in this volume we have noted typographical errors only on pages 36 and 201.

HENNING'S GASTROSCOPY

Textbook of Gastroscopy. By Norbert Henning. Translated by Harold W. Rodgers, F.R.C.S. (Pp. 86; 7 coloured plates, 27 figures, 7s. 6d. net.) London: Humphrey Milford, Oxford University Press, 1937.

Exploring the lining of the stomach by direct vision has been the aim of diagnosticians for many years. By means of the flexible gastroscope this can now be accomplished with comparatively little discomfort or risk to the patient, and the results so obtained are of considerable clinical value. Several good books on the subject of gastroscopy have been published, notably those of Schindler and Henning in Germany and Moutier in France. Henning has attracted a series of visitors from this country, who have learned the technique under his guidance, and one of these has translated Henning's book. Mr. Rodgers is to be congratulated on the excellence of the translation.

findings in other centres. Thus Crooks (1936) in a clinical study found that twenty-four of 100 children had evidence of infection of the maxillary antra. Skillern (1923) quotes various authors' post-mortem findings, which vary from 47 per cent. to 17 per cent., and give an average of 32.7 per cent.

The view that some patients develop a collection of fluid in the sinuses during the terminal period of a fatal illness, when resistance and normal ciliary action are poor, cannot be satisfactorily disproved in all cases, but the history and clinical course, in addition to the gross sepsis found at necropsy in the majority of these infants and children, is very strong evidence in favour of a pre-terminal infection. The incidence of the common cold and the frequency of respiratory infections in the patients who are brought to a children's hospital are high enough to support the view that a considerable number have an infection in the accessory nasal sinuses. The part which sinusitis has played as a cause of death in this group of children is difficult to assess, since it could have been the aetiological factor or an associated condition or the result of the condition which caused the death.

Summary

1. The incidence of sinusitis in 496 infants and children examined post mortem was 30.6 per cent.
2. The maxillary antra were observed to be more frequently involved than the ethmoid cells or the sphenoidal sinuses.
3. A high incidence of associated otitis media was found.
4. Infection of one or more of the sinuses or ears was present in 63.1 per cent. of these children.

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Clinical Memoranda

Tetanus supervening on Middle-ear Disease

The following case seems to be sufficiently interesting to be placed on record.

CASE REPORT

An Indian clerk aged 28 had a history of chronic purulent discharge from his right ear since childhood. Twenty days before admission to hospital he introduced some "samundar jahag" into the meatus. (Samundar jahag is a native "drug," and usually consists of powdered cuttlefish bone, but when this is not available dried scum from streams is substituted. These medicines are sold in the bazaar under filthy conditions, but have a local reputation among the less-educated classes for the treatment of suppurative lesions.)

Three days before admission he had difficulty in opening his mouth, stiffness in the back, a feeling of tightness in the chest, and pain in the right ear. All these symptoms gradually became more severe, so he went to hospital. On arrival he complained of the above-mentioned symptoms with

stiffness of the legs and tightness of the abdomen in addition. The temperature was 98° F., the pulse 72, and respirations 20.

Trismus and risus sardonicus were present, and the patient lay in bed on his left side, with some arching of the back and retraction of the head, and was moaning quietly. He could speak with difficulty, and complained of tightness of and pains in most of his muscles, and salivation. Spasms occurred on slight irritation. His eyes had a tendency to look to the right, with some internal strabismus, and also tended to roll about, particularly during examination. The fundi were normal and the pupils reacted normally to light and to accommodation. There was no nystagmus. The teeth could only be separated about a quarter of an inch with difficulty. Respiration was shallow, but an examination of the heart and lungs revealed no abnormalities. The abdomen was rigid and felt almost like concrete. The limbs all showed a tendency to spasticity, but the tendon reflexes were normal and the plantar reflexes flexor. Knee and ankle clonus was present on both sides. The right external auditory meatus discharged yellowish offensive pus, and examination showed a reddened meatal canal with a mass of granulation tissue obscuring the drum. The left drum was indrawn; the handle of the malleus was pink, but was otherwise normal. Lumbar puncture resulted in 10 c.cm. of clear fluid being withdrawn under slightly increased pressure; there was no globulin. A few red blood cells were probably adventitious.

There were 9,375 leucocytes per c.mm. of blood; 75 per cent. of these were polymorphs. The red cells were normal and showed no sign of malarial parasites. Examination of the aural discharge showed staphylococci and pneumococci.

The patient was given large doses of tetanus antitoxin intravenously, intramuscularly, and subcutaneously, with liberal sedatives. The ear was dressed with hydrogen peroxide. Though the pains and spasms were brought under control the temperature steadily rose, reaching 101.2° F. on the thirteenth day and coming down by lysis, while the pulse varied from 102 to 136. The symptoms rapidly improved from the fourteenth day. Most of the antitoxin was given by the intravenous route, and altogether 299,000 American units (598,000 I.U.) were injected.

The patient was discharged on the forty-eighth day of admission in good health though rather psychoneurotic. The granulations in the ear had retrogressed, revealing a moderate-sized perforation in the lower part of the drum, and there was very little discharge.

COMMENTARY

This case is, I think, most unusual; I can find no similar instance in the literature at my disposal. The clinical features and recovery after antitoxin leave little doubt as to the diagnosis, though the pathologist failed to find *B. tetani* in the fourteen successive daily specimens of the discharge. All showed staphylococci, and many of them pneumococci as well. Tetanus toxin is said to travel along the sheaths of the motor nerves, and in this situation only the small nerves which supply the tensor tympani and stapedius muscles and the chorda tympani, and tympanic plexus, in which there are probably some motor fibres, could easily be involved. There were no obvious signs of interference with the right facial nerve, nor was there evidence of any inflammatory process in the pinna.

The pronounced tetanic symptoms, with comparatively little rise of temperature or pulse rate and practically no leucocytosis, may be due to the fact that while the tetanus toxin reached the central nervous system via the motor nerves, very little of the other products of the inflammatory process were absorbed by the surrounding comparatively avascular bony tissues.

F. V. STONHAM,
Captain I.M.S.,

Staff-Surgeon, Indian Military
Hospital.

Dehra Dun, India.

HEALTH OF ROYAL AIR FORCE

REPORT FOR 1936

In the report on the Health of the Royal Air Force¹ for 1936 an increased sickness incidence of 48 per 1,000 of strength over that for 1935 is recorded; this was largely accounted for by increases in the incidence of German measles and influenza. Invalidings from the Service rose from 4.8 per 1,000 in 1935, which was the lowest figure yet recorded, to 5.5 per 1,000 in 1936. These figures compare with average incidences of 6.2 and 9.9 per 1,000 for the periods 1928-35 and 1921-7. Venereal disease again showed a reduction from 9.5 per 1,000 in 1935 to 9 per 1,000 in 1936: this is the lowest incidence since the inception of these reports in 1921. Of the officers of the general duties branch liable for flying duties as pilots 97 per cent. were fit for full flying duties; this is the highest figure yet recorded. Among apprentices there were decreases in all diseases as well as in the incidence of injuries. As in previous years, pneumonia was one of the chief causes of death from disease, as distinct from deaths from injury.

Special Investigations

In all cases of jaundice in the Royal Air Force arising in the United Kingdom in 1936 special notes were made with a view to determining the causes. In none was there any history of recent employment in aeroplane doping. Two of the thirty-three cases were instances of Weil's disease traced to swimming in infected water, one at Dublin and the other at Henlow. One jaundice was the sequel of intravenous arsenical injections, but the majority appeared to be of the so-called infective catarrhal type. One officer contracted kala-azar while in the Aden Protectorate; this disease had not previously been recorded in Aden, and search was made to ascertain its local distribution there. A portable electrolytic water-sterilizing unit, delivering 250 gallons of purified water per hour, was constructed for transportation by aeroplane or motor car. The whole apparatus weighed about 150 lb., packed neatly in two 2-ft.-cube cases, and could be assembled in ten to fifteen minutes, including the time taken to prepare the brine and ammonia solutions. The apparatus proved very efficient, producing a clarified and purified water fit for drinking.

The twelve members of the flying-boat cruise from Malta to West Africa in December, 1936, were protected against yellow fever by inoculation, the serum and virus being prepared at the Wellcome Bureau of Scientific Research, London, and forwarded to Malta by air. The inoculations produced little or no reaction other than slight headache. Additional precautions taken were pressure spraying of aircraft twice daily with "pyrocid 20" and half an hour before departure from any port of call, and the enforced use of mosquito nets by all members of the flight. No medical officer was carried. There was no case of illness. Among the physiological problems affecting the airman particularly attention was given to the avoidance of fatigue, in the interests of efficiency, with special relation to posture, noise, and the purity of inspired air; the risks to airmen of breathing air contaminated even to a very small extent with exhaust or other harmful gases, and the protection of workers in special testing chambers from this risk; the defence of the Royal Air Force against war gas, and the instruction of medical officers and airmen in the principles of self-protection and the care of the gassed, design of buildings, appliances and clothing; the design of flying head-gear, including the masks required for breathing oxygen at great heights and the use of other chemical substances in addition to or in place of oxygen for this purpose; the physiological problems of very high flying, of other work at ultra-low pressures and in great cold, and of the high speed of modern service aircraft; the design of special instruments for the examination of flying candidates and personnel, with particular attention to the predetermination of the ability to learn to become a service pilot; and the mechanical forces en-

countered by the human body in flight, its reaction thereto and protection therefrom.

Improvements in Hygienic Conditions

New types of barrack blocks were built with well-appointed lavatory annexes having slipper, foot, and shower baths and an adequate supply of hot water. Dish-washing machines, either of the revolving brush or of the turbulent type, thermostatically controlled to ensure hygienic washing, were installed in annexes to airmen's dining halls in most barracks of permanent construction. Observations are being made on the comparative value of these two types of machine. Many clothing improvements were introduced, open-neck tunics replacing stiff upright collar types. The drivers of motor petrol tankers were supplied with leather gloves as a protection against petrol dermatitis. Topees lined with aluminium fabric, as an additional protection against heat, were issued on an experimental basis to certain units in the Sudan. A pool system to deal with the bulk disinfection of geographical groups of stations as an economy measure was introduced in some places.

TREATMENT OF YOUNG OFFENDERS

The country first realized in 1908 that delinquency in children was a social problem that needed a constructive solution. In that year, thanks largely to the pioneer efforts of Clarke-Hall, the Children Act, 1908, was passed and set up juvenile courts. The Prevention of Crime Act introduced Borstal training, and the Probation Act of the previous year had given magistrates wide powers of controlling and supervising children outside prisons. Since that time the Home Office, in co-operation with many enthusiastic voluntary agencies, has made great strides in its provision, not only for the optimistic treatment of child offenders, but also for the prevention of juvenile crime. The Children and Young Persons Act, 1933, improved the juvenile courts by providing that they should be conducted by specially qualified magistrates in informal surroundings and empowering them to deal with children requiring special care and protection by placing them in the charge of a "fit person."

The Home Office recently issued its fifth report on the work of the Children's Branch.¹ The report is the first since 1928, and is the work of Mr. J. F. Henderson and Mr. Arthur H. Norris. It shows evidence on every page of the enlightened enthusiasm of these two workers. The reproach is often levelled at the Civil Service that its members are hidebound bureaucrats. The heads of the Children's Branch have shown themselves to be as true pioneers as any of their colleagues outside. The reproach of official obstructiveness cannot be levelled at their Department, which is as ready to initiate reform as it is to encourage the enterprise of voluntary bodies.

Juvenile Courts

The 1933 Act laid down that the justices of every petty sessional division should elect a panel of their number specially qualified to sit in juvenile courts, and that the court should consist of not more than three members, one of whom should, if practicable, be a woman. It was soon found that in a number of divisions no woman justice was eligible. The Lord Chancellor therefore appointed to the peace commission a number of women, and also men, thought to be specially suitable for juvenile courts. In 1936 the Home Secretary issued a circular containing advice on the principles which should be followed in electing the new panels when the three-year appointments made in 1933 expired. The returns showed that fewer men justices and more women justices were elected, and the number of panels containing no woman fell from 212 to sixty-six, these being nearly all in districts where the volume of work is small. An effort is being made to reduce the average age of justices, and

¹ London: H.M. Stationery Office, 1938. (2s.)² H.M. Stationery Office. (2s. 6d. net.)

PREHISTORIC PEOPLE OF MOUNT CARMEL

LECTURE BY SIR ARTHUR KEITH

At the Royal College of Surgeons of England on February 14 Sir Arthur Keith, M.D., F.R.S., delivered a special lecture on the prehistoric people of Mount Carmel, in which he described the work of the expedition led by Miss Dorothy Garrod and financed by the British School of Archaeology in Jerusalem and the American School of Prehistoric Research.

The early Palestinians, said Sir Arthur Keith, were quite unlike any people now living, but they were of great interest because, if not our actual ancestors, they were certainly nearly akin to the stock which in the course of time gave to the world its Caucasian or white inhabitants. Hitherto the search for the fossil ancestor of the white man had been in vain, but the excavations made on Mount Carmel by Miss Garrod were destined to give the small country of Palestine a very important place in the picture of prehistoric man.

Man began to inhabit the caves of Mount Carmel long before the onset of the last glaciation in Europe. One cave from an archaeologist's point of view was the richest ever opened; it was filled with fossiliferous earth tramped down by the feet of prehistoric man until an accumulation over 80 ft. in depth had been formed. From bottom to top the strata were full of stone tools, fossil remains of animals—many of them extinct species—and the bones of men and women. It was no exaggeration to say that these deposits recorded the history of man in Palestine over a period of at least 100,000 years, perhaps longer. The strata began while man was still in the early age of stone culture; they left off at about the time of Abraham.

Complete Skeletons Found

The hitherto existing knowledge of fossil man had been built on prehistoric "scraps," but at Mount Carmel complete skeletons had been found. One small cave excavated by Mr. T. D. McCown of the American School proved to be a veritable cemetery. The fossil remains of ten individuals were found in it, three of them complete skeletons. All the individuals save one were under 50 years of age; the expectation of life among these early inhabitants of Palestine was not good.

The completeness of this representation of a prehistoric community was due to two circumstances: the careful way in which the dead were buried, and the fact that Mount Carmel was composed of limestone, which preserved bones better than any other rock, although it was a stone which made extraction extremely difficult. The bone-containing breccia, hard as cement, had to be cut away in blocks weighing a ton or more and conveyed from the slopes of Mount Carmel to Lincoln's Inn Fields, where the rougher work of extraction was done. The finer work, including restoration, was done at the Buckston Browne Farm at Downe in Kent. Here, within sight of Darwin's old home, Sir Arthur Keith and Mr. McCown "had brought the old Palestinians to life."

The Book of Genesis stated that before the flood there were giants in the land. These fossil people were not quite worthy of the name. The men were from 5 ft. 8 in. to 5 ft. 11 in. in height; the women were very short, from 5 ft. to 5 ft. 4 in. It had been possible to study every bone of the feet, hands, and arms. These people had straight and strong limbs and ample chests. Their spinal vertebrae retained certain simian details in their conformation. It had been possible to measure their heads and in some cases to take casts of their skull cavities. In point of size they had brains equal to those of modern man, but of simpler convolutionary pattern. The muscles of their tongues were attached to their lower jaws as ours were, and all the parts of the brain which indicated capacity for speech were present. But in their

anatomy they still retained many primitive marks. Their eyebrow ridges, like those of the gorilla, formed great bars of bone above the orbits, their jaws were massive, their mouth cavities capacious, and their necks exceedingly thick and strong.

Nowhere in the world to-day could there be found a local group of people showing the wide range of structural variation of these fossil Palestinians. Their chins were at every stage of evolution, from a chinless stage comparable to the chimpanzee to chins moderately developed. In some of them the nose form might well have been the prototype of the Roman; in others an almost negroid type prevailed. One woman had her closest affinities with the primitive Neanderthal type of Europe; one man might have been a crude form of the early European. They appeared to be a plastic folk in the throes of evolutionary change.

Relation to Neanderthal Man

Before the last glacial epoch Europe was inhabited solely by peoples of the Neanderthal type; their fossil remains had been found as far west as Jersey and as far east as the Crimea. Eastwards the type approximated somewhat to that now found in Palestine. In Mount Carmel there was a people whose date was earlier, not later, than that of the Neanderthals of Europe. In the points where the Palestinians differed from the Neanderthals they were Caucasian or modern. Was Palestine, then, the homeland of Europeans? That was not the inference Sir Arthur Keith was inclined to draw. He believed that, as research was carried further into Western Asia, the fossil remains of men who had still less of the Neanderthal in them and more of the modern man than was the case at Mount Carmel would be found. The first glimpse obtainable in Europe of the early Caucasians or whites was at the time of the passing of the crisis of the last glaciation. They then appeared in South Europe as Cromagnons and in Central Europe as Predmostians. The discovery at Mount Carmel suggested that their homeland would be found in Western Asia. The tall men of Mount Carmel might not be the ancestors of the Cromagnons, but only distant relatives.

The most surprising result of these excavations was the light thrown on the mentality of the early Stone Age. Care of the dead was one of the hallmarks of humanity, and the Mount Carmel people showed great care for their dead. The youngest child was placed in its grave in a sitting position with limbs flexed under the trunk and arms folded. The tallest man had in his embrace the fossil jaw of a boar, not, of course, buried with him in the fossil state but evidently carrying with it a meal—pig's tongue—of which he was fond.

The Oldest War-wound

When the hip-joint of one of the men was cleared of the limestone breccia it was found to be shivered, and on closer examination a perforation was found at the centre of the injury. A cast was taken and revealed the image of a four-sided spear head. It had not been known that such weapons were invented at so early a date. It had been thought that the only fighting weapons possessed by these early men were stone clubs. A spear to penetrate the whole thickness of the hip-joint of a large-framed man and to enter the pelvis, as this weapon did, must have been finely tempered and driven with exceedingly great force. Even at the very early period represented by the caves of Mount Carmel man was already a fighter, and could be cruel as well as kind. This Mount Carmel hip-joint represented the oldest "war-wound" known to surgeons.

Signor Luigi Bizzozero, the son of Giulio Bizzozero of blood platelet fame, has bequeathed 10 million lire to the Ospedale Maggiore, Milan.

ANALYSIS OF CASES OF SYMPATHETIC OPHTHALMIA FROM SCHOOLS FOR BLIND CHILDREN

In the course of the investigations of the Prevention of Blindness Committee a report was presented by a member of the Specialist Subcommittee on Sympathetic Ophthalmia in children. In the belief that the report may be stimulating and provide food for thought they submit it for medical publication in the hope that this will be provocative. It is realized that owing to the small number of cases no accurate generalizations can be made. From the analysis of the cases of sympathetic ophthalmia it will be seen that the earliest case of injury occurred in 1921 and the two most recent as late as 1936. Eleven patients were treated at hospital, eight of them immediately or the day after the accident and one a week later having previously been treated by a medical practitioner; in two cases information on this point is not forthcoming.

The promptitude with which medical advice was sought does not seem, contrary to accepted principles, to have prevented the onset of what is probably the most disastrous calamity in ophthalmic surgery. One is forced to ask whether this is because the seriousness and proper treatment of injury to the eye are not adequately

realized. Another striking fact is the high proportion of urban cases supposedly within easy reach of expert surgeons with all the equipment of properly found hospitals to hand. Furthermore, four injured eyes were removed after the onset of ophthalmia neonatorum. It is generally recognized to be better practice to leave the injured eye *in situ* after the onset of sympathetic ophthalmia, since the results of the inflammation in the sympathizing eye are so destructive to vision that frequently the injured eye has the better sight of the two in the end. Moreover, removal of the injured or exciting eye has little or no influence upon the course of the disease in the sympathizing eye. These considerations so exercised the minds of the medical members of the committee that, in order to obtain a wider publicity, they have sought publication of their findings in a channel not usually employed by the committee. Full information regarding the onset of sympathetic ophthalmia was not available in all cases; the interval between the injury and the removal of the injured eye varied, in the ten cases where details are given, from "almost immediately" to one year.

Five cases said to be sympathetic ophthalmia have been rejected: three cases owing to the nature of the injury (lime burns, "fly into eye," struck by tennis ball) and two because the nature of the injury was not known.

Eye Injuries occurring in Childhood: Penetrating Injuries—Sympathetic Ophthalmia

Year Injury Occurred	Age at Time of Injury	Where Living at Time of Injury—Urban or Rural	Medical Advice Sought				Time between Injury and Onset of S.O.	Interval between Injury and Removal of Injured Eye	Was Injured Eye Removed Before or After Onset of S.O.?	Remarks
			Hosp.	Med. Pract.	Oph. Surg.	How Soon after Injury was Medical Advice Sought?				
1	1924	7	Rural	Yes		Day after	9 months	9 months	Immed. after	
2	1927	3½	Urban	"		Not known	Not known	Not known	Not known	No information as to whether injured eye removed or not
3	1930	7	"	"		At once	6 months	Almost immediately	Before	Uninjured eye removed 6 months after accident
4	1932	5	"	"		Next day	Not known	Not known	Not known	
5	1934	12	"	"		Following day	6 weeks	" "	" "	No information as to removal of injured eye
6	Not known (now 10) 1936	"	"	"		Same day	3 months	76 months	After	
7	"	8	"	"		Immediately	Not known	Not known—"After operations"	Not known	
8	1932	4	"	Yes		"	" "	One year	" "	
9	1935	12	"	Week later	First few days	"	8 weeks	3 weeks. Operation postponed owing to collapse under anaesthetic	Before	
10	1921	4	"		Yes	"	About 2 months	Not known	Not known	
11	1931	8	"		"	4 days after	Soon after removal of injured eye	Removed when 9 years old	Before	Injured eye unsuccessfully operated on soon after accident
12	1934	13	"	"	"	Not known	Some months	Not known	Not known	No information as to whether injured eye removed or not
13	1935	15	Rural		"	Within a week	3½ months	3½ months	Immed. after	Full course of N.A.B. injections. Later replaced by milk injections. Still under observation
14	Not known (now 15)	Urban	Yes		"	Not known	Quite soon	Not known	Not known	No information as to whether injured eye removed or not
15	1936	11	Rural		Not known		Not more than 1 year	" "	Before—about 1 month	
16	1930	7	"		Not known		Soon after removal of injured eye	Soon after accident	Before	
17	1930	7	Urban	Yes		Yes	Same day	6 weeks	Injured eye not removed. Vision of injured eye now -5.50 Sphere 6.18	
18	1928	5	"	"	"	Immediately	Within 2 weeks	2 weeks approx.	After	Mother would not give consent to removal of injured eye until father returned from sea—2 weeks after

the clerks to justices are invited to include the ages of their magistrates in their returns. Some justices (or their clerks) have exhibited a reluctance—shy, indignant, or coy—to disclose precise particulars of age. One clerk, the report relates, returned the ages of the men justices but begged to be excused from the delicate task of asking the women justices their ages. Very few indeed are under 50, and the largest age group is 60–69. In London the juvenile courts are also staffed by lay justices. The Department is satisfied that justices in general take great pains in obtaining full information about the cases before them and consider carefully the various methods of treatment open to them before making their decision. The Portsmouth panel give, in their reports, a formidable list of persons and organizations, official and unofficial, whom they constantly consult.

The figure for boys found guilty of indictable offences since 1929 (the number of girls is negligible) has doubled. The report observes that there are those who regard the change as insignificant, because at their highest the figures represent a very small fraction of the total number of boys in the country. Moreover, it says, law-breaking by boys is far less serious than law-breaking by adults. Often it is a manifestation of the spirit of adventure and is not deliberately anti-social. Some young offenders are mentally below normal and therefore less responsible, and there are no professional criminals among boys. There has undoubtedly been a large rise since the Act, and this, the authors of the report explain, is due to the Act itself, with its much greater opportunities for turning young offenders into honest citizens. The approved schools get a large percentage of dull and backward children; and this aspect of delinquency is to be specially investigated, in addition to the general inquiry which the Home Secretary is shortly making into the whole problem of juvenile delinquency.

Psychology in the Juvenile Courts

Juvenile courts are coming more and more to seek the advice of medical psychologists, which often throws valuable light on the reasons for a child's conduct. The report, however, points out that whatever psychological advice is available the responsibility for acting on it rests with three lay justices. This fact may not always be sufficiently present to the mind of the specialist. The ordinary member of the public has not yet gained complete confidence in medical psychology—and indeed, considering the chaos of jarring atoms which is the present state of medical psychology in the country, this lack of confidence is not in the least surprising. When medical psychologists have so little confidence in one another the layman can hardly be blamed for not having more.

The skilled psychiatrist, the report says, is handicapped by two facts: his technical language is popularly used by many people who do not really understand it; and serious psychology is discredited by a large number of amateurs and charlatans. In some cases where the diagnosis of a child's motives is difficult a report by a skilled and experienced medical man is of great value. As courts come to realize this fact they will probably make a correspondingly greater use of psychological advice. There are also unusually difficult cases in which the court would feel itself to be on surer ground if the child could be observed for long enough by a skilled staff in a residential centre. The Goldsmiths' Company has offered the Home Office £6,000 towards the establishment of an observation centre primarily for London children, and the starting of an experimental centre on a modest scale is being considered.

Methods of Treatment

The most difficult task of juvenile courts is to decide what method of treatment to apply to a boy or girl who has committed an offence, needs care or protection, or is

beyond the control of the parents. A court may make a supervision order in respect of children in the last two classes. Courts are gradually making more use of this power, and the Home Office hopes to have the law amended to enable a court to impose the conditions of residence and others which may be imposed in a probation order. The "fit person" to whom the court may commit a child in need of care or protection is often a local authority, which must place the child with foster-parents and not, except with the Home Secretary's consent in special cases, in an institution. It is hoped that in course of time juvenile courts and local authorities will make a greater use of this power, which can also be exercised over offenders.

Hitherto complaints by school inspectors of truancy have been heard before ordinary courts, which usually send the child to an approved school. The 1933 Act allows the court as an alternative to commit the child to the care of a fit person—that is, the local authority for boarding-out. This alternative has hardly been used at all, probably because the ordinary courts are not familiar with the power to commit to the care of a fit person. In practice there is no distinction between truants and children in need of care and protection. After consulting a large number of associations and authorities the Home Secretary has advised the Lord Chancellor to make rules assigning truancy cases under the Education Act, 1921, to the juvenile courts, and it is expected that these rules will very soon be made. The authors of the report hope that courts and education authorities will bear the alternative and less drastic method of boarding-out in mind when dealing with truancy.

Nearly all the indictable offences for which children and young persons come before juvenile courts are thieving or dishonesty of some kind. About a quarter of the cases are dismissed, half are put on probation, a tenth are sent to approved schools, and an insignificant number are committed to the care of a fit person. The report says that a very small number are ordered to be birched—146 in 1934, 211 in 1935, and 155 in 1936. Considering the overwhelming evidence that birching is a thoroughly bad form of punishment, it seems a pity that the authors of the report have not specifically condemned it. They remind the courts that it is within the power of a court to underline the importance of parental responsibility by requiring parents to enter into recognizances for their child's good behaviour. The stipendiary magistrate at Salford found the result entirely satisfactory in ten cases out of sixteen. There must, of course, be an understanding that the order is not made as a punishment to the parent, and that if the parent co-operates it will not be enforced even if the child lapses.

A Valuable Survey

The report contains much valuable and interesting matter which cannot be summarized here. The constructive training and recreation given in approved schools is immensely important and not by any means fully realized. How many people, for instance, know that the children get annual home leave, during which they often find jobs; that they go to holiday camps and on tours in the summer? The report also contains scathing remarks about the arrangements in some voluntary homes for girls.

To sum up, the Act needs the co-operation of many different authorities and interests, and cannot be applied all at once. With each year its application will probably become more varied. The growing interest in everything concerning children is leading to their more intelligent treatment by the courts. The fact that the amount of adult crime is either stationary or declining suggests that in the recent past offenders have been treated on the right lines. The treatment applied under the new Act to the children of to-day will therefore probably reduce it still further.

mittee or to the council direct if there is no other remedy for a state of affairs involving risks to the public health. If intrusions of this character are unwelcome to the council he is to some extent protected from reprisals by his exceptional security of tenure.

Every local authority should make satisfactory arrangements for the laboratory examination of samples of water, and it would appear to be desirable that the Ministry of Health should give detailed guidance as to the nature of the examinations and the frequency of sampling. The long experience of the Metropolitan Water Board indicates that changes take place so suddenly in the quality of water from wells in the chalk that some bacteriological examination should be made daily, at least in periods of drought and on succeeding heavy rainfall. In matters of this kind, involving increase of expenditure, the initiative or support of the medical officer of health is of paramount importance. He is certain to be asked in future if all employees likely to come in contact with water should be examined for the detection of the carrier state. If these workers are in comparatively stable employment the initial examination of new employees may be a practicable undertaking, although it would be idle to pretend that negative findings from examinations of an extent which would be tolerated would give a 100 per cent. guarantee of safety; and the maintenance of a probably non-infective state of the employees can be promised by the health department only if full and prompt information, including medical certificates, will be furnished to it of all intercurrent illnesses of these workers.

In connexion with the Croydon inquiry alleged defects in the relations between health departments and the local members of the medical profession have received a good deal of publicity. Mr. Murphy in his report accepts the view that "in all large areas there should be some committee representing all the local practitioners, which, upon the occurrence of any outbreak, would be in constant and close touch with the medical officer of health and would provide the means of pooling and distributing all the information available from time to time as to symptoms and possible causes." It is clear that where no recognition of the local Division of the British Medical Association or any other medical committee has been extended by the authority the occasion of a sudden epidemic is unfavourable for the improvisation of such a form of contact by harassed officials. Communication from the health department by letter is more expeditious and more certain. The discovery of an epidemic in the Press, however unsatisfactory it may be, should not be regarded as an offence

to the profession. It is impossible to prevent the daily newspapers from giving publicity to occurrences they regard as news, often before a well-informed medical officer is satisfied that anything has happened which it is necessary to convey to his medical colleagues. Press publicity, too, is much more rapid than conference or even correspondence, and is not restricted by any exaggerated sense of responsibility. But much of the feeling engendered by such events would be avoided if a local medical committee, preferably recognized by statute, were available to confer with the medical officer of health, to receive a frank statement of his problems, and to take the burden of local medical uneasiness and the interchange of information and opinions off his shoulders at a time when his attention must be devoted to practical inquiries of a more specialized kind. The public are less likely to be captious in their criticism if they know that all or the majority of their family doctors are behind the measures taken by the health department and are satisfied that the difficulties of such an emergency are being overcome with the minimum of delay. The profession should understand that in offering their active assistance they will be undertaking no light task at a time when the demand for their ordinary services may be abnormal.

PSYCHOLOGY DOWN THE AGES

Professor Charles Spearman, drawing upon his ripe experience, has endeavoured in a recent work¹ to steer a clear course among the warring sects who all claim that they represent the whole truth and nothing but the truth in psychology, and to expound how far scientific psychology has really made progress. The origins of psychology in the conception of the spirit or geist are described, and then the various efforts on the one hand to attach psychology to physiology and on the other hand to detach it from bodily conceptions. Further, the relation of psychology to the various philosophical theories is discussed and how far it can progress independently of these. The methods of psychology still depend to a large extent, as they did in the time of Aristotle, on the study of sense perception. "Intelligence," which held the field for so many ages, has lately fallen from favour, though the establishment of tests has made some think they know all about this difficulty. Professor Spearman does not share that view, and, while regarding tests as useful, utters a warning against a too facile acceptance of their implications.

Attention, whose definition has been so variable, seems now to combine an intellectual connotation

¹ *Psychology Down the Ages*. By C. Spearman, Ph.D., Hon. LL.D., F.R.S. Two volumes. Macmillan and Co., Ltd. (30s. both volumes.)

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CONSIDERATIONS FROM CROYDON

The report on the outbreak of typhoid fever at Croydon by Mr. Harold L. Murphy, K.C., appointed by the Minister of Health to inquire into the outbreak with the assistance of Sir Humphry Rolleston and Mr. H. J. F. Gourley as assessors, was published on Monday, and a full summary of it appears at another page in this issue. As has long been known, the outbreak was the result of infection of the public water supply by the typhoid bacillus, and the circumstances point strongly in the direction that the well was infected by a workman who was a typhoid carrier working in the Addington well between the end of September and during October. During large parts of this period water from the well was being pumped to supply, unfiltered and unchlorinated. In the report stress is laid upon the "misunderstanding and lack of communication between the responsible officers of the Corporation in connexion with the work." Dr. O. M. Holden, the medical officer of health, had not been informed that the work was being carried out at the Addington well, nor that filtration and chlorination had ceased. He was not asked to examine the men chosen for working at the well. Mr. Murphy in his report states: "I have been told that they were carefully selected for physical fitness out of a very large number of volunteers. I am unable to accept this evidence." The report concurs with the opinion expressed by counsel in describing Dr. Holden as a "loyal, able, and industrious servant of the Corporation as well as a truthful and careful witness." Praise is given to the hospital and nursing arrangements and the medical conduct of the epidemic. Mr. Murphy states: "It appears to me that the only legitimate criticism that can be directed to Dr. Holden in this case is a slight delay in his realization that 'water' was or might be the cause of the epidemic. . . ." But, "the dates of the various cases render it unlikely that any infection was caused by this short delay. . . ."

Certain considerations arise from these events in Croydon which are of importance to the public, the medical profession, and, more intimately, to local authorities and their officers. Many of the functions of local authorities, although they have a bearing on the public health, are not of such a character that they call for frequent medical intervention. To such belong, for instance, the

provision and management of sewers and drains, the disposal of refuse, the construction of buildings in which human beings live and work, the acquisition and control of parks and open spaces, the control of animal diseases, the arrangement of hours of work and play for school children—both at school and at home—and for their supplementary feeding. The list of examples could be extended almost indefinitely. On each of these activities the influence of expert medical opinion ought to be felt; on some its exercise should be more direct than on others, but of none could it reasonably be contended that a medical officer should be in day-to-day control. Water supplies are in this category. When a reliable source has been found, the method of treatment adopted for ensuring the delivery of a pure supply to the consumer, and a system of tests of the efficiency of these measures devised, the very large business of management requires mainly engineering qualifications of a specialized kind. While this is so, the medical officer of health may reasonably be thought to have some concern with a service that is of such vital importance to the health of the people. The Sanitary Officers (Outside London) Regulations require him to "inform himself as far as practicable respecting all matters affecting or likely to affect the public health." At the end of each year he is required by the Minister to furnish specified particulars about the water supply, including a statement as to whether it has been satisfactory in quality and quantity. Whatever legal interpretation may be put on these Regulations, he may properly make up his mind as to the suitability of the source of water, the efficacy of its treatment, and the frequency and adequacy of the bacteriological and chemical tests applied. Even if he finds it unnecessary to take samples through his own department the reports of any routine and special tests made should pass through his hands. It may be noted that the Regulations make it his duty not to advise but to "be prepared to advise" the council on any such matter, a form of words suggesting rather that the council should seek his advice than that he should proffer it. But the public is not likely to have much patience with such refinements of interpretation. As a matter of courtesy a medical officer of health will prefer to make his representations through the officer in charge of the water department, and the committee to which the latter is responsible. Administration is most successful when there is constant, friendly contact between the heads of departments, each acknowledging the duties and difficulties of the other, but it ought to be made clear, if there is any doubt, that the medical officer of health may take his dissatisfaction to the public health com-

of the *Journal* Dr. A. S. Parkes discusses the recent experimental work which has been undertaken to achieve constancy of delivery of the hormone administered. Oral application and local inunction have the advantage of dispensing with the inconvenience of injection, but unfortunately neither of these routes is applicable except to two hormones, thyroid and oestrin, and to the latter only in a limited degree. Fortunately there are certain clinical indications for the use of oestrin which require only very low concentrations, such as the menopausal syndrome, for which oral administration of oestrone or oestriol is effective, the latter being more completely absorbed from the intestine on account of its greater solubility in the body fluids. Inunction of oestrin, though effective, has few indications. Oral administration of thyroid is of course highly satisfactory. Anterior pituitary hormones, contrary to the views expressed by many authorities, are completely ineffective by mouth. Dr. Parkes is more especially concerned with the form in which the sex hormones are most suitably prepared for intramuscular injection. The chief object has been to combine the pure hormone with some ester which will decrease its solubility in the body fluids and therefore render its absorption from the site of injection more gradual. For the oestrogenic hormones the benzoate appears to be the most suitable vehicle, and if administered in the form of oestradiol benzoate the effect of each injection lasts for about three days. The male hormone, testosterone, appears to retain its effect for about a week if given in the form of the propionate. Unfortunately progesterone is difficult to esterify, and though the duration of activity of the pure hormone may be longer than in the case of the other sex hormones it is probably advisable to give injections daily or even twice daily, especially in such cases of emergency as threatened abortion. The greatest advance towards the solution of the problem, however, is Dr. Parkes's own observation that if pure crystals of the hormone are tightly compressed into the form of a tablet and this is then implanted subcutaneously the duration of activity is greatly prolonged owing to very slow absorption of active material from the surface of the tablet. This observation demands the closest attention of the clinical endocrinologist, and is indeed already being put to practical trial in at least one endocrine clinic in this country. The application of this method to crystalline oestrone for the menopausal syndrome, to progesterone for habitual abortion, or to testosterone for prostatic hypertrophy opens up a promising avenue for clinical research.

A SURVEY OF CHRONIC RHEUMATIC DISEASES

In 1938 the National Hospital for Rheumatic Diseases, Bath, celebrates the bicentenary of its foundation. To mark this event an international conference on certain aspects of rheumatic diseases will be held at Bath, as has already been announced in our columns, but in addition a volume, to be entitled *A Survey of Chronic Rheumatic Diseases*, will be published by the Oxford Medical Publications Ltd. This will comprise a series of articles on the chief aspects of rheumatism and gout

arranged and edited by an editorial committee, under the chairmanship of Dr. R. G. Gordon, which was appointed by those responsible for arranging the bicentenary celebrations. The committee has been fortunate in obtaining articles from such eminent authorities, among others, as Sir Humphry Rolleston, Drs. Buckley, Copeman, Douthwaite, Edgecombe, Glover, Poynton, and Thomson in this country; Professors Ghormley, Hench, Osgood, and Pemberton from America; and Professors Aschoff and Besançon, and Drs. Freund, Kahlmeter, van Breemen, and Weil from the Continent of Europe. Various schools of thought are thus well represented, and it is hoped that the volume will be an interesting and valuable addition to rheumatological literature, and prove a worthy memorial to the past traditions of the hospital and an earnest of future contributions to the advancement of the special studies with which it is concerned.

EXCISION OF THE PATELLA

Sixty years ago Lister put his faith in the value of the antiseptic method to a supreme test by performing an open operation on a fractured patella.¹ The fragments were wired together and there was no unfavourable reaction after the operation. Since those days surgeons' efforts have been directed to improving the technique of this now widely accepted treatment by internal fixation, for the functional results after wiring of the patella have been by no means uniformly satisfactory. Last year Mr. Ralph Brooke² showed a number of patients at a clinical meeting of the Orthopaedic Section of the Royal Society of Medicine—patients with fractured patellae that had been dealt with by excision. The results were astonishing. In almost every case normal function had been restored, and apart from the scar of operation and the absence of the knee-cap it was impossible to distinguish the damaged from the normal joint. It would appear that this cherished bone, the patella, is superfluous; or at all events, if the bone is broken, it is best to get rid of it. On another page Mr. G. O. Tippet has reported satisfactory results in six cases treated by this operation, four of fracture and two of osteo-arthritis in which the patella was particularly involved. This is all excellent, but we cannot help feeling that this new form of treatment, which has made such a promising start, may come to grief if practised by any and every one who calls himself a surgeon. It sounds, and is, so easy for a man who is accustomed to performing open operations on joints. But the knee-joint, and particularly a clean one, must be approached with a technique that might almost be described as reverential. A slip may be followed by swift disaster in the shape of intra-articular haemorrhage or infection. Then, too, in this particular case, it is important to restore the integrity of the extensor mechanism by careful suturing of the torn capsule. Last, or perhaps first, there is the choice of the appropriate case. A warning that mistakes may be made in this direction appears in our correspondence columns this week, at page 418,

¹ *British Medical Journal*, 1877, 2, 850.

² *Brit. J. Surg.*, 1937, 24, 733.

with something of Stoic dynamism. This leads to a consideration of sense perception which may be contrasted with intellect, each having been credited with the primary role in psychic function. Memory and imagination are also faculties which have been much discussed, and it is not yet determined how far these are able to influence a number of other manifestations. Much work has been done in attempting to arrange and classify the feelings and emotions of men, but the result is still indeterminate. Professor Spearman discusses the criticisms of "faculty psychology," and, while admitting that the view that the psyche is made up of a number of fundamental faculties leads us into great difficulties, he argues that the abandoning of such faculties has produced a confusion which is little short of chaotic. He then describes his own analysis of sensory perception and lays stress on the importance of relation and forms. He points out that several important constituents may be discovered which are not recognized by "common sense." In this connexion we have to consider not only the objective matter which is regarded but also the subjective method of regarding; and thence we pass to a consideration of thought and how it is achieved. In present-day psychology this study has been rather neglected. Orectic, or the drive behind action, involving as it does feeling and choice and resolve, is reviewed from the scientific angle. The question of the analysis of emotion and the true nature of pleasure is still unanswered, and consequently the attempt to synthesize units of behaviour must remain difficult and complex, though fascinating. All these problems have exercised psychologists from the earliest times, but we now find in the unconscious mind an entirely new study which, though still in a state of confusion, may be very highly important. The problem of I and Me has always exercised philosophers, but the methods of experimental psychology are beginning to throw light on this also; it would appear that the concept of mental unity cannot be upheld, and this leads Professor Spearman to condemn the thesis of the Gestalt school. The history of psychology is not one of continued progress; there have been, and no doubt will be, many false starts and false conclusions.

Opinion has differed much on whether psychology can establish scientific laws or even whether any are necessary. What pass to-day for psychological laws may not be very exact, but several of those enunciated on general lines have received more or less firm acceptance. The best known is perhaps the law of association, which has been very helpful in the advancement of psychology. So have the law of retentivity and the theory of dispositions—closely associated with mental inertia and resistance

to change, which, so to speak, keeps the mental processes on the rails. That the individual can exert control over thoughts, feelings, and actions seems obvious enough, but the explanation is far from precise, though a beginning has been made. The control depends very largely on attention, and a study of it suggests that there is a limit to this power, but that the output is constant in any individual. Fatigue is of the greatest importance psychologically and a good deal has been done in defining the operations and effects of this factor. Some of the "laws" in relation to knowing, feeling, and acting are obvious to common sense, while others are scarcely delineated so far, but the author foreshadows certain advances in these fields, as in the matter of body-mind relationships, which may do much to clarify the issue. If the modern "type-psychology" is closely examined it appears very spectacular, but whether it has any surer foundations than the old "faculty psychology" may be doubted. Professor Spearman believes that if we are to get at the basis of "what goes with what" we must study correlation coefficients, and it was by this method that he worked out the G and S factors, which will always be associated with his name. He regards this as the most important advance in the modern psychology, especially if G proves to be innate. The statistical method is being extended to an inquiry into orectic (affective-conative) factors, and this holds out great promise, so much so that he clearly believes that as a method of study it will eventually displace all others in psychology. As a history of psychological thought leading up to this method his survey is full of interest, and, since close observation of the individual reactions to life is becoming increasingly important in many branches of medicine, it is well worthy of the attention of our profession.

ADMINISTRATION OF HORMONES

The fundamental aim of endocrine therapy is to obtain a relatively lasting action of suitable concentrations of the hormone extract on the effector organ. Experience shows that administration of the pure hormone by injection, particularly if in aqueous solution, merely produces a transient rise in its concentration in the blood stream, so that its effect is evanescent. Thus in order to activate the organ concerned injections must be repeated at frequent intervals, and even then there is no maintenance of a steady level of activity but rather the periodic delivery of the hormone to the effector organ in a series of concentration peaks, the greater part being rapidly excreted from the body. In these circumstances it is difficult to decide upon a physiological dose, for the organ is never submitted to the effects of a constant dose. Apart from these considerations the practical inconvenience of multiple injections is obvious. In an article in the present issue

surface of one tooth while the surface of the tooth next to it is unaffected. They found 179 such lesions in 516 "full-mouth" x-ray films selected at random. Obviously food fermentation, bacteria, and possibly some obscure changes in the composition of the saliva cannot account for the development of unilateral caries. An analysis of the possible variations in the environment of the teeth—for example, the presence of a bacterial plaque on the affected tooth only, the retention of a carious deciduous tooth next to the adjoining permanent tooth, etc.—has failed to account for most of the cases observed. Variations in resistance most probably therefore explain the observed variation in the incidence of caries in different teeth. From the "Dental Survey of School Children" published by the United States Public Health Service (Bull. 226) Mills³ has made the following observations: (1) The incidence of caries in American school children increases steadily throughout the United States as the distance from the Tropics increases. (2) There are indications of diminishing incidence of caries as one passes from the mouth of a river toward its head waters. (3) There is an inverse relation between hardness of drinking water and incidence of caries, cities using river water showing about 30 per cent. more caries than do cities using well water. (4) There is a direct relation between incidence of caries and the amount of salt employed in seasoning food. (5) Negro children in all areas have less caries than do the white, but the same regional relations obtain. The observations show that dental decay bears certain definite relations to extrinsic factors which in one way or another influence the metabolic processes of the teeth.

DR. WU LIEN-TEH

After thirty years of continuous and faithful service under the Chinese Government Dr. Wu Lien-Teh, first Director of the National Quarantine Service, and also of the Manchurian Plague Prevention Service, has retired from his official duties. Dr. Wu (or G. L. Tuck as we knew him in this country) was born in the island of Penang, Straits Settlements, in 1879, and studied medicine at Emmanuel College, Cambridge, and St. Mary's Hospital, London, graduating in medicine in 1902, after a distinguished student career. His thesis for the Cambridge M.D. in 1903 described the results of an investigation on tetanus. He then engaged in research on malaria and other tropical diseases under Sir Ronald Ross at the Liverpool School of Tropical Medicine, under Professor Karl Fraenkel at Halle, and under Professor Metchnikoff at the Pasteur Institute, Paris. Some months at the Institute for Medical Research, Kuala Lumpur, were followed by three years of private practice in Penang. In 1910 the Manchurian Imperial Government sent Dr. Wu to Harbin to control the serious outbreak of pneumonic plague, and largely through his organizing ability the epidemic was suppressed within three months. In recognition of this work he was elected president of the international plague conference at Mukden in 1911. Since then he has held positions of high responsibility under the National

Government in China, having been appointed in 1930 as chief technical expert of the Ministry of Health, and director-general of the National Quarantine Service based at Shanghai, while still retaining charge of the North Manchurian Plague Prevention Service, for which he was chosen in 1912. Dr. Wu has made many contributions to medical literature, chiefly on plague and cholera, and he is part-author, with K. C. Wong, of a history of Chinese medicine. He was a founder and president of the Chinese National Medical Association and for fifteen years edited the *National Medical Journal* (now enlarged into the *Chinese Medical Journal*).

A MERE FLEA-BITE

In 1916 the late James Waterston published as No. 3 of the British Museum (Natural History) Economic Series a very readable pamphlet on *Fleas as a Menace to Man and Domestic Animals: Their Life-History, Habits and Control*. A second edition appeared in 1920, and now it is followed by a third (price 4d.) revised by Professor P. A. Buxton. During the past sixteen years much has been added to our knowledge of fleas, their behaviour and their importance; and in revising the pamphlet Professor Buxton has taken note of new work and placed his special experience at the disposal of the Trustees. The medical bearings of the subject are well and briefly stated in the introduction: "Against the flea a clear and damaging case has been made out. Fleas are known to transmit the bacillus of bubonic plague, from which there were upwards of 7,000,000 deaths between 1896 and 1911 in India alone. Fleas are also concerned in the transmission of certain types of 'endemic typhus,' a disease of human beings in several tropical countries. A flea also acts as the intermediate host of a tapeworm found, in the adult state, in both dog and man; much loss is annually caused to poultry rearers in the tropics and certain portions of the United States by the drain on the health of their stock due to a sedentary flea, while a closely allied species attacks man, causing painful sores or even crippling if neglected. Such an indictment, apart altogether from the pain of flea-bites, with their subsequent swelling, and the discomfort caused to sensitive skins by the insect's movements, more than justifies the attention now given to this group of parasites." As Swift wrote, though in a different context: "So naturalists observe a flea." Having accurately observed its habits and life-history, and its powers for evil, the entomologist can tell us means for its control. Banish or cleanse the flea's hosts, he says, and destroy its breeding centres. All floors should be thoroughly washed and all cracks filled. Naphthalene is perhaps the most useful agent for fighting fleas in dwelling-houses.

Professor Simon Flexner, M.D., formerly Director of the Rockefeller Institute for Medical Research, will give a public lecture, on epidemic poliomyelitis and epidemic encephalitis, in the Physiological Department of the University of Cambridge on Monday next, February 21, at 5 p.m.

³ *J. dent. Res.*, 1937, 16, 417.

in a letter from Mr. Jackson Burrows. In two cases he has seen, excision of the patella for recurrent dislocation was an unqualified failure. Mr. Tippet has given a good summary of the indications for excision, but one of them is "congenitally displacing patellae." If by this he means recurrent dislocation of the patella dating from early in life, then it would have been wise to support this recommendation with reports of cases treated successfully by excision of the patella. In the light of Mr. Burrows's warning we cannot accept recurrent dislocation as an indication for excision. It is to be hoped that this very definite advance in the treatment of lesions of the patella will be received with the caution and respect that it deserves.

AN INTERNATIONAL PHARMACOPOEIA

With a view to the international unification of pharmacopoeias, the Health Committee of the League of Nations has decided to appoint a Technical Commission of Pharmacopoeial Experts. This recommendation was approved by the Council of the League of Nations at its January meeting. The following have been invited to constitute the commission: Dr. C. H. Hampshire, London (Chairman); Professor H. Baggesgaard, Copenhagen; Professor V. E. Zunz, Brussels; Professor M. Tiffeneau, Paris; Professor R. Eder, Zürich; Professor L. van Itallie, Leyden; Professor E. Fullerton Cook, Philadelphia; and a member of the Union of Soviet Socialist Republics. The work of this commission will be, in the first place, to prepare a programme of studies, including the selection of suitable drugs for examination and the determination of a uniform method of analysis, assay, and preparation of the drugs selected. The technical examination will then be distributed among a number of national pharmacopoeia commissions. It is intended that the results of the studies thus carried out with the co-operation of the various national pharmacopoeia commissions shall take the form of a series of monographs on the different drugs. These monographs would be forwarded to the permanent secretariat in Brussels for circulation among the parties to the International Agreement for the Unification of Pharmacopoeial Formulas for Potent Drugs of 1929, with a view to their being adopted and eventually embodied in an international pharmacopoeia of powerful remedies.

RESEARCH INTO DENTAL CARIES

Lady Mellanby's pioneer work on the influence of diet on caries in children's teeth showed clearly that a relatively high vitamin D content of the food can do much to diminish the incidence of caries, particularly if given during the development of the teeth. It can even delay the onset and spread of caries if it is given after the teeth have erupted. Moreover, when the supply of vitamin D was inadequate different cereals were found to have an anti-calcifying influence on the teeth in different degrees, oats being the worst cereal in this respect

and white flour and rice being the least harmful. Osborn and his co-workers¹ are fully convinced that some teeth decay because they are poorly made or because they are weakened from within through some severe disorganization of the calcium and phosphorus metabolism of the individual, owing to lack of vitamin D or to some other factor. But they are equally convinced that some teeth decay because their exposed surfaces are attacked by acid-producing bacteria. This was demonstrated by carefully controlled *in vitro* experiments. Undecayed normal teeth were obtained from patients who had been advised to have multiple extractions, and the teeth were divided into groups as much alike as possible. Each group was immersed in a preparation made of the substance under examination, which had been held in the mouth of one of the workers for two minutes and well mixed with saliva. In one experiment the influence of crude sugar-cane juice and saliva was compared with that of pure sucrose and saliva, the control being a mixture of saline and saliva. In further experiments whole wheat meal and white flour, whole mealie meal and highly refined mealie meal (60 to 70 per cent.), and whole mealie meal and 90 per cent. extraction mealie meal were respectively compared, the same control of saline and saliva being used in each experiment. In every instance it was found that the teeth in the refined material decayed more than those in the unrefined, and those in the unrefined more than those in the saline. It was therefore concluded that the crude carbohydrates have associated with them some "protective agent" which tends to inhibit their injurious action on the teeth. Osborn and Norisken² have recently made a second investigation of the diet of the South African Bantu in an attempt to discover why civilization brings decay to Bantu teeth. Young males of 15 to 25 years of age who had not worked in towns or in mines (that is, had not come too much under European influence) were questioned as to their diet. With the possible exception of sweet potatoes no correlation was found between any item of the native diet and the incidence of caries. It was, however, evident that machine-ground mealie meal, white bread, and refined sugar were associated with caries, and it is suggested on the strength of this evidence and the experimental work described above that sugar cane and/or wheat are accompanied by a "protective agent" which is removed in the refining processes. By disturbing the calcium-phosphorus ratio in the blood, by whatever mechanism, Blackberg and Berke³ induced a pathological condition of the pulp of the teeth which was followed much later by visible lesions in the enamel. Repeated injections of small doses of parathormone into rats whose diet contained calcium and phosphorus in either a very high or a very low ratio brought about a more definite development of caries than was found in the uninjected controls. In animals fed on a complete diet the pathology produced by parathormone was most obvious. Bödecker and Ewen⁴ have investigated the problem presented by unilateral dental caries, which is defined as the occurrence of caries on the proximal

¹ *J. dent. Res.*, 1937, 16, 431.

² *Ibid.*, 191.

⁴ *Ibid.*, 401.

³ *J. dent. Res.*, 1937, 16, 165.

vaccines and sera in the treatment of carbuncles has not found much favour, but Ovens reports good results following the injection of anti-staphylococcal serum intramuscularly.

The local treatment of the carbuncle consists in applying a 12 per cent. solution of sodium sulphate. This is less painful and more easily applied than magnesium sulphate paste, and also less painful and more efficient than hypertonic saline, which is sometimes used. The solution of sodium sulphate is warmed to body temperature and several pieces of gauze (stuffed up, not evenly folded) are soaked in it and put on the carbuncle. They are covered with a piece of jaconet, over which is put an ample covering of wool, and are then fixed firmly, but not tightly, with a bandage. This warm sodium sulphate pack should be changed two-hourly throughout the day and once or twice at night if the patient is awake. In the early stages of a carbuncle there is often much pain, and this must be controlled adequately with drugs, as sleep and rest are essential. If morphine is necessary it should be given. With this treatment nearly all carbuncles will remain local: pus and slough will be discharged, and healing will be as quick as, if not quicker than, if an excision had been made and scar tissue will be less. An anaesthetic is avoided; this is sometimes important, because carbuncular subjects are often unsuitable for anaesthetics. In a few cases, when the carbuncle seems deep and is very slow in starting to discharge, two clean crucial incisions may be made into it. These should not extend into the surrounding unaffected tissues. Following the incisions treatment with sodium sulphate packs should be continued, and the infected necrotic tissue will soon begin to come away freely. When this pack treatment is carried out, either with or without crucial incisions, the whole carbuncle gradually discharges itself, usually with the loss of some skin, and a clean granulating wound is left. The sodium sulphate dressings should be continued until all dead tissue has separated. Healing is now rapid, and a dressing of gauze covered with sterile vaseline is applied, being changed once in every three days. The scar that is left is much less conspicuous and ugly than when a complete excision of a carbuncle has been carried out.

Another and entirely different treatment which has met with a considerable measure of success in the last few years is by short-wave diathermy. Its disadvantage is that the necessary apparatus is not everywhere available. The carbuncle is covered with a layer of gauze, and one of the electrodes from the diathermy machine is put over this but is separated from it by a layer of felt. If the carbuncle is on the back of the neck the other electrode is put either on the forehead or on the front of the neck. When the current is turned on the patient gets a comfortable feeling of warmth in the neck; this treatment is continued for ten to fifteen minutes. Great relief is often experienced even after the first application, the effect of which seems to be to make the carbuncle clear up more quickly. The diathermy should be given daily until the discharge of dead tissue occurs freely. During the days when this treatment is being given, and afterwards, the sodium sulphate packs may be put on with advantage.

Facial Carbuncles

These require special mention owing to their very grave prognosis. Carbuncles on the face are likely to be followed by cavernous sinus thrombosis (an invariably fatal condition), particularly if they are squeezed or scraped or cut. Even a small facial carbuncle must be treated seriously from the beginning and the patient put to bed.

The lesion should be touched and handled as little as possible: that part of the face on which it is situated should be immobilized by covering a wide area around it with elastoplast, the carbuncle itself being left exposed. Further, to obviate movement of the part the patient should not be allowed to talk, and only fluids should be given. If the carbuncle is near the lips all drinking should be through a straw. It should be bathed every two hours with hot 12 per cent. sodium sulphate solution for half an hour at a time. This is best carried out by holding the face over a basin of the very hot solution and keeping the part really hot by holding a large pad of absorbent cotton-wool, soaked in the solution, gently against the carbuncle for a minute or two at a time.

On no account must any incision be made into a carbuncle on the face, and all hands wanting to squeeze it must be held back. All sloughs should be allowed to separate by themselves, or at the most should be gently bathed away. Incisions into or excision of facial carbuncles are likely, even if they do not cause cavernous sinus thrombosis, to leave unsightly scars, and such deformities as ectropion or a distorted mouth.

Spreading Carbuncles

Certain carbuncles do not remain localized but continue to spread, sometimes at an alarming rate. This as a rule occurs in patients who are especially debilitated either from diabetes or some other cause. When adequate general measures and the local treatments described above are carried out a carbuncle usually soon ceases to spread; but if this is not the case further steps may be required. There are two alternatives—either injection of blood into the surrounding tissues or excision of the carbuncle. The former is less drastic; but although it may not be quite as effective it is worth trying. About half a cubic centimetre of a strong solution of sodium citrate (25 per cent.) is drawn into a 20-c.cm. syringe, which is then filled with blood from the patient's vein. This is injected at a number of points of puncture about an inch apart around the carbuncle, outside the indurated area. About 5 c.cm. are injected at each place, deep down near the core of the lesion. Fifty or sixty cubic centimetres of blood may be required in all.

If the injection of blood does not stop the carbuncle spreading, the latter should be excised. Ideally the whole carbuncle should be excised, but in the case of a very large one, when only one edge is spreading, it may be sufficient to excise that part alone, as excision of the whole lesion is such a severe operation. When a carbuncle is excised healthy tissues just beyond the edge should be cut through and the incision carried deep enough to get underneath the carbuncle, removing all infected tissue. After excision the wound is packed with gauze wrung out of flavine (1 in 1,000), so as to control the bleeding.

Carbuncle in Diabetics

Carbuncles have a worse prognosis when they occur in diabetics. It should be remembered that in some cases a carbuncle may have an accompanying glycosuria which is not due to true diabetes. It is essential to get the diabetes under control as soon as possible, and to this end it is advisable to obtain the help of an expert in this disease, as in the presence of severe infections diabetes may be very difficult to control with insulin. In diabetics, owing to the grave prognosis and their poor powers of resisting infection, it is usually inadvisable to try conservative treatment with sodium sulphate packs, for if time is wasted the case may easily and quickly get out of

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

TREATMENT OF BOILS AND CARBUNCLES

BY

JOHN HOSFORD, M.S., F.R.C.S.

Both boils and carbuncles are localized staphylococcal lesions involving the skin and subcutaneous tissues. A septicaemia is very uncommon, though a toxæmia is often seen, and in a consideration of the treatment not only must the local lesion be attended to but so must the general condition of the patient.

Boils

A boil often arises as the result of some irritating pressure on an unclean skin area in a person who, for some reason, is run down. The back of the neck is the commonest site, and the collar frequently has some aetiological importance. The treatment of an early boil in this position or elsewhere consists in removing the irritating pressure—such as from collar or braces—and covering the boil with two or three layers of elastoplast. The latter acts by protecting the boil from being rubbed and, what is more important, by splinting the inflamed area. Complete rest to an inflamed area is one of the elementary principles of therapy, but in the case of minor inflammatory lesions it is often forgotten. Collodion painted on to a boil and allowed to harden has been recommended, but it is not as good a splint as elastoplast. A circular piece of elastoplast a little larger than the boil is cut: in an average case this will be the size of a halfpenny, and it is stretched out and stuck on so that it covers the whole boil. A circle of elastoplast the size of a penny is then put on over this. A striking and immediate reduction in the pain follows, and in many cases the swelling quickly subsides and the boil disappears in an almost miraculous manner. If the boil begins to discharge a piece of elastoplast with a small hole in its centre, through which the pus may escape, is substituted for the first piece: this may be changed as it gets soiled. Thus treated the boil is likely to clear up and heal without leaving a scar.

With larger boils a decision has to be made as to whether operation is necessary and, if so, when it should be done. In the case of even a large boil early intervention is not advised. The contents are not so much pus as a core, or slough, which is a portion of dead tissue. Until the slough has separated operation should not be carried out, as the main object of operation is to remove the core and not to evacuate pus. The right moment for this is a matter of judgment, and until operation is necessary the best treatment for a large boil is to splint a wide area around it with several layers of elastoplast, leaving the whole boil exposed in the centre. This is covered with a thick layer of magnesium sulphate paste, over which are put several layers of gauze, wool, and a bandage. With this treatment a boil which at first may seem to require operation may recover without it. The magnesium sulphate paste has the following formula:

Exsiccated magnesium sulphate ...	2 parts
Glycerin (by weight) ...	1 part

It is much more efficacious when freshly prepared. When the paste is first applied it is rather painful, and it will be necessary to prescribe aspirin, veganin, or other suitable drugs for relief. When a boil requires operation a crucial incision under an anaesthetic (preferably gas or evipan) is made and the slough picked out with a pair of forceps. The edges of skin need not be cut away, and the tissues should not on any account be curetted or scraped. If the core is removed there is an almost immediate relief of pain, and healing is rapid and leaves very little scar.

Fomentations are rarely indicated, and are usually undesirable: if they are employed crops of small boils and pustules are likely to arise in the surrounding skin. If as the result of injudicious treatment or for any other reason fomentations seem to be indicated, the skin around the boil should be carefully but gently cleansed with ether and covered with ung. hydrarg. nit. dil. These precautions will prevent infection with staphylococci, and thus avoid further boils and pustules.

In cases of multiple boils, in addition to the treatment already outlined, local and general ultra-violet light may sometimes be used with advantage. It is important that the patient should have not only physical but also mental rest. It is striking how often a number of boils appear when a patient is worried or mentally overworked. The taking of yeast and various vitamins has been recommended, and injections of colloidal manganese and other substances have their advocates, but the exact value of these measures is doubtful. Vaccines, autogenous if possible, may be used; but here again their value is doubtful, and the best and often the only way to get a crop of boils to disappear is to enforce absolute rest, a complete change of air, and scrupulous though not vigorous cleansing of the affected parts.

Carbuncles

Carbuncles have many points in common with boils, but they are, of course, much more dangerous. A facial carbuncle is a most serious lesion, and if not carefully treated is likely to prove fatal as the result of infection travelling by way of the facial vein or pterygoid plexus and causing cavernous sinus thrombosis.

A great variety of treatments have been employed for carbuncles, but the general tendency in recent years has been towards conservatism. In the past, and in the hands of some surgeons still, excision of the whole carbuncle is the method of choice, but this is not advised. Except in the case of small carbuncles, the patient should be put to bed, encouraged to drink increased quantities of fluid, and the bowels should be made to act regularly (though overpurging is to be avoided). It is important, particularly with underfed patients, that they should eat an adequate amount of nourishing food, and to aid this bitters or alcohol may be necessary. It is essential in all cases of carbuncle to test the urine, particularly for sugar. Diabetics are more likely to suffer badly with carbuncles: when they have any inflammatory condition the amount of glycosuria is likely to be increased, and until this is properly attended to by diet and insulin recovery of the carbuncle will be delayed. The use of

Nova et Vetera

BARTHOLOMEW CLOSE, NEWBURY

In 1925 Dr. Walter Essex Wynter, F.R.C.P., F.R.C.S., then not long retired from the position of senior physician to the Middlesex Hospital, London, began to carry out a project for adapting certain properties which he had purchased on the outskirts of Newbury, Berkshire, as a hostel for retired sisters and nurses of the Middlesex Hospital. Occupation began in 1926, when two cottages built in 1618 and situated just to the north of Dr. Wynter's own house (Bartholomew Manor) were converted unaltered, and two new ones were built just round the corner in Pound Street, adjoining the two old ones already mentioned.

An Ancient Manor

The history of this ancient manor is of considerable interest. Before the Norman Conquest it was held from

the Crown by Ulward the Saxon, and was known as Ulvritone. Nothing more is heard of Ulward, who was quite possibly killed at Senlac; at any rate, his manor was granted by William I to Ernulph de Hesdin, the latter a village in Picardy well known to many of our troops in the Great War. The next holder whose name is recorded was the Earl of Perche, and it was later possessed by the Earl of Pembroke, the

Earl Marshal who sided with Matilda against Stephen. This nobleman quarrelled with the Church, and was solemnly cursed; he had five sons who inherited the manor in turn; but all died childless, or at least without male heirs. The Earl is commemorated in the name of Hamstead Marshal, some three or four miles away, where he had one of his strongholds. By 1394 the manor was held by Richard FitzAlan, Earl of Arundel, who was beheaded; and it was subsequently held by the Earl de Bohun and then by Roger and Edmund Mortimer. It passed eventually to Edward IV, whose grandmother was a Mortimer, and was in the next century held by Jane Seymour, her son Edward VI, and the succeeding sovereigns down to Charles I, who granted it to the town of Newbury. Before these royal ownerships a large part of the demesne—about 140 acres—had been given to Sandford Priory, near Newbury; and when this Priory was dissolved in 1478 the land was handed over to St. George's Chapel, Windsor, whence it was transferred in 1888 to the Ecclesiastical Commissioners.

Reconstructions

The present manor house, which Dr. Wynter inhabits, was built about 1350, and it still contains much of the original oak timber used in its construction. At some remote date the roof has been raised, and one of the jack rafters has been formed out of an unglazed windowhead:

this reconstruction was therefore undertaken probably not later, or not much later, than 1480, and possibly much earlier. In the year 1550 it would seem that the ground floor of the house was in use for the accommodation of farm animals—horses or cattle—for in that year J. H. Winchcombe, son of Jack o' Newbury, altered it to incorporate the ground floor into the dwelling house as it now exists. To house the dispossessed animals he built quite near it, on the south side, a range of buildings—cart shed, stables, and so forth—which by 1670 had come into the possession of Philip Jemmett, an official of the Brewers' Company, who erected the arms of the Company over the porch, where they still are. He divided the building into cubicles and put in chimneys, converting the whole structure into somewhat primitive almshouses. His grandson, Jemmett Raymond, added a new block of almshouses at the opposite side of Argyle Road, which remain in use and in good preservation and are highly picturesque. They are still called Raymond's Buildings. Jemmett's almshouses were not nearly so attractive, though of course much older; and when Dr. Wynter came into possession of them he decided that the low-pitched attic floors were unfit, in their then state, for

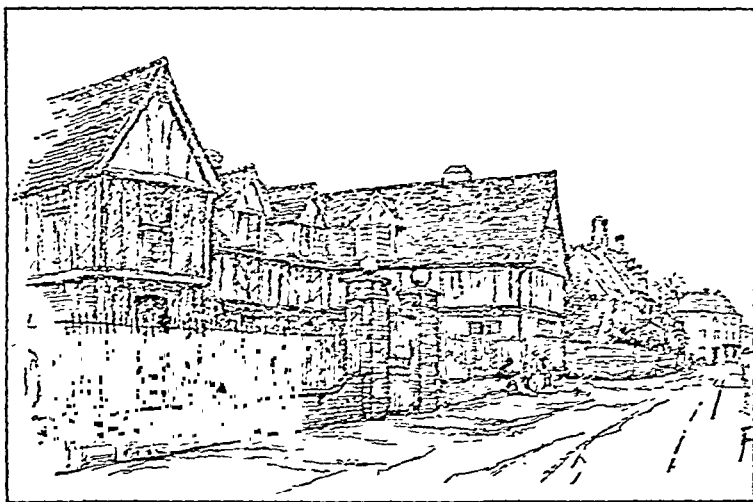
his purposes. So he took off the roof, raised this story three feet, and then replaced the roof; he also put in more windows. He thus created eight cottages, or more strictly maisonnettes, each providing one sitting room, one bedroom, a kitchen, and a bathroom. They were completed in 1929; three of them have the original staircases still intact.

Wooden Links with Eton

The interior doors of these cottages are made of extremely ancient oak, whose history is worth recounting. About 1840 (or soon after) the authorities of Eton College saw fit to order the removal of the antique shutters from the oldest buildings, which date from the foundation of the College by Henry VI. As these shutters were designed for unglazed windows they were probably made at the same time as the buildings were erected. The builder who carried out this "improvement" retained them in his yard for a number of years and then sold them to a dealer. A medical man later still bought them at Witney for eighteenpence each, intending to use them for some purpose which he then had in mind; but after storing them for many years he found that he no longer required them, and gave them to Dr. Wynter. These shutters, which have the original hinges on them, Dr. Wynter has used for the interior doors of this particular group of his cottages. They are carved all over with the names of old Etonians, many of them members of well-known Etonian families; some of these inscriptions are dated, the earliest 1593 and the latest 1840—the eighteenth century is particularly well represented.

A Harmonious Scheme

During these reconstructions and alterations Dr. Wynter has steadily refused to use modern bricks and timbers: he buys materials of Elizabethan date, or earlier, when



hand. Instead, complete excision should be carried out while the carbuncle is still small. If this is done and the diabetes is got under control immediately, the result is satisfactory, but no time must be lost.

Complications of Carbuncles

One cannot leave the subject of treatment of carbuncles without a brief reference to certain complications. Enough has been said about cavernous sinus thrombosis in connexion with carbuncles on the face, and how it is to be avoided. Nothing can be done once the condition is established.

Septicaemia and pyaemia sometimes occur, and may be the cause of a persistent pyrexia when the carbuncle itself appears to be progressing satisfactorily. In some cases the carbuncle may be practically healed, when the temperature rises and there are signs of infection in some other part of the body. A place where this is likely to occur is in the perinephric tissues. An abscess may form here and be easily overlooked as the symptoms are not pronounced, and unless the loin is palpated the condition may not be recognized for several days. Such an abscess, if adequately opened, will heal without leaving any ill effects on the kidney. In one case a very severe metastatic mediastinitis came on when a carbuncle on the neck was quite quiet and almost healed.

VITAL BALANCE-SHEET OF 1935

REGISTRAR-GENERAL'S REVIEW

The text volume of the Registrar-General's Statistical Review of England and Wales for 1935¹ contains the official commentary on the two volumes of vital statistics already published—namely, Tables Part I Medical and Tables Part II Civil. The report deals with the statistics of births, deaths, and marriages registered in 1935, the estimates of population, registrations under the Legitimacy Act and the Adoption of Children Act, and with the numbers of parliamentary and local government electors.

Population Figures

The estimate of the population of England and Wales in the middle of 1935 was 40,645,000 persons, of whom 19,500,000 were males and 21,145,000 females. The total is 178,000, or 0.44 per cent., greater than the estimate for the previous year and 693,000, or 1.7 per cent., greater than the population at the Census of 1931. The figure of 693,000 is made up of the excess of births over deaths, about 493,000, and the balance of migration, 200,000. The average ages of the estimated population are 32.7 years for males and 34.5 for females. These are gradually increasing; in 1931 they were 31.8 and 33.5 respectively, and in 1921 29.9 and 31.2. The marriages registered during 1935 were 349,536 in number.

The live births registered in 1935 were 598,756, or 1,114 more than in 1934. The corresponding birth rate was 14.7 per 1,000 population. A comparison with the rates in many other countries shows that only three of them—Austria, Norway, and Sweden—had lower rates. The number of male births exceeded the number of female births in the ratio of 1,056 to 1,000. The ratio is very inconstant, and may be low in one year and high in another in the same region. Stillbirths formed 4.1 per cent. of the total births registered. The natural increase of population in 1935—that is, the excess of live births over deaths—was 121,355, as compared with 120,832 in 1934 and 83,948 in 1933. The rate is 3 per 1,000 population.

¹ H.M. Stationery Office, price 3s.

Analysis of Deaths

The report reviews the mortality from various causes during 1935, and also contains several special studies.

Infant Mortality.—Comparison of the rates in 1931–5 with those in 1921–5 showed a decline during the ten years ranging from about 5 per cent. for infants under 1 month to 30 per cent. for infants aged 6 to 12 months. Comparing the group of towns whose infant mortality rates in 1935 were 90 per 1,000 live births or over (Bootle, Gateshead, St. Helens, Sunderland, Wigan) with the group of towns with rates below 40 (Bath, Eastbourne, Exeter, Great Yarmouth, Ipswich, Oxford), the causes of death responsible for most of the excess were measles, whooping-cough, bronchitis, pneumonia, and diarrhoea.

Tuberculosis.—A study of the decline in tuberculosis mortality since 1851 shows that the mortality of children under 5 from this cause has fallen to about one-ninth of the level of 1851–60, and of children aged 5 to 15 to less than one-fifth. At ages 15 to 25 mortality of men has fallen to one-quarter and of women to less than one-third, and rates at higher ages have declined to less than one-third of their values in 1851–60. The standardized death rate from respiratory tuberculosis was 28 per cent. lower, and from other forms of tuberculosis about 40 per cent. lower, for each sex in 1935 than the average rates for 1921–30. Among English rural areas those of Durham had the highest tuberculosis rates for young adult males and those of Herefordshire had the highest phthisis rate for young adult females, but several of the Welsh counties, notably Caernarvonshire, gave rates in excess of any English county.

Cancer mortality at various ages is compared in 1911–20, 1921–30, and 1931–5, and it is pointed out that the recorded mortality from cancer of some parts of the body has continued to increase since 1921–30 at advanced ages although it has become stationary or begun to decline in middle age, and it seems necessary to conclude that the average age of appearance of cancer in some of these organs is becoming later. For a few organs, on the other hand, cancer mortality continues to increase at almost every age.

Maternal Deaths.—As a result of special inquiries during 1935 the relation of maternal deaths to the number of previous confinements, or to the occurrence of a twin or stillbirth or abortion, is shown, and the distribution of abortion deaths in each region during 1926–35 is also given.

Deaths from Poisoning and Violence.—Classification of the deaths since 1924 due to poisoning shows that in 1933–5, although the suicide rate by the use of solid and liquid poisons had almost ceased to rise, the resort to coal gas for this purpose was still increasing rapidly. Among the poisons which showed important increases since 1930–2 as suicidal agents were the barbiturate drugs, aspirin, and opium derivatives, while the slight increase in accidental deaths from solid and liquid poisons in the same period was more than accounted for by deaths due to barbiturates. In 1935 the cause principally responsible for the excess of mortality among males resident in rural areas over those resident in cities was road transport, other contributory causes being accidents in mines or quarries or by drowning. Female mortality caused by road transport was, in contrast with males, greatest for residents in Greater London. Analysis of the total mortality in 1935 by violence, other than suicide, shows that for children under 5 the advantage of a greater freedom from fatal accident which was enjoyed by the rural child in 1911–20 has almost disappeared, and at the school ages it has been replaced by a greater mortality risk in the rural districts than in the towns. At ages 25 to 55 the female risk, which in 1911–20 was greatest for town dwellers, has become greatest for residents in rural districts, but after 55 a reversal to a large excess of risk for town dwellers occurs. For males the greater risk to rural dwellers persists up to 65 before the reversal takes place.

Work at the Well

The report goes on to describe the well, which was constructed in 1888 and extends to a total depth of 205 feet. The object of the work on the well was to control the inflow into it so as to enable repairs to the pumping plant to be carried out. To keep down the water level while work was being carried out both of the two available pumps had to be used. With the two pumps at work it was not possible to pass the whole output through the filters. Before July, 1936, a chlorinating apparatus was available in the filter house, although it was only used at intervals: an ammoniator was added at that date as a result of unsatisfactory samples. Between September 24 and October 15, 1937, the water was pumped to waste while work was in progress and to supply during the remaining time. From October 16 till November 3 it was pumped continuously to supply. Neither the filter nor the chlorinating apparatus was in use during this period.

The men, eighteen in all, worked in two shifts of four hours. They were let down and drawn up from the well in couples in what is termed a "skip"—"a foreshortened barrel," in which chalk excavated from the adit to the well in which the men were working was also hoisted to the surface.

The provision for workmen requiring to relieve themselves while in the adit was this. An ordinary stable bucket was let down and kept in the adit. When, according to the evidence, it became half-full it was placed on, and bedded into, one of the loads of chalk going to the surface. This, of course, involved the skip being drawn into the adit from the main shaft: the chalk and bucket being placed in it: and its being released (though it may be with care) into the main shaft prior to being pulled up to the surface. The actual work the men were doing was lighted by hurricane lamps. In what part of the adit the bucket was kept did not clearly appear. I am satisfied that the men were warned that if their bowels were moved they should come to the surface, where there was adequate lavatory accommodation. I am also satisfied that in this long dark gallery where water was flowing there were ample opportunities, if a man were so minded, for the deposit of faeces and that there can have been no desire to multiply the daily journeys, up and down, in the skip. The typhoid carrier to whom I have already referred and who was, by common consent, described at the Inquiry as "Case A," worked in the well with certain recurring intervals from September 28 to October 26. It should be said of him at once that he was a man who had served in the war, had contracted typhoid in the war, and, through no fault of his own and in ignorance of the fact himself, remained a carrier of the bacillus.

From the evidence he had heard (Mr. Murphy's report continues) from eminent medical witnesses the period of incubation in water-borne epidemics was not likely to be less than fourteen days, twenty-one days would be fairly common, and the incubation period might be even longer. Whatever period was taken, the dates of the onset of symptoms pointed to the original infection having taken place while the work was proceeding in the well and while the carrier was there.

Dealing with other possible sources of infection, the report draws attention to the state of the area from which the Addington well derives its water. It is chalk soil covered above a certain elevation by a more or less permeable clay-with-flints. It is recognized that owing to wide fissures in the chalk water may flow through it almost completely unfiltered. The gathering ground of the Addington well has an area of not less than three and a half square miles, and in this area two possible sources of infection were inspected—namely, a farm known as Fisher's Farm and the site of a latrine used by workmen while building a school closely adjoining the well itself. Both these possible dangers have now been removed. A careful investigation into the medical history of those occupying houses and farms in the gathering ground showed that for a considerable time no case

of typhoid had been notified or known in the area. "In these circumstances I think it is safe to conclude that though the gathering ground undoubtedly contained potential sources of danger the actual infection of the well was not derived from it."

Departmental Incoordination

The facts having been stated, the report makes certain observations on them. Mr. Murphy points out that it was possible to shut off the supply from the well while work was taking place, which has actually been done since November 4, 1937. He continues:

There was both misunderstanding and lack of communication between the responsible officers of the Corporation in connexion with the work. Dr. Holden, the Medical Officer of Health, was never informed that the work was being carried out at all. He was in complete ignorance of it until after the outbreak had taken place. It is true that Dr. Holden's duties did not include any direct responsibilities with regard to water, but he was sent monthly analyses of the water taken from certain of the wells and reservoirs. He had frequently made careful comments upon these analyses and had advised on the question of chlorination. I cannot help thinking that if Dr. Holden had been informed that men were working in the well and that simultaneously filtration and chlorination had ceased his advice would have been sufficient to put an end to such a state of affairs. His ignorance of the fact that chlorination had ceased may seem the less surprising when I go on to say that Mr. Boast, the Borough Engineer, who was the person directly responsible for the water supply, was also in ignorance of it. At a meeting preliminary to the work being commenced between Mr. Boast, Mr. Brandram-Jones, the assistant water engineer, and Mr. Ellis, the mechanical engineering foreman in the Waterworks Department, it was brought home to Mr. Boast's mind that the proposed work would involve by-passing to a considerable extent the filtration plant. I am not satisfied that he then understood that it would involve a total by-passing of the filtration plant even when the water was being pumped to supply. He certainly never understood that it would involve elimination of the chlorinating plant. It was common ground between all three witnesses as to this interview that no mention of the chlorinating plant was made at all. This seems very surprising, for the filtration plant used as it was without a coagulant did little more than remove turbidity. The chlorinator, on the other hand, was worked with an ammoniator, and even with the very small dosage that was being adopted, and without the stepping up of that dosage which took place from time to time when the analyses seemed unsatisfactory, might conceivably have been effective to deal at least with the typhoid bacillus. Evidence was given that the typhoid bacillus is killed by a smaller dose than that necessary for the destruction of the colon bacillus. It would seem that Mr. Brandram-Jones overestimated the value of the filtration plant and underestimated that of the chlorinator. He attributed virtues to the filtration plant which it did not possess, and regarded (with some reason) the very small dosage applied to the chlorinator as one merely intended to keep it, so to speak, ticking over, so that it should be ready for stepping up from time to time when it was required. He therefore mentioned the cutting out of the filtration plant, but omitted to point out that this involved as a necessary consequence the cutting out of the chlorinator. Mr. Boast was not sufficiently acquainted with the layout of the pipes to be aware that the one proceeding followed the other. On October 31, 1937, after the outbreak had definitely begun, he inquired on the telephone from Mr. Brandram-Jones (who had left Croydon on October 16 to take up a post elsewhere) what orders he had left as to chlorination at the Russell Hill reservoir and Addington well, and learned for the first time that the latter was not being chlorinated at all, and had not been chlorinated for a considerable time. What is extremely difficult to understand is how (even in the absence of any communication with the Medical Officer of Health) it occurred to none of these gentlemen that the fact of men working in the well during a period when water was being pumped to supply afforded strong grounds for the stepping up of the dosage of chlorination in contrast to its elimination. If Mr. Boast had mentioned the desirability of increasing the dosage of chlorine he would at once have been informed that the by-passing of the filters involved the by-passing of the chlorinator. If it had occurred to Mr. Brandram-Jones, who regarded the existing dosage as merely nominal, that an

buildings of that age are demolished, and his restorations and additions are all designed to harmonize with the old buildings. In fact, it is not easy to tell, when looking at an addition to a piece of the old property, where the old work ends and the new work begins. The only finds of any antiquarian interest during the progress of the different works have been an Elizabethan sixpence and a Charles II farthing of 1670—the latter reign was the first in which farthings were minted, so that this represents a very early issue indeed. Four more adjacent cottages, thought to be about two hundred years old, were also purchased by Dr. Wynter, and are in occupation. On the completion of the adaptation of Jemmett's almshouses and their occupation by eight nurses Dr. Wynter projected additional buildings on a site in close vicinity to them to provide quarters for eight more. Here again the planning was carried out in close conformity with the old buildings; and once more care was taken to use none but materials of Tudor date, or older. Four of these cottages are now complete, and were thrown open for occupation in the early part of 1937. Four more are contemplated to round off the scheme, raising the total to twenty-four. It is perhaps hardly necessary to say that Dr. Wynter provides this accommodation entirely free: his tenants pay neither rent nor rates.

The merits of this scheme of practical philanthropy need scarcely be laboured here: they stand out without need of adjectives or superlatives, and were generously acknowledged in the nursing papers in 1926 and 1927 when the first parts of it fructified. When Dr. Wynter communicated to the Governors of Middlesex Hospital the details of his plans, and the announcement of his intention to bequeath to the hospital the completed homes and to provide an endowment for them, to be kept in perpetuity for retired members of the nursing staff, the daily press also contained appreciative articles. At that time the plans were, if not in their infancy, at any rate very far removed from completion; and now that the design is well on the way to entire fulfilment it is possible to realize more fully what a blessing the enterprise will prove to the nursing profession, with which Dr. Wynter was closely and happily associated during the many years of his services to the Middlesex Hospital, to which he is consulting physician. Dr. Wynter entered the school there in 1878 as a scholar, and finally severed his active connexion with it in 1925, on retiring from the post of senior physician. He served for a long period on the Council of Epsom College, at which he was educated, and has been for many years past a member of the Newbury Borough Council.

The illustration shows a view of Jemmett's almshouses—now named Bartholomew Close—as reconstructed, with Dr. Wynter's house, Bartholomew Manor, beyond them; it is from a drawing by Mr. A. J. Campbell Cooper, reproduced in the *Newbury Weekly News* of August 16, 1934.

Practical recommendations which should lead to eradicating discoloration and corrosion in canned cream are put forward in a recent publication of the International Tin Research and Development Council. The work was undertaken by C. J. Jackson and G. R. Howat of the Hannah Dairy Research Institute, and T. P. Hoar of the council. The defects studied are the occurrence of purpling, bronzing, and pitting of the can and black particles in the cream, and an explanation of them is now provided. The practical implications of this and a previous paper on the same subject relate to the quality of the milk used for cream manufacture, the quality of the tinplate used for the cans, the kind and amount of stabilizer used, and the conditions of processing and storage. The details are given in *Technical Publications*, Series A, Nos. 49 and 72, of the International Tin Research and Development Council. Copies may be obtained free of charge from Manfield House, 378, Strand, W.C.2.

THE CROYDON TYPHOID INQUIRY

MR. H. L. MURPHY'S REPORT

On November 22, 1937, Mr. Harold L. Murphy, K.C., was appointed by the Minister of Health to hold a local inquiry into the causes leading up to the outbreak of typhoid fever in the County Borough of Croydon during October and November, and the steps taken to deal with that outbreak. Sir Humphry Rolleston, Bt., M.D., and Mr. H. J. F. Gourley, M.Inst.C.E., were appointed to sit with Mr. Murphy at the same inquiry as assessors. The public sittings of the tribunal were reported week by week in these columns.¹ The report of the Inquiry, dated February 8 and signed by Mr. Murphy, was published on February 14 as a White Paper;² it is a printed document of seventeen pages.

Main Conclusion

Mr. Murphy's main conclusion is set out on the first page as follows:

The immediate cause of the outbreak was a portion of the public water supply becoming infected by the typhoid bacillus. The infected portion was that derived from a chalk well at Addington. How that well became infected is a question that cannot be answered with absolute certainty, but all the circumstances and probabilities point so strongly in one direction that I feel justified in coming to a definite conclusion on the subject. That conclusion is that the well was infected by the fact that at the end of September and during October, 1937, men, one of whom was an active carrier of typhoid, were working in the well, and that during large parts of such period water from the well, unfiltered and unchlorinated, was being pumped to supply.

At the end of the report he says: "The infection was due to an unfortunate and rare coincidence of three factors—(a) constructive changes taking place in the well, (b) one of the workmen being a typhoid carrier, and (c) the process of chlorination being in abeyance."

Croydon Water

The Borough of Croydon mainly depends for its water supply on five wells, two of which, Addington and Stroud Green, supply what is called the high level area. The Addington well contributes 1,000,000 gallons to the normal yield of the Corporation wells of 6,066,000 gallons a day. The wells are situated in the Upper Chalk. Among the storage reservoirs supplied from them is one at Addington which represents the high level storage and which, though receiving some water from the Stroud Green well, was at the time primarily filled from the Addington well. It was estimated during the Inquiry that the population "at risk" on the high level supply was between 36,000 and 40,000 out of approximately 250,000 persons in the borough. With the exception of a few isolated cases all the primary cases of typhoid in the outbreak were within the area of the high level supply; in the few isolated cases the patients had opportunities of drinking high level supply water.

After a number of cases had been notified and it was apparent that the high level supply water might be implicated, samples of water from the Addington well and the Stroud Green well were submitted on November 3, 1937, for examination by the Ministry of Health bacteriologist. On the following day the test showed that the Stroud Green water was satisfactory, but that the water from the Addington well was heavily polluted, although the typhoid bacillus could not be isolated. On the same day (that is, November 4) the supply from the Addington well was cut off, and it seems certain that no primary case was infected after then. It is probable that there was no primary infection after November 1, when chlorination was applied to the well.

¹ *British Medical Journal*, December 11, p. 1189; December 25, p. 1293; January 1, 1938, p. 30; January 8, p. 86; January 15, p. 135; January 22, p. 189.

² Cmd. 5664. H.M. Stationery Office. 1938. (4d.)

and asked for the assistance of one of its medical staff. Dr. Ernest T. Conybeare of the Ministry arrived in Croydon on November 3 and attended daily at the Borough for some time. One of Dr. Conybeare's first inquiries was whether the residences from which cases had been reported were all on the same water supply. A map of the water system of the Borough produced by Mr. Boast made it "tolerably clear that the common vehicle of the infection was water from the high level supply." Consequently the samples were taken from the Stroud Green and Addington wells, the latter, as already stated, being found to be heavily polluted.

Water in House Cisterns

After November 4 the primary sources of infection had ceased to operate and it was only from water in mains and cisterns originally supplied from the Addington well that any further primary infection could possibly be derived. A plan showing the nineteen latest cases to be notified had revealed that most of the houses concerned had small storage capacity, varying from 17 to 26 gallons. The two houses with the largest storage, one of 71 and the other of 56 gallons, had no tap connected with the storage tank. No fewer than six out of the nineteen had no storage tank and depended entirely upon the main. It was concluded that polluted water in cisterns and storage tanks after November 4 played no part in the epidemic. Dr. Suckling on his arrival at Croydon on November 11 recommended that water stored in unoccupied houses should be run off and that people who might be returning to houses which had been unoccupied for some time and where there were cold water storage tanks should be advised to run off the stored water. "It seems to me," states Mr. Murphy in the report, "on the evidence that this is a very desirable precaution and should be recommended at the very earliest possible moment after the water supply is ascertained to be the probable source of infection."

Medical Co-operation

I come now to a matter of criticism which is to some extent general in relation to both of the periods which I have been considering. On November 1 Dr. Holden, by letter, notified all the registered medical practitioners in the Borough of the fact that certain typhoid cases had occurred in South Croydon. No details were given other than a general warning to keep the possibility of typhoid in their mind. It would be doing an injustice to the local medical practitioners to assume that, with this warning before them, they would not seriously consider the possibility of typhoid in any case of fever that they were called in to treat. That they would do so was stated in evidence which I accept, and indeed it seems obvious. On the other hand, there was uncontroverted evidence from the highest source before me that the clinical symptoms of typhoid vary in particular outbreaks and that the early symptoms can readily be mistaken for those attributable to other causes. The early manifestations sometimes seem to be not unlike those of influenza, and they can be, and have been, mistaken for those of appendicitis. In addition, the remarkable diminution of typhoid in this century has deprived medical practitioners of any common acquaintance with the disease. These facts seem to me strongly to enforce the view expressed by Sir William Willcox, who took the trouble of attending the Inquiry on January 6, 1938, to give the assistance of his valuable evidence, and to express the view that in all large areas there should be some committee representing all the local practitioners which, upon the occurrence of any outbreak, would be in constant and close touch with the Medical Officer of Health and would provide the means of pooling and distributing all the information available from time to time as to symptoms and possible causes. For instance, in the present case, it would have been of assistance to the general body of practitioners for the purposes of diagnosis to know, as soon as possible that water had been identified as the source of the disease. It is desirable to make two things clear. First, Sir William Willcox was not directing any special criticism at the Corporation's medical services for lack of some such committee as this. On the contrary he emphasized the fact that the absence of such a body was general throughout the country except in

very few cases. Secondly, nothing in the evidence of Sir William Willcox detracted from the fact that after the outbreak had taken place the sole responsibility for dealing with it rested with the Medical Officer of Health and that he could not at the time of such a crisis be expected to act as chairman of a committee. The view expressed by Sir William Willcox was a plea for some means of creating closer contact and more ready communication between the Medical Officer of Health and the general body of practitioners, and part of the value of the suggestion seems to me that it might tend rather to easing than increasing the work of the Medical Officer of Health during the course of an epidemic. I would observe, too, that a very large number of cases in this epidemic occurred on the very borders of the Borough, and that it was obviously desirable that contact and communication should be established between the Medical Officer of Health and a slightly larger number of doctors than those with addresses in the Borough Directory.

The M.O.H. for Croydon

In conclusion the report states that although there was severe criticism of Corporation officers during the Inquiry it had never been suggested that once a case of typhoid was reported it was not promptly, carefully, and skilfully dealt with. The main task of the medical officer of health throughout the epidemic was the provision of accommodation for the sufferers and "the treatment necessary to keep down the death roll as far as possible." The burden upon Dr. Holden in this respect was enormous, and nobody suggested that he did not discharge it adequately and well.

Counsel appearing on behalf of certain local medical bodies put forward, with considerable skill and moderation, an appeal for greater co-ordination between the Medical Health Department and general practitioners, but expressing the views of his clients, described Dr. Holden as "a loyal, able, and industrious servant of the Corporation as well as a truthful and careful witness." With that expression of opinion I concur. It appears to me that the only legitimate criticism that can be directed at Dr. Holden in this case is a slight delay in his realization that "water" was or might be the cause of the epidemic. I do not think that until after October 29 he had any reason for directing his mind to water. The two cases notified up to that date, like the earlier case on October 20, might well have been regarded as sporadic. On October 30 he had two more notifications and the indication of two further cases, making six in all. I think by then his mind might well have turned to water, but it is clear from the evidence as to what took place on October 31 that he remained until then reluctant to consider water as a probability. As I have already said, it was on the morning of November 1 that effective chlorination took place at the Addington well, although Dr. Holden admitted that this was done as a precaution and not because the well was then suspected. From these facts it will be obvious that any criticism of delay in attacking the Addington well supply must be based upon a period not exceeding two days, and I must repeat that Dr. Holden until October 31 was ignorant of the fact that chlorination had ceased at the well. If separate samples of the well water were taken on October 30, as they were in fact on November 3, the result would have been known at the earliest on October 31, and could at best have meant the speeding up of chlorination by some hours. The dates of the various cases render it unlikely that any infection was caused by this short delay, and if I had to come to a conclusion upon the matter I should say that it was not.

Mr. Murphy ends his report by saying that while the responsibility for the conclusions and the grounds for stating them are entirely his own, his assessors, to whom he pays tribute for their invaluable, painstaking, and loyal assistance, are in general agreement with them.

To the *Revue Médicale de la Suisse Romande* of December 25, 1937. A. Guisan contributes an interesting account of Charles Augustin Sainte-Beuve (1804-69), who, abandoning medicine for literature, one hundred years ago gave his first course of lectures at the University of Lausanne. The paper refers to his last illness and gives the post-mortem findings.

increase in the dosage of chlorination was desirable while the work was proceeding, he would, of course, have been the first to point out to Mr. Boast that the work was involving the total cessation of chlorination.

"In this surprising and regrettable state of affairs," the report continues, "the work commenced." Mr. Murphy did not accept that the men chosen for the work had been carefully selected for physical fitness out of a large number of volunteers. "The important point is that there was no examination at all, however cursory, by the only class of person who would have been qualified to express any opinion of value upon the subject—namely, a member of the medical profession." He continues:

I should observe, since I have dealt with the arrangement for urination while the men were working in the well, that this appears to have been completely unknown to Mr. Boast, although it would also appear that it had been the practice in Croydon during such work for many years.

Mr. Boast was under the impression that he had given directions to the effect that the men, whether they required to defecate or urinate, should be brought to the surface. If he did so (which was a matter of dispute) it would seem that his words were "use the lavatory," which might not have conveyed the meaning he intended to those, like Mr. Brandram-Jones and Mr. Ellis, acquainted with the practice of bringing men to the surface for the one purpose and not the other. I do not attach overmuch importance to this, for I think that there was much force in an observation made by Mr. Ellis that if there was insistence upon the men coming to the surface whenever they desired to urinate and no provision made for that purpose where the work was being carried on the danger of misconduct would be greatly increased. This is quite a different matter from the question whether the provision for urination in the well gave any guarantee of safety. In my opinion it did not. The most elementary care would seem to dictate at least the use of a vessel which could be closed before being thrust out into the well shaft and hauled to the surface. This is, perhaps, an appropriate point to refer to the fact that Case A was definitely ascertained to be a faecal carrier and that a number of tests failed to detect any trace of the bacillus in his urine. There is the less materiality in this, since the scientific evidence established that a very large proportion, probably more than one-half, of faecal carriers are, at least intermittently, urinary carriers, and that, as the detection of the bacillus in the urine is a more difficult matter than in the faeces, a negative result from even a large number of tests is not conclusive. While I have stated at the outset that all the probabilities point to the source of the infection of the well as being the work that took place in September and October, 1937, treating the gathering ground as a potential, but in this case improbable, source of infection, I am bound to say that singularly little attention appears to have been paid by the water department to that potential source prior to the outbreak.

It was regrettable that a contractor's workmen engaged on Corporation work were allowed to dig and use a latrine almost directly above one of the well adits, and also unfortunate that the privies of Fisher's Farm which drained only into the soil and with an obvious tendency to flow down through the chalk in the direction of the not distant well should have been ignored. "I should say at once," Mr. Murphy goes on to say, "that Mr. Boast's duties as borough engineer covered so wide a range of matters as to make it impossible for him to give detailed personal attention to the highly important subject of water supply. He was responsible for highways, lighting, drainage, housing, and many other matters. It may well be a matter for consideration whether in a borough of the dimensions of Croydon with its own water supply that supply should not be under the direction of a fully qualified water engineer reporting to a water committee and keeping in close touch with the medical officer of health."

Dealing with the Outbreak

In considering the steps taken to deal with the outbreak the report observes that on October 20 a case of typhoid was notified but had no connexion with the outbreak, as the patient had contracted the infection whilst on holiday in France. The first case in the outbreak was notified

on October 27, the second case on October 28, and two further cases on October 30, when the Medical Officer of Health received a letter from Mr. C. H. Rimington calling his attention to two further cases and stating, "with considerable prescience, that even in these early cases other possible causes could be eliminated and that 'the only common thing appears to be water.'" On October 31, a Sunday, a meeting of local ratepayers was organized by Mr. Rimington at which Dr. Holden and Mr. Boast were present. Mr. Murphy continues:

I have referred in connexion with the first subject-matter of the Inquiry to the odd lack of communication between the waterworks department and that of the Medical Officer of Health in connexion with what was being done at the Addington well. There is an equally surprising parallel in the opposite direction. Mr. Boast, the gentleman in sole control of the water undertaking, was unaware until October 31, when he received a telephone message to that effect from a private citizen, Mr. Rimington, that any cases of typhoid had occurred in the borough at all. This undoubtedly arose from Dr. Holden having formed the view that the possibility of water being the cause of the cases which had been notified was comparatively remote. There was some dispute as to what precise expression was used by Dr. Holden at the meeting on October 31 with regard to water being the cause of the infection. Dr. Holden's own statement as to what he may have said was "that I could not suspect water until I had eliminated other factors." There was a good deal of evidence from gentlemen present at the meeting that Dr. Holden used the word "inconceivable" in connexion with water as a possible cause, but Dr. Holden's own recollection as to what he may have said is quite sufficient to show the tendency of his mind at the time. There are a number of explanations of this. He had had the sporadic case on October 20; since then he had had only four notifications apart from the two mentioned in Mr. Rimington's letter. He was in complete ignorance, through no fault of his own, of the work that had been carried out in the Addington well and of the fact that chlorination there had stopped. There was nothing at the time to make him visualize the extent of the coming epidemic, although there was sufficient to make him uneasy. Sporadic cases of typhoid, though happily increasingly rare, are still common in the experience of a medical officer of health whose area comprises a population of a quarter of a million. Up to July, 1937, from the beginning of the year, there had been ten notifications of enteric fever in the borough, nine of which were cases of paratyphoid, the less virulent form of the disease which is very commonly derived from articles of food contaminated by a carrier. Dr. Holden had, no doubt, in his mind the last substantial outbreak of typhoid in the country, which was, in fact, found to be caused by milk, albeit the primary cause was the infection of the milk by water, though not from a public water supply. At the same time I think it is proper to point out that Dr. Holden was under the impression that water was comparatively rare as a cause of recent outbreaks of typhoid. That impression was wrong. I had the advantage of hearing the evidence of Dr. Suckling, an expert of very great qualifications and outstanding as an authority upon water supplies. He is the joint author of the standard work upon the subject which was freely used and referred to by all parties at the Inquiry. Dr. Suckling's opinion, expressed in his own words, was "I think that water occupies the pre-eminent position with regard to the spread of typhoid fever" and again "my view is that the majority of the epidemics of typhoid fever have been due to the infection of water rather than food." It is obvious that when typhoid occurs all possible sources of infection should be tested as soon as possible. It would seem, however, on the evidence I have heard, that even before it is possible to draw a line between the sporadic and the epidemical, water should be immediately suspected, and if there is any priority in the course of examination for possible causes it should be given to water.

It was on October 31 that Mr. Boast learnt from Mr. Brandram-Jones that chlorination of the Addington well had already ceased for some time. The matter was discussed by Dr. Holden and Mr. Boast, and as a result an adequate dosage of chlorination was applied to the Addington well on Monday morning, November 1. On the same day there were two further notifications, and Dr. Holden immediately communicated with the Ministry of Health. There was a further notification on November 2, and Dr. Holden again got in touch with the Ministry

for the *bona fide* purpose of preserving the mother from special danger to life or health. At the same time, certain precautions must be taken. Two weapons were available for defence against the unscrupulous patient and the over-sympathetic practitioner. These were (1) notification of all cases of therapeutic abortion before the operation was performed, and (2) the unanimous agreement of a board of three individuals—namely, the family practitioner, the surgeon performing the operation, and a disinterested physician, surgeon, obstetrician, or alienist, with special knowledge of the condition for which the operation was suggested.

Notification

Sir Beckwith Whitehouse was of opinion that while notification was no hardship to the genuine patient, it would act as a deterrent to the potentially criminal type of applicant. The mere fact that the case had to be notified would reduce the number of cases in which it was necessary. Some form of notification of therapeutic abortion was a reform urgently and increasingly necessary. By its means the light of medical and public criticism would be focused for good or evil upon those individuals who developed a penchant for this type of practice. The reference to a board of three persons would also have the effect of tightening up the existing law and limiting the activities of the medical abortionists. He added that if reform of the law on abortion simply implied increased licence in the performance of an operation which the majority of obstetric surgeons detested, then he would be no party to it. What he wanted was the law so amended that when the genuine indication arose they might say to themselves and their patients, irrespective of questions of life or death, "This operation is both justifiable and legal." Further, they were anxious to eliminate from the profession anything that savoured, even remotely, of illegality.

Dr. W. H. F. OXLEY, in opposing the proposition, said the agitation for reform came from three groups: those who wished to enlarge the scope of abortion so as to include all cases where women wished to have their pregnancy terminated, whatever the reason; those who wanted to reduce the number of illegal abortions by increased stringency of regulation; and those in the medical profession who desired a clear statutory definition of the indications which would make artificial termination of pregnancy lawful. There was no need to spend time over the first group, whose main thesis was entirely immoral. He instanced the experience of Soviet Russia, which found that it had made an error in permitting wholesale abortion, and had now passed repressive legislation. As for the second group, he believed that many of the arguments they advanced were unsound and the methods they advised would prove ineffective.

Is Abortion Increasing?

In the first place, there was no proof that abortion was increasing in this country. He gave certain figures compiled in representative localities which appeared to show that the percentage of pregnancies ending in abortion had remained constant over the last forty years. The deaths attributed to abortion had remained steady between 400 and 490 each year from 1926 to 1934. The problem was comparatively small and did not warrant panic legislation.

In pressing for notification by doctors attending cases of abortion, whether spontaneous or induced, the advocates of such a course forgot the clandestine character of illegal operations. Doctors were not called in at all in illegal cases, and therefore the cases on which information was wanted would be the very ones in which it would not be forthcoming. Another suggestion was that the sale of substances used for procuring abortion should be restricted under the Pharmacy and Poisons Act. This would be futile, for the most effective and most commonly used drugs were simple aperients taken in excess. For such

restrictions to be effective the sale of Beecham's pills, Higginson's syringes, and knitting needles would have to be made illegal, which was absurd.

Recent reports had led to the conclusion that the vast majority of intentional abortions were brought about by simple means by respectable married women with families, chiefly for economic reasons. Only by eradicating the economic causes at work could the desired result be secured. Dr. Oxley's conclusion was that the doctor must act in accordance with his generally recognized duties—namely, those of saving the life or the health of his patient; he would not be justified in performing abortion for sociological or eugenic reasons. He did not believe there had ever been a prosecution of a doctor who had kept within his province, and he saw no reason for alteration of the law.

Mr. V. B. GREEN-ARMYtage considered that if the law was to be altered in the direction Sir Beckwith Whitehouse desired a state of inelasticity would be created, no extenuating circumstances would be allowed, and neither doctor nor patient would be benefited. Dr. LETITIA FAIRFIELD also thought that the practical interpretation of the law as regards the health of the mother, not her life only, was so broad that in practice it seemed entirely to do away with the necessity for the very limited reform Sir Beckwith Whitehouse proposed. Her "blood curdled" at the thought of a medical board of three persons: she knew what it meant in necessary formalism—delay, obstruction, and interference. It did credit to the "adolescent innocence" of Sir Beckwith Whitehouse when he suggested setting up such a regulation for the profession. She agreed with Dr. Oxley that there was no considerable increase in abortion. The case histories of over 17,000 women in the maternity wards of L.C.C. hospitals had lately been investigated—women who had come to term or given birth to a viable child—and among them there was a history of under 7 per cent. of abortions. The number of septic abortions in these hospitals was precisely the same in 1936 as in 1931, although in the meantime the maternity accommodation had been greatly extended. The deaths from abortion, although they had fluctuated considerably, were lower in 1936 than at any time during the previous seven years.

Legal Opinions

Mr. T. ANDERSON DAVIES (solicitor) thought there was something to be said for the unmarried prospective mother applying to a board of three persons—he suggested two doctors and a third person such as a court probation officer—who would decide whether it was in the interests of the State that the child should be born. If they said "No," then let an abortion be performed under proper circumstances. But the mother should not be kicked about, the stigmatized parent of an illegitimate child or the partner of an unwilling husband. Dr. BINNIE DUNLOP said he could not vote for either side. He considered that the law should be abolished altogether. If it was said that it was a law against murder, then they had no right to interfere, even on therapeutic grounds, with a pregnancy. They were in that dilemma. It struck him as strange to hear medical people discussing this as if it were a medical law; it was a religious law, an old Church law, and they were endeavouring to produce medical reasons for it.

Mr. HARCOURT KITCHIN (barrister-at-law) thought it a pity that the law should be vague. The medical profession did not want to behave illegally, and he would like to see a subsection declaring that it was lawful for a registered medical practitioner to bring about the miscarriage of a woman if he believed reasonably and in good faith that should her pregnancy be continued it would cause damage to her health. He would also include the rather rare cases of pregnancy following rape and incest. Dr. G. H. ALABASTER pointed out that the reform of the law regarding abortion really turned on

GRANTS FOR SCIENTIFIC RESEARCH

The fourteenth annual report of the trustees of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation shows that twenty-six grants were made, eighteen of which were awarded to scientists outside the United States. In the fourteen years of its existence the Foundation has made 308 grants to scientific investigators throughout the world. The list of grantees during the current year includes Dr. Melville Arnott of Edinburgh, for further research into the connexion between renal damage and hypertension; Dr. Ernst Fraenkel of London, for research on the chemical nature of an inhibitory substance in the Rous fowl sarcoma and other malignant growths; Professor William Frei of London, who is studying the questions whether it is advisable to substitute for the original vaccine of the "Frei test" vaccines of animal origin and whether renal stricture is caused by the virus of lymphogranuloma inguinale; Dr. Honor B. Fell of Cambridge, for continuation of Miss S. Glasstone's nutritional studies; Dr. David E. Green of Cambridge, for the isolation and purification of coenzymes I and II from yeast and for pharmacological investigation of the conversion of adrenaline to adrenochrome; and Dr. Alexander Schönberg of Edinburgh, for the study of various chemical problems, one of which relates to a strong oestrogenic agent. Grants are at present limited to investigations in the sciences closely related to medicine and surgery, and may be used for the purchase of apparatus and supplies for special researches, but not for equipment and material which are ordinarily found in laboratories. Stipends for the support of investigators can only be granted in exceptional circumstances. The maximum size of grants is usually less than 500 dollars. Applications for grants to be held during the year 1938-9 must be received by Dr. Joseph C. Aub, Collis P. Huntington Memorial Hospital, 695, Huntington Avenue, Boston, Massachusetts, before the end of April.

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee fourteen annuitants were elected, the total amount voted being £398. In addition fifty-one beneficiaries, including twelve new applicants, were awarded grants amounting to £1,134 19s. 5d. The following are particulars of three cases:

Widow, aged 86, of M.B., C.M., who up to the time of his death in 1938 had been in receipt of a Fund annuity of £78, Epsom Pension of £62, and Old Age Pension £26, all of which ceased at his death, leaving his widow with only her Old Age Pension of £26. The Fund voted a grant of £52.

Daughter, aged 67, of M.R.C.S., who since her father's death has supported herself by giving lessons in music and languages. She had to give up her employment and enter hospital, where a panhysterectomy was performed in October, 1937. Her income during the past twelve months had been only £15 from earnings and £15 from occasional gifts. It was stated that only through the kindness of friends, who gave her clothing and many meals, had this lady been able to manage on her income. The Fund voted £31 10s. for nursing home fees, and in addition voted £36 for a period of twelve months.

Widow, aged 62, of M.B., C.M. Since her husband died in 1918 this lady had supported herself as nurse-companion until her last patient died in December, 1937. She is handicapped from getting employment owing to her age, and also to a Dupuytren's contraction. The Fund voted £26.

Subscriptions and donations are urgently needed, and may be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

An inquiry into the effect of London omnibus men's work on their health will begin early next month at the Ministry of Labour. This investigation was recommended by the Court of Inquiry into the London bus dispute last spring. Mr. John Forster, who presided over the Court of Inquiry, will be chairman of the health investigation; the other members are Air Vice-Marshal Sir David Munro, K.C.B., M.B., and Dr. A. Bradford Hill, nominated by the Medical Research Council, with two representatives appointed by the London Passenger Transport Board and by the Transport and General Workers' Union.

Reports of Societies

THE LAW RELATING TO ABORTION

A debate arranged by the Fellowship of Medicine took place on February 9 on the proposition "That the law of abortion requires reform." This was supported by Sir Beckwith Whitehouse and opposed by Dr. W. H. F. Oxley. There was a very large attendance of about 300.

Mr. JUSTICE HUMPHREYS, who presided, said that the position he occupied on the Bench made it undesirable that he should express any opinion on a proposed alteration of the law, and he contented himself with a statement of the law as it was at present. In 1837 it was made a criminal offence for any person other than the woman herself to use any means for the purpose of securing a miscarriage. In 1861, when the criminal law was consolidated, it included the woman herself as a guilty party. This was the whole law relating to abortion, except for the Infant Life Preservation Act, 1929, which brought into existence the new crime called child destruction. It provided that any person who by a wilful act caused a child which was capable of being born alive to die before it had an existence independent of its mother should be deemed guilty of a felony in the same way as the procurer of abortion, the maximum penalty in both cases being penal servitude for life.

Position of the Doctor

What of the doctor who decided, solely in the interests of the patient, and with a view to saving her life, that a pregnancy must be terminated? Did he come under Section 58 of the Act of 1861? Doctors had said to him, "Do not tell us that nobody would prosecute, or that if prosecuted we should get off. As reputable members of the profession we object to being placed in the category of persons who are committing a crime." Mr. Justice Humphreys said that he could only give his private opinion, though he thought his fellow judges would not differ from his view, that a medical man who in those circumstances terminated the pregnancy was committing no offence against the law. Criminal statutes, like other statutes, must be construed reasonably. To his mind it was unthinkable that the criminal law could have been so stupid as to have provided that a medical man in an effort to save life was committing a criminal offence. On the question whether the doctor was entitled to terminate a pregnancy with the object of improving the health of the patient, that was no doubt one of the matters which would be touched upon in the debate and on which he preferred to remain silent.

SIR BECKWITH WHITEHOUSE said that the law of 1861—in no way ameliorated in this respect by the Infant Life Preservation Act, 1929—was harsh in its implications regard the mother. The art of medicine might to-day in the legal termination of the pregnancy if the mother's or child's life was threatened. Yet both the medical and the legal professions were endeavouring to find loopholes in the law for making an obvious wrong a right. They no longer subscribed to the doctrine that the life of the child was paramount, and that so long as the mother's life was preserved it did not matter what physical or mental wreck she became. Some of the indications advanced for the termination of pregnancy were generally acceptable, others were flippant, and the majority concerned not the life but the health of the woman; but as matters stood to-day all such operations were illegal. Abortions, including so-called therapeutic abortions, were increasing. It was with regard to abortions undertaken for bona fide medical reasons that he asked for reform of the existing law. The law should be re-enacted, as suggested in Taylor's *Jurisprudence* (seventh edition), to exempt from liability the fully qualified practitioner who terminated a pregnancy

It was his considered opinion as a result of the year's work that insulin therapy provided a very promising method of treatment in schizophrenia, especially if applied during the first eighteen months of the illness. He projected a film taken by Kodak Ltd. illustrating in a patient the normal course of insulin therapy from injection to interruption, and including a number of "shots" of different patients to show the phenomena of hypoglycaemia. The facial expressions and muscular reactions of the patients were excellently shown.

General Discussion

Dr. MURDO MACKENZIE said that when drastic methods of treatment were proposed for general paralysis the justification could always be given that here was an inflammatory and killing disease which must be dealt with within a limited period. But the illness under discussion could not be described in that way, and the grounds for advising the treatment must be other than the need for resort to a desperate remedy. The treatment therefore could only be justified on the grounds of experience, and there seemed no doubt from Dr. James's communication that it was clinically worth while. What he wanted to know was whether this new insulin treatment was of any help for those who lived a quiet and aloof life at home, with occasional bursts of excitement and inertia. In mild, persisting schizophrenia was it justifiable to advise admission to a hospital for the purpose of this treatment? As it stood at present, was insulin therapy primarily for the acute and recoverable cases or were long-standing chronic cases likely to benefit? The therapy was completely empirical.

Dr. PULLAR STRECKER said that it had been a disadvantage to this form of insulin treatment that the percentage of complete remissions quoted by the first workers in this field had been too high. Such a figure as 80 per cent. was really too "encouraging." Meanwhile about 3,000 cases had been treated in different countries, and the percentages quoted had become considerably lower. In Switzerland a remission rate of 57 per cent. was mentioned—a much more acceptable figure. With further experience the figure might become lower still, and this would be all to the good, because a sound treatment like insulin therapy was not out to create records. Dr. E. H. LARKIN said that the results at West Ham Hospital had been such that he had come to the conclusion that insulin and cardiazol or one of them alone should be given in all cases of schizophrenia. The quality of the remissions was excellent. Dr. ELEANOR CREAK asked the age of the youngest patient, and whether insulin should be prescribed for the severe attacks appearing and quickly disappearing in adolescence. Dr. DONALD BLAIR pointed out that in considering the relative merits of cardiazol and insulin it should be remembered that the former was comparatively simple to inject, whereas insulin was much more troublesome and required a trained staff. Dr. HENRY YELLOWLEES asked how the duration of the symptoms had been ascertained.

Dr. JAMES, in reply, pointed out that cardiazol alone was rather terrifying for the patient. If he was allowed to become somnolent with insulin and then given cardiazol he did not mind it, and had forgotten the experience by the next day. His view at present was that the combined use was likely to prove better than the use of either agent alone. As to finding out the past duration of the symptoms, the method had been to see one or, if possible, two relatives and endeavour to arrive at the date at which the family first noticed that the patient was queer. The youngest patient was aged 17. Dr. Mackenzie was quite right in commenting on the empirical nature of the treatment. He thought that if the symptoms had not lasted longer than two years the method was worth trying.

SIGNIFICANCE OF SEX HORMONE EXCRETION

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on February 8, Dr. J. W. TREVAN presiding, a paper was read by Dr. R. K. CALLOW on the significance of the excretion of sex hormones in the urine.

In reviewing recent work, Dr. Callow said that the sex hormones known to be excreted in the urine were not identical with the hormones which had been actually isolated from the organs of secretion. Experimentally it was found that when active substances were administered only a very small proportion was excreted in recognizable form, and the excreted form might even be inactive. This general statement applied to oestrogens, androgens, progestin, and gonadotropic hormone. As regards the male hormone, no data had been published on the recovery of this hormone after administration to human subjects, but in the course of an investigation designed for another purpose, under the auspices of the Therapeutic Trials Committee of the Medical Research Council, on the effect of androgens on prostatic hypertrophy, some observations had been made. The administration of testosterone appeared to produce a decrease in the excretion of androgens, which was followed, after administration had ceased, by an increase. With a dosage of 50 mg. a week the total excreted in one case was 9.2 per cent. of the intake, and in another 5.4 per cent. In general it seemed that the destruction and inactivation of male hormone in the body was so intense that the amount of the hormone recovered from the urine was only a very small proportion, unlikely to furnish results of any great significance in respect of male hormone metabolism. Hormone activity in the urine was an uncertain index of hormonal activities in the body. In the case of male hormone activity the lack of relation between urinary androgens and the sexual condition had led to the assumption that the androgens in the urine were largely derived from sources other than the gonads, probably the adrenal glands, and work on this question was being pursued. Again, with increasing knowledge of the chemistry and metabolism of hormones, methods of assaying urine had been devised which gave results capable of correlation with known or assumed physiological processes, notably in pregnancy and the normal menstrual cycle, and obvious effects were produced with certain types of tumour.

In cases where relatively large amounts of hormone were produced and excreted, hormone assay was an extremely valuable aid to diagnosis. In quite another category, with present methods, or even perhaps improved methods, were the mildly abnormal cases. He thought that the assumed significance of urinary sex hormone estimation must be justified empirically. If it were known definitely that in a certain physiological state a given sex hormone was produced in large amount, and a corresponding product was found in the urine, then a connexion was established, and it would be possible to extend to other circumstances an argument based on analogy. Argument in the other direction, from observed excretion to a process in the body, would be unsafe. He repeated the remark of R. T. Franck, based on nine years' work on hormone assays, that such studies, though they served as valuable aids, could not replace clinical examination and experience. He hoped, however, that the biochemists and chemists might improve the position.

Effect of Tumours of Adrenal Cortex

Dr. LEVY SIMPSON said that normal people, both male and female, excreted so-called male and female hormones in amounts of approximately the same order. By female hormones he meant oestrogenic hormones, and by male the hormones causing growth of comb in a capon. In 1933, on investigating, first clinically, a virile woman, it occurred to him that possibly her virilism and hirsutism was associated with an increased excretion of male

the question of making pregnancy more acceptable. Dr. DORIS ODLUM thought it Gilbertian to hold that the law should not be changed because in fact it was not enforced. The real crux of the problem was the economic question. So long as certain economic conditions persisted the law would be broken whatever the law was.

Dr. JOAN MALLESON said that Sir Beckwith Whitehouse seemed to be considering one small section of women at the expense of the others. His interest seemed to be in those women who could have therapeutic abortions to save their health, and he was not concerned with that large mass of women who were going to have criminal abortion performed in any case. He was concerned to knock out of the business practitioners who were "generous" in their interpretation of the law, but it was because some members of the profession were "generous" that many women were spared self-inflicted criminal abortion, which brought the highest morbidity and sterility rate. Dr. DOUGLAS LINDSAY spoke of the legitimate dread of the coroner's inquiry in England, and contrasted the proceedings in Scotland, to the advantage of the latter, where the inquiry was carried out by the procurator-fiscal, with no attendant publicity unless there was a criminal element, and yet in which no criminal element was allowed to escape.

The Summing-up

The openers having briefly replied, Mr. JUSTICE HUMPHREYS said that he doubted whether statistics of criminal abortion were reliable. Abortions were to a very large extent carried out by the women themselves, and when successful, of course, they never got into the statistics at all. Others were carried out by professional abortionists, people with some slight medical knowledge. He believed the crime of abortion to be increasing, though not to any great extent.

"Dr. Oxley has said—I do not say I agree or disagree, but it is what a brave man would say and would practise—'Consider your patient, consider nothing but your patient's welfare, and if you come to the honest conclusion that your patient's welfare demands that you take a certain course, take it, and run the risk of somebody taking a different view.' I am quite sure that Dr. Oxley would agree with me in this, that it should not be done in a hole-and-corner way, because in that case people may doubt your *bona fides*. You should get your brother physicians or surgeons around you, you should get a thoroughly qualified hospital nurse to come and attend whatever it is you are going to do, you should let the whole world know what you are doing and why you are doing it. Otherwise the man who carries out an abortion which in certain circumstances might be a criminal offence is a fool."

Mr. Justice Humphreys added:

"When somebody puts a concrete case to me, and gives me the history of the patient, saying that the doctor found out this, that, or the other, and came to the honest conclusion that it was essential that an operation should be done, then I do not think that the jury would disagree with the view that the judge would take of the matter, and it would be a view favourable to the doctor. But until you can get some form of words as simple as the words 'for the purpose of saving life,' I hesitate to say that the doctor is entitled to perform an operation for procuring miscarriage merely to make the patient more healthy, because I do not know what you are proposing."

A show of hands was taken on the proposition "That the law of abortion requires reform," and it secured assent by not a large majority. The numbers were not taken.

[A verbatim report of the debate will appear in the *Postgraduate Medical Journal* for March.]

At the annual general meeting of the Devon and Exeter Medico-Chirurgical Society on January 27, with the newly elected president, Dr. ROBERT SCOTT, in the chair, Dr. HUMPHREY FOY discussed the role of radiology in the early diagnosis and treatment of hypernephroma and other renal tumours.

INSULIN THERAPY IN SCHIZOPHRENIA

In the Section of Psychiatry of the Royal Society of Medicine on February 8, with Dr. J. S. GOODALL in the chair, Dr. G. W. B. JAMES (with whom Dr. Rudolph Freudenberg and Dr. A. Tandy Cannon were associated) described a year's experience of insulin therapy in schizophrenia.

The insulin shock method—Dr. James deprecated the word "shock" as unnecessarily suggestive of danger—of treating schizophrenia, introduced by Sakel in 1933 at the Potzl Clinic, Vienna, has been in use at Moorcroft House, Hillingdon, since January, 1937, and Dr. James's communication summarized his experience with twenty-four cases completed during that period. In some quarters there was a tendency to magnify the risks of the method, but Muller in 495 cases treated in Swiss hospitals gave a mortality rate of 0.5 per cent., and probably, with improvement and standardization in technique, this rate might be further reduced. During the first six months at Moorcroft House the Wellcome brand of pure crystalline insulin was used; afterwards a change was made to Boots' insulin, which was a gland extract. It was not easy to give any precise information about the average dose of insulin required to produce hypoglycaemic coma. Coma had been produced by 15 units, while, on the other hand, one case required over 400 units. Blood-sugar estimations showed a fairly constant series of changes. Within an hour of injection the blood sugar fell to 30 mg. per 100 c.cm. or even less; it remained at about that level during the whole of the hypoglycaemic period. Half an hour after interruption, when the patient was conscious, the blood sugar rose to a little below normal, and about one hour after interruption it returned to normal, and continued to rise under the influence of a large carbohydrate supply. Treatment was begun at the hour of 7 a.m., and the total hypoglycaemic period was not allowed to exceed five hours, save in exceptional cases when it went to six hours. In selected cases insulin and cardiazol combined were used, and the combination of the two agents seemed to show better therapeutic results than either alone. In the twenty-four cases there had been seventy-three epileptiform attacks due to hypoglycaemia; fourteen of these were interrupted intravenously and fifty-nine by the use of the intranasal tube. In a total of 1,628 "patient-insulin" days intravenous interruption was necessary on 106 occasions, in the majority of the cases owing to failure to arouse the patient thirty minutes after the nasal tube feed.

Classification of Results

Out of a total of ten cases with symptoms lasting up to eighteen months, nine had returned home and resumed their former occupation. The other fourteen were cases with histories of eighteen months or more, and of these only three had shown remissions; two of the three had returned home, and the third awaited his discharge. Some of the old-standing cases treated showed clinical improvement. The longest period of treatment was 118 days, the shortest twenty-six days, the average sixty-seven days. By the kindness of the members of the British Psychiatric Insulin Society Dr. James was able to present a summary of a further ninety-four cases (among which there had been one death), which, added to the twenty-four already described, gave a total of 118. The results in this total were shown as follows:

Duration of Symptoms	No. of Cases	Complete Remissions	Unimproved
Under 6 months	22	19	3
From 6 to 12 months ..	18	15	3
From 12 to 18 months ..	9	5	4
Over 18 months	69	22	47
	118	61 (51.7 per cent.)	57

hormone, and this point was investigated both on capons and on castrated rats. Fortunately for himself and his fellow investigators this particular woman had a very large excretion of male hormone. If she had been one of those virile women who did not excrete a large amount of male hormone the investigation might never have been continued. They investigated a series of cases, and the majority showed an excess of male hormone excretion. It seemed possible that the adrenal glands were responsible, but that could only be suggested, and it was not until later work was done that this possibility became a probability. Why some of the women excreted an excess while others did not was difficult to say on the assumption that excretion was a measure of secretion, but probably this was not so. Also important was the reactivity of the tissues to such hormones; in some cases the tissues were refractory and in others sensitive. Tumours threw a very interesting light on the problem. He personally had had experience of both an adrenal tumour in a female producing virilism and an adrenal tumour in a male producing feminism—namely, atrophy of the penis with impotence, together with enlargement of breast, female configuration, and a higher tone of voice. The female with the adrenal tumour excreted a very large excess of the male or comb-growth hormone, and the male with the adrenal tumour a large excess of the oestrogenic hormone. Hitherto one had always thought that the histology of two such tumours was much the same, but why should an adrenal cortical tumour in the male produce apparently oestrogenic hormone and in the female apparently male hormone? On examination of the tumour from the female a colleague found some discrete granules which she thought to be of significance and which were absent from other tumours of females which she had examined. These discrete granules were found to be present in normal adrenals, in the inner layer of the cortex, in males at or just after puberty.

If there was such a histological basis, then it must be assumed that somewhere or other the ovary converted a hormone from the adrenal cortex into a male hormone, and the testis converted a hormone from the adrenal cortex into an oestrogenic hormone, which seemed a paradox very difficult to believe. Had this finding of excess of comb-growth hormone in the urine of virile women any diagnostic significance? If the excess was gross could a tumour be assumed? That was very important, because in many cases of Cushing's syndrome it was not known whether it was due to hyperplasia from a pituitary abnormality or whether a tumour of the adrenal cortex should be sought. From the little experience he and his fellow workers had had, he thought it could be said that if the amount of comb-growth hormone was grossly in excess of 300 international units per day one should search very diligently for a tumour, and that if necessary one was justified in doing a laparotomy. Unfortunately some cases of hyperplasia might also show an excess up to 300 units, so that this finding, although suggestive, was not conclusive.

Dr. F. L. WARREN and Dr. A. C. CROOK referred to some experiments bearing out what Dr. LEVY SIMPSON had just advanced, and Dr. A. S. PARKES made some philosophical observations on hormones in general. He felt that it was difficult, if not impossible, to draw any distinction between waste products and hormones. There was something to be said for the idea that all hormones were originally waste products which the body learned later to use. The waste product of to-day might be said to be the hormone of to-morrow. The trend of vertebrate evolution would be towards universal intersexuality. Not only were both the oestrogenic and androgenic substances found in both sexes and excreted by both, but each product had an effect in reproducing the characters of the corresponding sex. [A paper by Dr. Parkes on "Effective Absorption of Hormones" appears this week at p. 371.]

TREATMENT OF OTITIS EXTERNA

At a meeting of the Section of Otolaryngology of the Royal Society of Medicine, on February 4, Mr. F. J. CLEMINSON presiding, a discussion took place on otitis externa, which is also the subject of an article, recording an investigation of 100 cases, by Flight Lieutenant George Morley elsewhere in this issue.

Dr. HENRY MACCORMAC said that the term "otitis externa" implied an eczematous or infective condition of the external auditory canal, but in dermatological practice it was rare to meet an eruption so confined, and therefore the meaning was extended to include the more widely spread eruptions of and behind the ear. He confined his observations to the two most common processes—impetigo and eczema. The treatment of impetigo presented as a rule no difficulty, the lesions responding to various agents. The parasiticide had only to be applied in sufficient concentration to kill the parasite without irritating the skin. The skin was often looked upon as a gas-tight and watertight envelope covering the body, but it was far more than this, with important functions to fulfil. Treatment might be considered in three phases: (1) simple protective and soothing; (2) selective, having specific effect on certain diseases; and (3) parasiticide, including antiseptics.

Mr. G. EWART MARTIN said that otitis externa was entirely a skin disease, and but for the curiosity of its position would come under the dermatologist. Like every skin condition it had two causal factors—the invading organism and the resistibility of the individual. The development of idiosyncrasy had been shown to be due to previous contact with the irritant, but this could be demonstrated only in a few cases, and in the large majority no reason was afforded for the change in skin response. He classified otitis externa into (1) acute otitis externa, or furunculosis; (2) croupous otitis externa; (3) acute haemorrhagic otitis externa; (4) otomycosis, including all the inflammations of the external ear due to fungi; and (5) a group usually described as an eczema of the external auditory meatus, really a meatitis, acute or chronic, for which he suggested the term "dermatitis." A four-year analysis of cases seen in the department of the Royal Infirmary, Edinburgh, showed that 55 per cent. of the cases were furunculosis and about 30 per cent. eczema of the meatus. The largest seasonal incidence of furunculosis, like otitis media, occurred in the period from December to March, and eczema of the meatus showed its largest figures in July, shortly after the start of the bathing season. The principles underlying treatment of skin conditions were: first, cleansing of the part; secondly, application of a simple non-irritating antiseptic or other local treatment; and, thirdly, treatment of the cause. It was best not to experiment with a multiplicity of methods, but having found a suitable application to learn how and when to use it. It had been his practice in furunculosis never to excise except in extreme cases, believing that incision would only act as a further point of access for the invading organisms.

Some Precautions in Treatment

Mr. ERIC WATSON-WILLIAMS said that otitis externa almost disappeared from the realm of difficulty if hydrogen peroxide were rigidly excluded from the ear and indeed from the otological department. Often all that it was necessary to do was to tell the patient to stop treating his ears with hydrogen peroxide. His guiding principle in the treatment of otitis externa for many years had been to prevent water from going into the ear. It was true that syringing was necessary when there was a hard mass of wax or epithelial debris, but he did not think that water had any other place in treatment. In cases of impetigo his experience was that if the child patients were given iron for a month it shortened and simplified the treatment of the ear condition.

Mr. RITCHIE RODGER pointed out the danger of over-treatment in the more chronic eczematous processes or

Glasgow Western Infirmary

At the annual meeting of contributors to Glasgow Western Infirmary on February 11, when Sir John Stewart presided, Sir Henry Mechan said that the managers had in view the building of an extension to accommodate paying patients such as the other two infirmaries of Glasgow had. There was no possibility, however, of this being done at present owing to lack of funds. The report of the Infirmary showed that maintenance expenditure amounted to £104,349 and ordinary income to £77,860, the deficit being met from unrestricted capital. During the year new heating plant was completed and heavy payments were made in extensions of the pathological block, laundry, and x-ray departments. The number of patients treated was 13,465, an increase of 272 on the previous year. The average number of patients per day was 661. Out-patients numbered 52,447, of whom 12,734 were casualty cases, and 14,657 were treated in the radiological department. The radium department served a large area, and the National Radium Commission had expressed its approval of the organization at the Infirmary by allocating three grammes of radium. It was hoped that the Gardiner Institute of Medicine would be completed for the beginning of the winter session 1938-9.

ENGLAND AND WALES

Hospital Almoners' Association

The annual dinner of the Hospital Almoners' Association took place on February 5 at St. Ermin's Restaurant, London. Miss Macintyre, chairman of the association, presided. The principal speaker was Sir E. Farquhar Buzzard, Regius Professor of Medicine at Oxford University and president of the Institute of Hospital Almoners, who, in proposing the toast of the association, spoke of the days before the introduction of almoners into the hospitals and the difference which their coming had made to medical work. He spoke also of the future development and extension of the social work and the possibility of the collected experience being a valuable contribution to sociological research. Mrs. A. W. Tomkins, assistant almoner, St. Thomas's Hospital, responded for the association. Mr. H. Chitty, honorary surgeon to the Bristol Royal Infirmary, replied to the toast of "The Guests," which was proposed by Miss M. Streatfield, assistant secretary of the Institute of Hospital Almoners. Among other guests present were Dr. Margaret Hogarth, assistant medical officer of health to the London County Council; Mr. E. Ridley, director of public assistance to the Middlesex County Council; Dr. Stallybrass, deputy medical officer of health for Liverpool and vice-president of Liverpool Medical Institute.

Institute of Ray Therapy

The hopes and plans of many months, and indeed of years, were brought to fruition on February 5, when an extension of the Institute of Ray Therapy in Camden Road, London, was opened by the Princess Royal. This "hospital for electro-physical treatment," which is its subtitle, was opened eight years ago, but hitherto its excellent work has been done under extremely cramped conditions. The new wing affords adequate, if not abundant, space, and it is declared that the hospital is now equal to anything of its kind in this country or on the Continent. Some account was given of the project when its purpose was announced at an earlier function (*Journal*, April 24, 1937, p. 884). The first floor of the extension provides for treatment by diathermy of several patients at a time. There is a section for the older forms of treatment by medical electricity, but with up-to-date appliances, and another section furnished with much

interesting apparatus for physical and remedial exercises. The ground floor is also to be equipped for electrotherapy when funds are available.

On the occasion of the opening the Princess Royal was received by the Mayor of St. Pancras, the president of the Institute, Lord Horder, and the hon. medical director, Dr. William Beaumont. After a number of presentations had been made, including the chairman of the governors, Lord Sempill, and the chairman of the medical advisory committee, Sir Robert Stanton Woods, a short address was read to the Princess by Lord Horder in asking her to declare the extension open. Lord Horder pointed out that the general hospitals, limited as they were by space and funds, could provide only for those conditions which were their first concern, such as acute illnesses, serious accidents, and complex and obscure diseases. They were unable to deal with many of the chronic diseases which gave rise to a great amount of incapacity. Illnesses which caused only partial incapacity had been sadly neglected in the past. Here was the value of the Institute of Ray Therapy, which filled many gaps and afforded treatment for minor ailments which reduced the efficiency of the worker. It aimed to prevent such ailments from becoming major maladies.

"We in the medical profession," Lord Horder continued, "know that in our history occasions arise when the clamour of the public brings about the adoption and amplification of certain methods of treatment which would otherwise remain of theoretical interest only. We recognize that to a great extent it is this urge which has been responsible for the great expansion, during the last few years, of physical medicine. No more striking argument could be put forward for the need of this institution than the fact that we are gathered to-day to see the opening of this extension, made necessary by the demand for still more accommodation and still greater advances in these methods, although already three thousand and more treatments are being given every week."

After the Princess Royal had declared the building open a prayer of consecration was offered by the Archbishop of York, a "human account" of the work of the Institute was given by Lord Sempill, and then an old patient and a present patient offered purses on behalf of old and present patients respectively, and other gifts were made. The Princess spent some time inspecting the new wing, and manifested particular interest in the gymnasium, the various electrical appliances, and the labour-saving devices to ease the work of the nursing staff. One feature of the new building is its admirable lighting by very large windows.

Scientific Treatment of Delinquency

The Institute for the Scientific Treatment of Delinquency has acquired a house, No. 8, Portman Street, W., for the purpose of a clinic, and the opening ceremony took place on February 9 in the presence of the Mayor of St. Marylebone, representatives of the Home Office, and a number of prominent magistrates and medical men. The clinic contains departments for vocational guidance, graphological research, intelligence tests, and the measurement of temperament, for which last purpose an instrument known as the McDougall-Schuster dotting machine excited some interest. The clinic is intended to be used for investigation into the various forms of mental maladjustment. About seven years ago a scientific investigation was carried out on a number of prisoners in Holloway by a psychologist on behalf of the Medical Research Council, with assistance from the Home Office. As a result it was considered desirable to have a permanent centre for the examination and treatment of cases of anti-social conduct, especially among young people coming into conflict with the law, and the movement just started has been widened into an organization for research into the causes, treatment, and prevention of anti-social conduct of all kinds.

Lord Roche, Lord Justice of Appeal, in declaring the clinic open, said that in his view the first function of such an institute was to determine with more certainty than

that the same vitamin which restored normality to the biochemistry of the tissue *in vitro* would rapidly cure the opisthotonos in the pigeon showing symptoms. Hence there was a direct connexion between these central symptoms and a fault in the enzyme system of the brain, due to lack of the vitamin. The only other tissue from the avitaminous bird in which these vitamin effects had been demonstrated *in vitro* experimentally was the kidney. This perhaps helped to explain oedema. Increased lactic acid could also be explained by this scheme when it was realized that pyruvate accumulated in the blood in B₁ avitaminosis in both pigeons and rats, because pyruvic acid was known to block the oxidation of lactate. The abnormal appearance of pyruvate was soon stopped by giving the animal vitamin B₁. The increased pyruvate in blood did not necessarily coincide precisely with the induction of the symptoms, but it was wrong to consider the symptoms as induced by the pyruvate. It was not yet certain whether the known biochemical fault in brain and kidney would explain the increased pyruvic acid in the blood, or whether there were still other unknown disturbances concerned.

The above gave a clear and logical picture of abnormalities in the avitaminous animal, with two exceptions: (1) the initial failure in appetite, occurring long before any other avitaminous manifestations; and (2) the increases in sugar tolerance found in the terminal stages of vitamin B₁ deficiency together with occasional disturbances in the regulation of the storage of glycogen in the liver. If these changes were considered to be primary defects due to lack of vitamin, then there was some other biochemical system, as yet unknown, with which vitamin B₁ acted; but if they were secondary to the initial fault in the brain, then some of them became intelligible. They would be the results of dysfunction of the essential brain cells concerned in carbohydrate regulation. This formed a useful working hypothesis.

Dr. B. S. Platt said there were substances normally present in human blood which bound bisulphite. They were found in increased amounts in the blood of cases of fulminating beriberi. Pyruvic acid was one of these substances. Increased amounts of it were shown to occur in trichloroacetic extracts of blood, urine, and cerebrospinal fluid taken from patients with fulminating beriberi. In uncomplicated cases of fulminating beriberi with increased amounts of pyruvic acid normal levels were restored in the course of ten to fifteen hours after intravenous administration of 5 mg. of pure vitamin B₁. It had been shown that vitamin B₁ was concerned in the intermediate metabolism of carbohydrates. Changes in amounts of metabolites in the blood in states of vitamin B₁ deficiency were considered to be evidences of disturbances arising in tissues whose carbohydrate metabolism involved vitamin B₁. The operation of some factors—fever, increased intake of carbohydrates, muscular effort—which were known to affect metabolism in the body led to accumulation of pyruvic acid in the blood in states of vitamin B₁ deficiency. It was suggested that the effects of accentuating factors contributed to the development of the various clinical types of beriberi. These effects might be of more importance in this respect than the differences in the grade of vitamin B₁ deficiency. When accentuating factors were minimal it was probable that well-defined changes only appeared after a comparatively long period of deficiency. Changes secondary to the failure of various organs and associated disease modified the clinical picture of beriberi. The effects of treatment with vitamin B₁ must be assessed with cognizance of the fact that damage to tissues might ensue, especially in long-term deficiency, which could not be repaired merely by correcting the vitamin deficiency.

Miss HARRIETT CHICK said that the work just presented was very encouraging, inasmuch as it gave overwhelming evidence that vitamin B₁ had everything to do with the development and symptomatology of beriberi—at least in this particular form. She asked why the therapeutic results in the past had been so contradictory. Professor

HAWES, in reply, pointed out that defective standardization and insufficient dosage accounted for this.

Dr. J. BARCROFT ANDERSON referred to Dr. Rowland's work, which had shown that continued deficiency of the vitamins of grain germ resulted in a diminution in the size of nerve cells and fibres, reduced unstriated muscle to one-third of its bulk in the intestine of rats, and produced degenerative changes in the kidney. Sir LEONARD ROGERS asked if the effect of B₁ injections had been determined in infantile beriberi. Dr. PLATT said that infantile beriberi was probably the purest form of B₁ deficiency. Dr. WILLIAM HUGHES said the therapeutic results were excellent in children; after 1,500 units were injected it took about three days before the child cried.

Dr. H. M. SINCLAIR asked if the neuritis in beriberi was due to a deficiency of B₁ and whether it responded to therapy. Professor HAWES, in reply, said that in only a few cases was the nervous condition cured dramatically; in many cases the symptoms persisted for months. Obviously another factor was involved in the neuritis. In regard to infantile beriberi it was easier to give injections of B₁ to the mothers before childbirth and when breast-feeding the baby to prevent attacks. The mothers frequently had no signs of beriberi, yet the infants might develop an acute attack and die.

Local News

SCOTLAND

Empire Exhibition, Glasgow, 1938

The Scottish Committee of the British Medical Association has co-operated with the Department of Health for Scotland in arranging for a demonstration of "The Contribution of Scotland to Medicine" at the forthcoming Empire Exhibition in Glasgow. This demonstration will be largely historical in character and will deal with the part played by individuals, medical schools, and hospitals. A special subcommittee has already held several meetings. The Scottish Secretary (Dr. R. W. Craig, 7, Drumsheugh Gardens, Edinburgh) will be glad to hear from any member of the Association who is prepared to lend interesting relics or photographs.

Edinburgh University

The Senatus Academicus of Edinburgh University at a meeting on February 11 awarded the Cameron Prize for 1938 to Karl Landsteiner, M.D. Vienna, a member of the Rockefeller Institute for Medical Research, New York, in recognition of his researches on iso-haemagglutinins and blood groups, and for the influence of his discoveries on the practice of therapeutic blood transfusion. The Senatus also awarded the Straits Settlements Gold Medal to Thottakat Bhaskara Menon, M.D. Madras, D.Sc., for the excellence of his thesis on "Pathological Studies on Splenomegaly."

Scottish Committee on Nursing

The Departmental Committee on Nursing, which is inquiring into the recruitment and the terms and conditions of service of nurses in Scotland, has held two further meetings. At these meetings oral evidence was given by representatives of the Scottish Branch of the Queen's Nursing Institute, the Scottish Matrons' Association, the General Nursing Council, the Scottish Institution of Nurses, the General Board of Control for Scotland, Stirling Royal Infirmary, and Fife County Council.

Correspondence

An English Pneumonia Service

SIR,—As was pointed out in a leading article (*Journal*, January 8, p. 76), good results have been obtained in America from the serum treatment of pneumonia. In view of the high mortality in this country it was felt that the Circular 1499 and the Memorandum of the Ministry of Health (Med. 189) upon this matter should be acted upon. Incidentally, neither the circular nor the memorandum mentions pneumonia sera. After consultation with some keen practitioners in my area I arranged to have available some Type I, Type II, and mixed Types I and II serum, and a service for the typing of pneumococci. Some dramatic results were quickly obtained, and a demand was made for the serum to be available day and night; this was arranged. So far as I am able to tell—and I hope someone will correct me if I am wrong—we, as a county council, have no power to supply pneumonia serum. Obviously with serum at 25s. per 10,000 units we were heading for a surcharge of some dimensions when patients (some agricultural labourers) were unable to meet bills of £10 to £12 or more. We were therefore forced to charge more for the serum than it cost us in order to prevent a loss on our accounts. It might be asked, "Why not leave the practitioners to get their own serum?" At 25s. per 10,000 units for a serum which deteriorates rapidly, they just won't. So it is left to the public authority to sustain another puling wail of curative medicine!

The Holland County Council pneumonia service began in January, 1936; the Ministry's circular was received in October, 1935. The routine method used is to prepare and stain a film of sputum immediately upon receipt; this gives information as to whether the pneumococcus is present or not, and if present in what numbers, and proves helpful when doing the actual typing. In view of the fact that half the pneumococci belong to either Type I or Type II, it is our custom when pneumococci are present to examine first for these two types.

Small flecks of sputum are separately well mixed on marked slides with Types I and II diagnostic anti-pneumococcus sera (rabbit), the amount of sera depending on the consistency of the sputum. A small loopful of alkaline methylene-blue stain is then added and mixed. Cover slips are applied, the slides inverted and pressed out on blotting paper to ensure a thin film, and the edges sealed with vaseline. These preparations are then examined with the oil-immersion lens under artificial blue light, the condenser diaphragm being regulated to give the most satisfactory illumination. In the event of pneumococci being found in a stained film and the Neufeld reaction not being obtained in either of these two cover-slip preparations, recourse is had to the group mixtures of the other various types of anti-pneumococcus diagnostic sera, using the same technique.

It is important when running a service of this kind to impress general practitioners with the necessity for submitting only fresh specimens of sputa—that is, the specimens are to be examined within two hours of production. Autolysis of the capsule takes place after this period. Specimens that cannot be examined within two hours should be kept on ice, and then may be examined up to twenty-four hours later. Some practitioners when unable to obtain a typing test give anti-pneumococcus sera Types I and II mixed as a precautionary measure until they can have such a test carried out.

The call upon the service is almost confined to the winter months, especially during influenza epidemics. In

this small scattered rural county of 95,000 population we have carried out approximately fifty examinations of sputum at a cost of 5s. per test. It is not possible to give exact figures, as records of the typing were not kept in the first few weeks of the scheme, and our consulting staff sometimes come to the laboratory at night to type sputum of which no record is kept. For us this work has been in the nature of an experiment, but there is no doubt that many lives could be saved if it were extended to every authority with a laboratory. We are, of course, greatly handicapped by having no powers to supply sera to patients free of charge or at a greatly reduced price. To type without keeping and supplying serum is useless. Will the Ministry allow us to take advantage of the knowledge gained by our American colleagues? Surely we have passed the stage of collecting statistics: may we get on with the job?—I am, etc.,

W. G. BOOTH,

Holland, Lincs, Feb. 7.

County Medical Officer of Health.

Recovery in the Spinal Cord

SIR,—Dr. F. A. Pickworth (February 5, p. 307) is apparently dissatisfied with my statement of the requirements for recovery of function in the spinal cord (*British Medical Journal*, December 18, 1937, p. 1242), and says summarily: "Recovery of function in the cord is primarily dependent upon the restoration of blood supply to ischaemic areas."

I must point out that I placed absence of interference with the circulation in my first set of conditions for recovery, and put it on an equality with, not subordinate to, absence of severe damage to the structure of the cord. That is its rightful position. It cannot be more important than structural continuity. Restoration of blood supply avails little if nearly all the fibres of the cord are divided.

In regard to non-surgical diseases of the cord Dr. Pickworth's insistence upon the restoration of blood supply to ischaemic areas is not of much practical help. We do not yet know whether in such diseases there are any ischaemic areas (in his sense) or whether, if there are, the ischaemia is of sufficient degree to cause interruption of function and structural degeneration, or whether recovery of the cord follows restoration of the blood supply alone. Dr. Pickworth has unguardedly allowed himself to state as fact what is merely inference from unconfirmed theory. If ischaemic areas in his sense are present in the cord in subacute combined degeneration or in the acute phases of disseminated sclerosis, or if they occur in consequence of infection of the bladder, ischaemia is at most only the means by which more primary factors exert their influence, and for practical purposes we are concerned with the more primary factors. Mott's experiment, to which Dr. Pickworth refers, is of very limited application to the diseases mentioned in my talk or to any condition involving paraplegia with spasticity.

Relative integrity of the blood supply to the affected parts of the cord is one of a number of factors essential to recovery of function, but it would be wrong in the present state of our knowledge to call it "primary" and blind ourselves to the equal practical importance of others. Different requirements assume special importance in different conditions.—I am, etc.,

London, W.1, Feb. 14.

JAMES PURDON MARTIN.

could be done at present into which of the categories of criminals a convicted person was properly to be placed, whether he belonged at the one extreme to those who offended against the law because of a weakness or infirmity which might be cured, or, at the other, to those who were determined to live preying on society. The second function was, by the care and skill of psychiatrists, to endeavour to remove the cause which had led the offender to commit the offence. His own experience of seventeen years as a judge in the King's Bench Division, spending a considerable proportion of his time trying criminal cases on Assizes and at the Central Criminal Court, was that administrators of the law badly needed such an institute and could derive essential help from it. He hoped that those in judicial authority would increasingly seek the aid of the right judgment which such an institute could in appropriate cases afford. Lord Roche went on to say that there was a certain suspicion of "odium medicum" attaching to this as to all comparatively new branches of medical science. "There is a certain justification for this attitude in general because new developments have a way of attaching to them exponents who make extravagant claims or may be even charlatans. Believe me, there is nothing of the sort here. This Institute is administered and served by men of high scientific attainments, having the honesty and humility that impel them to recognize and observe the due limits of their science and their art. You need have no fear that you are supporting cranks or charlatans; the whole thing rings true." He added that one of the great merits of the new home of the Institute was that it seemed in its arrangement and appearance to wear the respectable air of a series of adequate consulting rooms. Dr. E. T. Jensen, chairman of the Institute, in expressing thanks to Lord Roche, suggested that this movement was only on the threshold of what might prove to be a large national institute of criminology. Dr. Denis Carroll described the work of the Institute, of which he had been one of the chief directive forces. The courts referred to the Institute a number of delinquents, who were tested for intelligence and in other respects, and an impartial review was given to the court as to the delinquent's mental state and its relevance to the offence with which he was charged. Some were found to be suffering from various diseases, physical or mental, and among the mental conditions certain eccentricities and some instances of psychopathic personality were to be classed. Of some 500 persons seen since the Institute began its work roughly one-half had been treated in one way or another. It was necessary to wait at least ten years before talking about successes, but so far only twenty relapses were known. Dr. Edward Glover, chairman of the Scientific Committee of the Institute, also spoke to a vote of thanks, after which the building was inspected by the large company present.

Co-ordination of Newcastle Hospitals

Newcastle-upon-Tyne, following the example of a number of other large provincial centres such as Manchester and Liverpool, has set up a Newcastle Hospitals Joint Advisory Board, with representation on it of the municipality, the voluntary hospitals, and King's College. At the opening meeting Lord Eustace Percy, Rector of King's College, was chosen to be its first chairman. The purpose of the board is to act as a joint body for consultation between the corporation and the voluntary hospitals, and it is empowered to advise the constituent bodies on all matters affecting the hospital services of the city, both municipal and voluntary, so as to promote the best use of all available hospital facilities in the development of an efficient service for the city as a whole. Matters to be discussed may include the provision of new in-patient, out-patient, and casualty facilities and new bed accommodation, buildings, and equipment, and the extension of existing facilities; the principles underlying the medical and surgical staffing of hospitals concerned; financial arrangements between municipal and

voluntary hospitals for services undertaken; medical education and research; and "all matters of common interest to municipal and voluntary hospitals, whether directly or indirectly connected with the hospital services." The founder members, elected for three years, are the Lord Mayor and nine other members of the City Council, together with the medical officer of health, Dr. John A. Charles; Lord Eustace Percy, Sir Robert Bolam, Professor R. Bramble Green, and Mr. H. B. Saint, representing King's College; Sir Ralph Mortimer, Professor W. E. Hume, Mr. F. C. Pybus, Dr. S. Whately Davidson, Councillor W. Cook, and Mr. J. H. Burn, representing the Royal Victoria Infirmary; Dr. W. MacMurray, the Hospital for Sick Children; Professor R. P. Ranken Lyle, the Princess Mary Maternity Hospital; Mr. L. H. Booth, the Eye Hospital; Mr. S. Phillips, the Throat, Nose and Ear Hospital; and Dr. J. C. Spence, the Babies' Hospital and Mothercraft Centre. The board has power to co-opt, without voting power, any person's possessing special knowledge which would be of material assistance to the board or its subcommittees.

Bradford Health Services

At a public dinner in Bradford last week the Lord Mayor, Alderman H. Hudson, asked if any city in the kingdom could equal Bradford's record as a pioneer in matters pertaining to the health and well-being of the people. In 1920, ten years before any county borough or county council possessed such a hospital, Bradford opened a municipal general hospital. It appointed a school medical officer in 1894, thirteen years before Parliament made such appointments compulsory. As long ago as 1904 Bradford was agitating for powers to feed children who went to school underfed, and when the Education (Provision of Meals) Act, 1906, became law Bradford was the first authority to put it into effect. In 1907 the first open-air school in England was opened there; the first municipal maternity hospital was opened there more than twenty years ago; and municipal midwives were appointed in the city in 1917. Bradford used to have a school for blind children, but as a result of the vigorous steps taken the school had been closed because blindness among children in Bradford was now rare.

Fracture Services

Sir Kingsley Wood, the Minister of Health, recently visited Ipswich and inspected the council's housing estate, the health clinic, and other institutions, and performed the opening ceremony for the new orthopaedic out-patient department and fracture clinic at the East Suffolk and Ipswich Hospital. Speaking at the Town Hall, Sir Kingsley said that a substantial proportion of incapacity in the community was represented by fractures and allied injuries caused by accidents, whether in industry, on the road, or in the home. To-day well over 200,000 fractures were treated annually in hospitals up and down the country. It was of first importance that the organization should be improved and the best and most modern forms of treatment devised and made available. Throughout the country fracture services were needed which would place within the reach of every injured person the benefit of treatment. By this means we could mitigate suffering, reduce the period of disablement, and do much to secure restoration of working capacity. There was a general demand for a better service, inasmuch as only about a quarter of the cases treated were dealt with in departments organized in accordance with modern principles. Industry was particularly interested in this development because experience had shown that the period of disability could be enormously reduced by modern methods of treatment. Workers could be saved much suffering and discomfort and the employers saved much dislocation of their business. He was glad to know that in a number of leading industries of the country financial support was being given to schemes for improved fracture services.

contact with someone else who is acutely infected. With regard to the standard of normality we are, therefore, compelled to rely upon the opinion of an experienced oto-rhino-laryngologist.

In conclusion, we should like to say how much we appreciated Dr. Colebrook's most critical letter and to point out once again what both communications have already stressed—"all pyrexias in the puerperium must be regarded as streptococcal in origin until proved to the contrary by a bacteriological examination."—"We are, etc.,

J. L. MILLER WOOD.

F. E. CAMPS.

Chelmsford, Feb. 8.

Temporary Sterilization by X Rays

SIR,—Although temporary sterilization by x rays is possible the length of time it lasts is so uncertain that those of us who have had experience of deep x-ray therapy have given up this method for other more certain ones. It is extremely difficult to induce temporary amenorrhoea of a definite length of time in a very young subject. In my own experience I find that I can promise an amenorrhoea lasting two years or more in a patient of over 43 years if I give a 40 per cent. to 49 per cent. unit skin dose to each ovary. The same dose in a patient of 25 may have to be repeated in three or four months to induce an amenorrhoea of even five or six months' duration. Temporary sterilization by x rays in a young married woman is too uncertain to justify what, after all, is a somewhat drastic treatment. The application of an intra-uterine dose of radium for the same purpose has been suggested, but here again the results are very uncertain. Indeed, there are cases in which, after a full cancer dose—which is at least seven or eight times as great as the dose used for menorrhagia—the patient has later on conceived and been delivered of a full-time child.

I have frequently induced amenorrhoea in older patients suffering from metropathia haemorrhagica or small fibromyomata, and among these, occasionally, the periods have recurred some years after. But for the first few months after treatment I have always advised contraceptive measures in addition when it was advisable that the patient should not become pregnant—I am, etc.,

London, W.1, Feb. 14.

L. MARTINDALE.

Contraceptives and Fertility

SIR,—The Medical Subcommittee of the National Birth Control Association has ventured to contest Mr. V. B. Green-Armytage's statement that "contraceptive measures in the early days of marriage were inimical to pregnancy at a later date," and has declared its inability to find evidence in support of his statement. May I be allowed to assist the subcommittee? In the monograph on sterility and conception by Gardner Child (1931, p. 89) it is stated: "When artificial means are used to prevent conception and are indulged in for any length of time they are quite liable to create a habit of sterility." In the London Medical Society *Transactions* (1936, 59, 120) Mr. Lane Roberts states: "At times the endocervical secretion becomes hostile to spermatozoa because of the mechanical viscosity resulting from either poor cervical drainage or an endocervicitis"; and (p. 130): "To take at random some infertility factors found in one series of one hundred cases, in the woman, in 28 per cent. endocervicitis was the factor." Professor James Young (1933, *Textbook of Gynaecology*, third edition) states that chronic endocervicitis is a cause of sterility of uncertain importance; "it may prevent insemination by leading to an inflammatory

blockage of the canal or by producing discharges which are hostile to the spermatozoa." Eden and Lockyer's *Gynaecology* (fourth edition, by Beckwith Whitehouse) states: "There can be little doubt that the lesion [erosion], accompanied as it is with alteration in the amount and character of the cervical secretion, is a cause of diminished fertility."

It can hardly be doubted that the practice of contraception, with all its mechanical, chemical, and infective possibilities, is capable of causing chronic changes in the cervix. Contraception involves insertion of the finger, and contamination from handkerchiefs must sometimes occur.—I am, etc.,

London, W.1, Feb. 13.

GEORGE H. ALABASTER.

SIR,—When the secretary of the National Birth Control Association submitted her apology in the *Journal* of February 12 she picked out one line of a verbatim report and neglected to refer to the answer which I supplied when she wrote to me on January 25 on the matter. It was as follows:

In answer to your letter of the 25th instant, I did use the words which you quote at the meeting of the West London Medico-Chirurgical Society, and my conviction is as stated for the following reasons:

(a) That if the hymen is unruptured at the time of marriage, inversion of jellies or medicated pessaries upsets the physiological pH of the vagina, with the result that the cervix is bathed in an acid medium far lower than pH 4 for some hours. The result is irritation of the external os with subsequent erosion and endocervicitis.

(b) Should in the early years or months of matrimony rubber caps with a containing soluble pessary be applied to the cervix for a matter of twelve hours or longer the resulting effect is the same as in (a).

(c) I have noted this particularly during the last twenty years, during which time I have seen over 800 cases of sterility. A large number of these have used (a) or (b).

(d) In the discussion I stated that if for medical or other reasons contraception was necessary in the early months of matrimony it should be relegated to the use of a condom by the husband and not by the insertion of chemicals of any kind by the woman.

(e) It is of course well recognized and taught psychologically that the early and continued use of contraceptives, either by husband or wife, diminishes libido and orgasm in both parties.

(f) I also referred to the statement by Professor Miles Phillips which appeared in the *B.M.J.* a few weeks ago under the heading of "Endometrioma" in a discussion at the North of England Gynaecological Society, stating the opinion that the early use of contraceptives was responsible for the increasing number of cases of endometrioma which are seen to-day in young people.

(g) There are other moral and minor factors with which I need not detain you, but I think you will find that experienced gynaecologists, male or female, will agree with my statement that contraceptive measures in the early days of marriage are inimical to pregnancy at a later date.

—I am, etc.,

London, W.1, Feb. 11.

V. B. GREEN-ARMYTAGE.

Time for Midwifery

SIR,—There is still much nonsense written about maternal mortality in the Press, but surely the statement of Dr. John Elam in the *Journal* of February 5 (p. 310), that "the basic reason of inexpert midwifery is only want of time," is the most absurd. Time without knowledge and skill will not cure inexpert midwifery. If he means that practitioners will not take time over their cases the statement is objectionable.

A Warning against Excision of the Patella for Recurrent Dislocation

SIR.—Recently Mr. Ralph Brooke published^{1,2} and showed the results of excision of the fractured patella. Since that time I have seen two cases in which different surgeons had removed the patella for recurrent dislocation. In each the symptoms of recurrent dislocation of the extensor apparatus continued after the operation.

Case 1.—A maidservant, aged 23, had begun six years previously to suffer from attacks of locking of the left knee with outward displacement of the knee-cap. The patella had been excised on this account thirteen months before I saw her. A month after operation the attacks of locking had returned, with all their previous characteristics, except that the patella itself was absent. Elmslie's operation of re-alignment of the extensor apparatus was performed five months ago, and there has been no recurrence of the symptoms since.

Case 2.—A girl, aged 16, a leather worker, had first experienced giving way of the right knee, with locking, two years before. This had continued to happen about once a week, sometimes in bed, and she had discovered that the event was accompanied by outward displacement of the knee-cap. Reduction would be achieved by a kicking movement. She had been treated at first with a walking caliper and later by excision of the patella. Six or seven weeks after the operation the symptoms had returned, attacks occurring with about the same frequency as before. Re-alignment of the extensor apparatus has been advised.

Neither patient showed knock-knee or any radiological abnormality of the external femoral condyle.

This note is written as a matter of urgency, in the hope that surgeons contemplating removal of the patella for recurrent dislocation will be dissuaded, and perform rather a physiological operation of re-alignment of the extensor apparatus on the lines of Elmslie's³ operation.—I am, etc.,

H. JACKSON BURROWS, M.D., F.R.C.S.

London, W.1, Feb. 7.

Throat Carriers in Midwifery Practice

SIR.—We were disappointed when our original paper (*Journal*, October 23, 1937, p. 811), which was meant to be provocative, failed to elicit any correspondence, and we are, therefore, still more disappointed when we find that Dr. Dora Colebrook's most interesting criticism (*January 29*, p. 253) has failed in a similar manner. We feel, however, that we cannot let some of her remarks pass unchallenged.

In the first place, with regard to the nomenclature we employed, since the definition which she has quoted was put forward knowledge has increased, and we feel that *Streptococcus pyogenes* may now be defined as a β haemolytic streptococcus which is pathogenic to man. It will usually fall into Group A of the Lancefield classification, but there is evidence to suggest that organisms which fall into other groups of this classification may cause human infections. It is in this matter that we are inclined to disagree with Dr. Colebrook about the value of grouping alone. The technique employed in this laboratory is to attempt to type the organisms by agglutination, and if agglutination fails, to determine the group. By this method one detects and includes among the known pathogens certain types not in Group A without ignoring other streptococci, which, though not yet identified as types, can be classed as

belonging to Group A and are, therefore, potentially pathogenic. We cannot follow Dr. Colebrook's argument that the name Group A without any prefix is a sufficient identification of the pathogenic streptococci. We feel that if we have been confusing then the point should be clarified, especially as on questioning practitioners recently we find that not only does the name Group A convey nothing to them but neither does *Str. pyogenes*, whereas the term haemolytic streptococcus is immediately recognized; this is, of course, most undesirable.

With regard to her second point, there is a good deal of evidence to suggest that a person whose throat is clinically normal is not infectious even though *Str. pyogenes* can be cultivated from it. In ordinary practice such persons would be allowed to mix with other people, as is shown by the fact that 80 per cent. of patients who are discharged from fever hospitals are still carrying *Str. pyogenes* in their throats. The fact that a person can carry *Str. pyogenes* without being infectious must be accepted, and the following two examples are of interest, allowing, of course, that one swallow does not make a summer.

Two years ago, during a ward epidemic, the ward sister contracted a clinical tonsillitis due to infection with *Str. pyogenes*, Type 6, a strain which was one of the causes of the outbreak. She was off duty for some weeks, but was allowed to return to work when her throat was clinically normal, although bacteriological examination showed that *Str. pyogenes* was still present. Eighteen months later she was still carrying the organism in her throat, and there had been no cases of Type 6 infection in the interval, and it is the custom in the hospital to swab all cases of colds, sore throats, or septic conditions. It may be stressed that this was in spite of the fact that the ward of which she was in charge was for children.

Some three years ago, in a certain public school, all the boys in one house were swabbed during an investigation, in the course of which swabs from one boy were found to give a profuse growth of *Str. pyogenes*, Type 14. Again routine swabs are done of all colds and tonsillitis in the school, and no cases of infection with Type 14 have been noted, although this boy's swab was still positive two terms later.

We do agree, however, that there is no proven evidence of this fact other than personal observations and experiences, but we hope to be able to add some further knowledge to the subject in the near future. With regard to midwifery practice, where not only is the subject more susceptible but the question of compensation looms largely on the horizon, one cannot afford to risk its being said that a patient has been knowingly exposed to a person who has a swab-positive throat. Dr. Colebrook has, we are afraid, misunderstood exactly what our procedure is. We do recommend the swabbing of all contacts of cases of puerperal sepsis. We do recommend swabbing of all midwifery attendants who have had a cold or sore throat or who have been in contact with a known case of infection of any kind. Finally, we do recommend the swabbing of all midwifery attendants who have a clinically abnormal throat, but we do not recommend the witch-hunting process of the indiscriminate swabbing of persons who, even if found to be positive, we believe to be in ninety-nine cases out of a hundred perfectly harmless.

We believe that persons whose throats show streptococci are not infectious except in the following cases: (1) If there is a chronic focus of infection present, such as an infected sinus or chronically infected tonsils; not all of these are in fact infectious, but the chance in favour of their being so is much greater than in the clinically normal cases. (2) When the person is recovering from a recent infection. (3) When a person is acutely infected. (4) When the person has recently been in

¹ Brooke, R. (1936-7). *Proc. roy. Soc. Med.*, 30, 203 (Orthopaedic Section, p. 3).

² Brooke, R. (1936-7). *Brit. J. Surg.*, 24, 733.

³ Malkin, S. A. S. (1932). *British Medical Journal*, 2, 91.

Continuous Intravenous Saline

SIR,—In the administration of continuous intravenous saline a leg rather than an arm is to be preferred as the site of introduction. Unfortunately immobilization of the limb in a rigid splint is frequently badly tolerated by restless patients. By the use of the method described the leg is sufficiently fixed but the patient is as comfortable as may be in virtue of the movement permitted.

The cannula is inserted into the saphenous vein at the ankle. The delivery tube is looped around the foot, being conveniently held by passing it through an interdigital cleft. The whole is maintained securely in position by elastoplast strapping around the foot and ankle. The cannula cannot now be dragged out of the vein. The leg from the knee to the toes is swathed in wool and loosely bandaged. By means of three loops of six-inch bandage the leg below the knee is suspended from a cradle so that it swings free of the bed: the patient is now able to flex and extend the knee and move the limb from side to side. Passive movements of greater amplitude than those possible for the unaided patient are also soothing. To prevent any excessive voluntary flexion a generous length of bandage connects the ankle to the bed rail.—I am, etc.,

Newcastle-on-Tyne, Feb. 2.

GEOFFREY PEBERDY.

Cancer and Vitamin A Deficiency: Geographical Distribution

SIR,—I have studied with great interest the reports and the maps of the geographical distribution of cancer compiled by Dr. Percy Stocks for the British Empire Cancer Campaign (*Journal*, December 11, 1937, p. 1181). I think the whole profession owes a great debt of gratitude to him. His maps show geographical differences which require explanation and variations in site incidence which are puzzling. Some of the North Wales counties have death rates for gastric cancer amongst the highest in the country, and they also have high death rates for tuberculosis and high maternal mortality rates. Is there any factor common to these three rates? I think all those who have studied the question in Anglesey will agree that the prevalent lack of a well-balanced diet is one, if not the main, cause of this state of affairs. In many homes the staple diet is tea and white bread and butter, fresh meat is only sparingly used, the milk consumption is small, and potatoes and some root vegetables are eaten. The most astonishing thing is the almost entire absence of fresh green vegetables and fresh fruit as articles of diet. Dr. Emrys Jones, the tuberculosis officer for Anglesey, giving evidence at the Ministry of Health Commission at Cardiff last week, is reported as stating that in his opinion most of the tuberculosis encountered was due to a lamentable neglect of the nutrition of children. He said that green vegetables were never used in some homes, "they were looked on just as green leaves." My own observations lead me to the conclusion that there is in Anglesey a well-marked deficiency of vitamin A in the diet, and that this is a vital factor in the production of these three high death rates. If this is so we should expect a high incidence of gastric carcinoma, as it has been shown by Roller and Wills that vitamin A is a vital necessity for the normal functioning of the gastro-intestinal tract, and that a deficiency causes degeneration of mucous membranes; it is clear from Dr. Stocks's reports and maps that while the rates for cancer of the tongue, larynx,

tonsils, bladder, and prostate are low in North Wales compared with other areas, the gastric cancer rate is one of the highest in Great Britain. Dr. Stocks does not think this is a racial characteristic, but suggests that dietary conditions may have something to do with it. I am inclined to think that the vitamin A deficiency is a predisposing factor in gastric cancer, and that large quantities of hot tea, taken at very frequent intervals through the day, act as an irritative factor on a debilitated and degenerated mucous membrane.

The similarity between the geographical distribution of cancer and that of tuberculosis is interesting and may be significant, as shown in the work of Stocks and M. N. Karn on the distribution of cancer and tuberculosis in England and Wales. Pearl has demonstrated that there is an antagonism between acute tuberculosis and cancer, so that they hardly ever occur in the same individual. If this is so, why should these two diseases often have high death rates in the same areas? These and other considerations prompt me to make the following suggestions:

1. Dark-adaptation tests should be carried out on a large scale in areas with high death rates from cancer and tuberculosis to prove or disprove the coexistence of a vitamin A deficiency.

2. If these tests show there is such a deficiency, an intensive educational campaign should be conducted in these areas on diet and nutrition, with special reference to the consumption of more milk and dairy products and more green vegetables.

3. The revival of agriculture and market gardening will be necessary to meet these increased requirements.

4. Further dark-adaptation tests should be undertaken at intervals to see if the vitamin A deficiency is made good, and a close study of the rates and distribution of cancer and tuberculosis when the deficiency is lessened should also be made.

—I am, etc.,

Cemaes Bay, Anglesey, Feb. 8.

J. L. MOIR.

Insulin for Local Sepsis

SIR,—I have read with interest the letters of Dr. R. D. Lawrence (*Journal*, January 15, p. 143) and the late Dr. Otto Leyton (*Journal*, January 22, p. 203) commenting on my results of the local application of insulin. I am well aware that work on the effect of insulin in cutaneous ulceration has been reported abroad, and reference to this was made in my communication, but I have been unable to find any similar records in this country. With the statement that there is nothing to show why insulin should have a local effect I cannot agree. Cohen and Libman (*Quart. J. Med.*, April, 1937, p. 157) in experiments with injections of posterior pituitary extract and glucose show that there is a more marked and prolonged rise in the blood sugar than that following the ingestion of an equivalent amount of glucose alone, and conclude that the posterior pituitary extract antagonizes insulin hypoglycaemia by retarding the peripheral utilization of blood sugar. If, as this tends to show, there is carbohydrate metabolism in remote tissues, it supports the theory put forward in my memorandum that by reducing the sugar content of the area by local application a morbid condition might be relieved. Naturally much research with careful controls is essential before any new treatment can be considered of proven value, but I hope that the encouraging results which have so far attended this therapy will be maintained.—I am, etc.,

London, W.1, Feb. 4.

NEVIL LEYTON.

Reform of maternity work has begun at the wrong end. A great deal of that work—probably 50 per cent. at least—has been taken out of the hands of the general practitioner and has been handed over to less-experienced midwives, with no better results. Maternity work used to be considered the general practitioner's specialty and was the foundation of his practice. What is at fault is the training of the student—the lack of training after graduation. A few years ago I wrote in the *British Medical Journal* that every practitioner who intended to practise midwifery should either have had a term as house officer in a maternity hospital or an assistantship with a practitioner who had a large midwifery practice. This elicited no criticism.—I am, etc.,

Erdington, Birmingham, Feb. 7.

ROBERT ANDERSON.

Expulsion of Placenta Praevia in Advance of Foetus

SIR.—With reference to the recent correspondence on this subject the following case may be of interest.

An eight-months-pregnant Burmese woman, aged 29, who had given normal birth to six children, was admitted to hospital on September 27. The pregnancy had been normal except for slight bleeding for a day in July. On the day of admission pains had begun at 6 a.m., and were accompanied by some haemorrhage. Twelve hours later the placenta was ejected with profuse bleeding. The cord was then tied but not cut, and the patient was removed by bus to a hospital ten miles distant. On the journey the cord snapped, and the placenta was thrown into the jungle by the bus conductor. On admission to the second hospital at 10 p.m. the patient had collapsed and was almost pulseless. Uterine contractions were present and foetal heart sounds absent. Vaginal inspection revealed no bleeding, but there was evidence of recent haemorrhage. The cervix was fully dilated with the head presenting, and an arm and the severed cord prolapsed—an appearance suggestive of a twin labour in which the first child had been born. After catheterization, the administration of intravenous glucose-saline, and amputation of the foetal arm, a dead child was delivered by the breech. Intravenous glycerin, anti-streptococcal and anti-tetanus sera, intravenous calcium and soluseptasine supplemented the usual treatment for shock. The following day a piece of membrane was passed and the general condition of the patient was improved. Later, however, fever developed, and the patient died on the sixth day.

—I am, etc.,

Rangoon, Dec. 1, 1937.

KENNETH LINDSAY.

Technique of Blood Transfusion

SIR.—The article on methods of giving blood transfusion by Dr. H. F. Brewer in the *Journal* of January 29 (p. 241) prompts me to refer to a few practical points.

Apropos of technique, I can only speak from experience of three methods—namely, (a) the funnel gravitation method; (b) Keynes's flask; (c) Jubé's syringe. The first two have been described in detail by Dr. Brewer, but I am unable to agree with his method of using Jubé's syringe, and, I think, it is not the method suggested by the designer.

I have used this syringe (5 c.cm.) on many occasions during the past ten years for transfusion of undiluted blood direct from donor to recipient, and have found it satisfactory in all cases where the donor was of robust type with large veins. I use sterile liquid paraffin to flush out the syringe and fittings and have a second syringe in readiness if necessary. A pneumatic tourniquet is fixed to the arms of both persons, and after infiltration of a small area of skin with 1 per cent.

novocain the largest-size cannula is inserted into the vein of the donor pointing against the flow of blood, and in the opposite direction in the recipient. No incision of the skin is made, as by doing so one loses the natural elastic grip which the skin exerts on a large needle (excepting those frequent cases in which the recipient's vein must be completely exposed, and for these I would recommend the citrate method). The syringe is filled with blood from the donor and the liquid paraffin ejected immediately before the fitting—on the recipient's side—is connected, to avoid any air embolus. The suction and plunging movements of the syringe must then be carried out as quickly as possible, when it will be found that 250 to 300 c.cm. of blood can be given within five or six minutes. The only difficulty I have encountered is clotting in the needle of the recipient, but this does not usually arise until about fifty syringefuls have been administered. This method is perhaps difficult to begin with, but, like most operations, technique improves with experience. In practised hands I believe it is one of the best methods at our disposal for the repeated administration of blood, and this can be taken from the same donor—a valuable consideration when one has not an organized team of donors to draw from.

For those who are only called on to carry out blood transfusion infrequently I would recommend Keynes's flask, using citrated blood, or a flask and a three-way 50-c.cm. syringe (specially made for the purpose). The disadvantages of the citrate method are: (1) It is not an infallible remedy against clotting. (2) Exposure to air destroys some of the blood platelets—a serious matter in purpuras and certain forms of anaemia. (3) There is greater risk of contamination. (4) Reactions appear to be more frequent after using citrated blood.

With regard to the typing of blood it is not necessary to use any stock grouping sera and it is not advisable (as Dr. Brewer points out) to depend on this test alone. The best practical results will be obtained by testing the serum of the recipient against the corpuscles of the donor, and it is also advisable to test the serum of the donor against the corpuscles of the recipient. By this method the presence of minor agglutinins in the respective sera can be detected and the possibility of subsequent reaction in the patient further eliminated.

We are all agreed on the value of blood transfusion, even though we may differ slightly on the indications. Out of four cases recently treated in hospital (diagnosed as secondary anaemia and debility) three had 20 per cent. haemoglobin and one had only 15 per cent. (Haldane's method). None of these patients received a transfusion, although it was indicated in all, owing to the failure to obtain donors. The patients themselves made a fair recovery, though this was naturally slow and prolonged. The point, however, I wish to stress in referring to these cases is that it is difficult to decide when a transfusion becomes "imperative," and it may be of interest to some readers to know that a patient with secondary anaemia, a haemoglobin of 15 per cent., and red cells 1,280,000 per c.mm. could even exist.

The fact that patients so seriously ill in a Poor Law hospital did not receive a blood transfusion elicits the question, Why? The answer is simple: Donors could not be procured. This is a matter which might receive attention from the Public Health Department. Pending the advent of an organized scheme I am afraid that such a valuable remedy as blood transfusion will continue to remain a privilege for the minority of our sick population, and, as a therapeutic measure, will still be conspicuous by its absence in the practice of Poor Law and other hospitals.—I am, etc.,

J. F. O'CONNOR, F.R.C.S.I.

Limerick County Hospital, Feb. 7.

could ring up relatives four counties away (telephone number and exact name not known) to ask permission for the anaesthetic before doing anything else.

Lest Mr. Clarke should fear that I have hindered the flow of patients through what he would consider the proper channels, I would hasten to point out that on the slightest pretext I attempt to throw the burden on to the broad, competent, and obliging shoulders of my surgical colleagues—whatever happens I want my alibi watertight. In spite of my lack of special training, my judgment is extraordinarily good, because not once have I heard a surgeon complain that the condition was too trivial to benefit from his wide experience, or that I should have sent it back to be dealt with by the general practitioner; in fact I have always been given to understand that he was just the man for the job.—I am, etc.,

February 9.

B.M./MC5W.

A Word of Caution

SIR,—The Council of the Medical Defence Union is somewhat disturbed at the continuing volume of requests it receives for advice and assistance from practitioners who have entered into contracts with a body known as the Consolidated World Research Society Limited. On a previous occasion a report appeared in your columns (February 13, 1937, p. 337) as to certain action taken by our solicitors arising from representations made to a practitioner on completion of a contract with the above-mentioned society. Perhaps it would be useful to quote a few sentences from that report:

In December last the Consolidated World Research Society Limited instituted proceedings against a medical man practising in Sussex claiming the sum of £18 said to be due under a contract signed by this doctor for the supply of the *Consolidated Encyclopaedia*. The conduct of the defence was assumed by the Medical Defence Union, and a defence was filed repudiating liability on the ground that the defendant had been induced to enter into the contract "by fraud and wilful misrepresentation by the plaintiffs' representative." A few days before the date for the hearing notice was given on behalf of the plaintiff of the withdrawal of the claim.

Members of the Medical Defence Union are requested to communicate with its Secretary before entering into any contract with the Consolidated World Research Society, whilst, at the same time, it would be desirable to indicate the scope and character of the representations made by any representative employed by the above society when canvassing on its behalf.—I am, etc.,

ROBERT FORBES,
Secretary.

49, Bedford Square, W.C.1.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

A public lecture will be given in the Physiological Department on Monday, February 21, at 5 p.m., by Professor Simon Flexner, formerly director of the Rockefeller Institute for Medical Research. His subject is epidemic poliomyelitis and epidemic encephalitis.

During the month of January titles of the degrees of M.B., B.Chir. were conferred by diploma on A. C. Clark and V. E. A. Sykes (Newnham College), and of M.B. on G. E. Grove (Girton College).

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—Part I: F. Bush, S. J. H. Douglas, Heather D. Dowling, T. Fichardt,

Kathleen M. Henderson, T. H. Hills, F. B. Kiermader, O. C. Levine, K. Lumsden, R. L. Mansi, A. M. Mansour, J. Morton, R. S. Padaki, C. N. Pulvertaft, S. J. R. Reynolds, Alice M. Ross, A. Smeravuta, C. G. Talwalkar, S. Li Din H. El Taoudi, W. E. McL. Topping, L. Werbeloff, M. A. A. Zohdy.

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

The Sydney Ringer Memorial Lecture will be delivered by Professor J. H. Gaddum at University College Hospital Medical School, University Street, Gower Street, W.C., on Tuesday, March 8, at 5 p.m. His subject is "Ephedrine." The chair will be taken by Sir Henry Dale, F.R.S., and the lecture is open to all qualified practitioners and medical students.

Amendment of Regulations

Amended regulations for the Academic Postgraduate Diploma in Public Health (*Red Book*, 1937-8, pp. 649-52) have been approved for examinations in and after 1939. Copies may be obtained from the Academic Registrar, London University, Bloomsbury, W.C. Revised regulations for the External Diploma in Public Health have been approved, and will be published in the *Blue Book* in September.

Appointment of Representatives

Mr. John Fawcett, F.R.C.S., has been appointed governor of Allen's College, Dulwich, in the place of the late Sir Andrew Taylor, and Professor W. W. Jameson representative of the University at the Health Congress of the Royal Sanitary Institute at Portsmouth, July 11 to 16.

UNIVERSITY OF DURHAM

At its meeting on February 11 the Senate conferred the title of Emeritus Professor on Professor H. J. Hutchens, M.R.C.S., L.R.C.P., D.P.H., on the occasion of his resignation from the Heath Professorship of Comparative Pathology.

UNIVERSITY OF SHEFFIELD

At its meeting on February 11 the University Council received notification of payment by the Sheffield City Council of £11,998 as grant to the Faculties of Arts, Pure Science, Medicine, and Law for the year ending March 31.

A special degree congregation will be held on Monday, March 21, at 3 p.m.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council was held on February 10, with the President, Sir Cuthbert Wallace, Bt., in the chair.

The Hallett Prize was presented to Bertram Alfred Edward Johns of Birmingham.

Diplomas

Diplomas of Fellowship were granted to Frederick Charles Durbin of St. Thomas's Hospital and Denis Frederic Elison Nash of St. Bartholomew's Hospital.

Diplomas of Membership were granted to the 159 candidates whose names were given in the report of the meeting of the Royal College of Physicians of London published in the *Journal* of February 5 at page 317; as were the names of the twelve candidates who have been granted Diplomas in Public Health, and the names of the four candidates who have been granted Diplomas in Tropical Medicine and Hygiene.

Diplomas in Medical Radiology were granted, jointly with the Royal College of Physicians, to D. M. Harper, T. Lodge, and J. T. McGinn.

It was reported that at the recent Primary Fellowship examinations held over-seas eleven candidates out of seventy-six were successful in India and five out of fifteen in Cairo.

Mr. Eardley Holland was reappointed to represent the College on the Central Midwives Board, and Mr. Sampson Handley and Mr. Graham Simpson were appointed to represent the College on the Committee on the Geographical Distribution of the Industrial Population.

Museum Demonstrations

A course of museum demonstrations in the theatre of the College begins on February 28, when Mr. L. W. Proger will show new specimens. Mr. Proger will repeat this demonstration on March 7 and 14. On March 4 Dr. A. J. E. Cave will speak on anatomy of the tongue, on March 11 on anatomy of the diaphragm, and on March 18 on anatomy of the skin. All the demonstrations commence at 5 p.m., and are open to advanced students and medical practitioners.

Two Unusual Cases

SIR,—The following two cases may be of interest, as they present somewhat unusual features.

CASE I

A nurse, aged 22, had been nursing a case of shingles for two or three weeks when a neuralgic pain began in the neck. Shingles appeared on December 7 and she came to me on December 9. She then had a massive infection of the right side of the neck, the whole area supplied by the third (or is it the fourth?) descending cervical nerve being involved. Fortunately the area was a small one, as it was impossible to put a threepenny-bit (old style) on it without overlapping a scar. On December 13 she came out in a typical chicken-pox eruption, distribution and character being absolutely according to the book. As she had a pock on her soft palate and another by the inner canthus of her left eye her discomfort was complete. The pain from the shingles was bad but not too severe. The last pock came off on December 30, but her shingles did not clear up till January 8, leaving her neck very badly scarred.

On December 7 the younger sister of the patient developed chicken-pox, which ran a perfectly normal course, but the family let me down: they none of them developed shingles. The younger girl's infection traced back to her sister's shingles, as a reference to the dates will show.

I suppose every practitioner of experience has seen cases of shingles following chicken-pox and the reverse, but this is my first experience, after thirty-five years of it, of the two occurring in the same patient at the same time. I have frequently noticed that these massive cases of shingles are not as painful as one would expect. Also I have used pituitrin for some time now and find that in most cases it acts like a charm, the only exceptions being three which had a chicken-pox complex. I wonder if this has been the experience of others.

CASE II

A married woman, aged 76, had a ruptured gall-bladder removed some four years ago. On her return from hospital she showed a definite Stokes-Adams syndrome: blood pressure 220/120, pulse rate 50. She was able to carry on her light duties about the house, take short walks, and altogether enjoy a fair measure of comfort. I was constantly in the house and her pulse never varied. In the beginning of November, 1937, she developed bronchitis, which slowly cleared up without causing undue trouble and without altering the cardiac condition, which remained typical. On December 8 I was sent for and found her sleepy and stupid; blood pressure was 300+/145 and pulse rate 32. As neither of my instruments will register more than this, and as her heart-beats were still coming through gaily, I cannot give her actual systolic pressure. The next day her blood pressure was down to its old figure (220/120), but her pulse continued at 32. On the morning of December 14 a scared night nurse looked in on her way home to say that she could not make the pulse more than 22 at the wrist. This I confirmed shortly after and proved it by the stethoscope over the jugular. We were getting it all at the wrist. The rate remained the same all day, my last visit being about 9 p.m. The next day it had risen to 28, and oscillated between 28 and 32 till the Friday. Her blood pressure did not vary from the 8th. On the Friday (December 17) she was unconscious; blood pressure was 155/95 and pulse rate 85. On Saturday she was quite conscious and placid but sleepy; blood pressure was 220/120 and pulse rate 50. On Sunday she was again unconscious, and by the Tuesday her blood pressure had dropped to 95/0 and her pulse rate risen to 145. She died that afternoon.

I have had a pulse rate of 32 before in a man whose pulse pressure was too high for my instrument, but I have never heard or read of a pulse rate of 22. The other interesting point seems to me to be the return to consciousness on December 18, coincident with the rise in blood pressure and drop in pulse rate.

—I am, etc.,

Clevedon, Somerset, Jan. 29.

R. STUART RENTON, M.D.

The Radiologist's Range of Service

SIR,—In your issue of February 5 Mr. H. Osmond Clarke says:

"All fractures require treatment, and the appropriate treatment for any individual fracture can be determined only by the experienced surgeon who has before him all the facts, clinical and radiological."

The statement is clear. It means that the general practitioner must never treat a fracture, except with the assistance and advice of a consulting surgeon. But do general practitioners in fact accept this doctrine—or are they likely to within any predictable future? If they do not, two courses are open to them: (1) To decide entirely on their own responsibility whether or not to call in a surgeon. (2) To talk over the matter with a radiologist in whom they have confidence, and thus to receive some help in reaching a decision.

Which of these courses is the better? I leave it to your readers to judge. I must, however, protest against any attempt on the part of one specialty to lay down rules as to what may or may not lie within the province of another specialty. Radiologists are determined that they themselves shall decide what work they may usefully undertake, what advice they may give. They are constantly striving to reach a standard of professional qualification such as shall not be exceeded by specialists in any other branch of medicine. Hence the institution of a higher diploma in radiology, with a physician, a surgeon, and a pathologist on the board of examiners.

If radiologists are wrong in these ideas—if the profession at large does not appreciate their efforts at acquiring a wide clinical training—then the attempt will fail, and the remnant that are left will become "hewers of wood and drawers of water" to those who have been wise enough to choose a real specialty.—I am, etc.,

London, W.1, Feb. 11.

F. HERNAMAN-JOHNSON.

SIR,—Knowing as he does that broken bones contain only black ingratitude, I am sure that no radiologist wishes to be connected in any way with the treatment of fractures; he has so many worries of his own that he grasps with alacrity at any opportunity of disclaiming responsibility for the misfortunes and mistakes of others.

However, Mr. H. Osmond Clarke in his letter (*Journal*, February 5, p. 310) claims that the radiologist has not the wide experience to enable him to speak with authority on clinical end-results. I would like to point out that in fact a radiologist does see patients at all stages, and that he sees (assuming he is single-handed) at least as many films as the rest of his hospital staff put together, and, supposing that he has any intelligence at all, he gets a very good idea not only of the efficacy of various surgical performances but also of the judgment and ability of the surgical performers. He could quote the odds, for instance, fairly accurately against Mr. X. getting a Smith-Petersen pin of the correct length anywhere near the head of a femur, or against Dr. Y. getting any lipiodol into a chest at all.

I find that I am frequently asked not only to decide if "competent surgical advice" is indicated, but to choose and therefore be responsible for a nursing home, book a bed suitable to the patient's medical and financial condition, recommend, locate, and arrange with a surgeon, and possibly an anaesthetist, unless I can manage to fix the operation for 7 to 8 p.m., in which case the referring doctor could give the anaesthetic, and, if this is possible perhaps I would leave a 'phone message at the "Dog and Duck" before 4.30 p.m., when he will be calling there. Incidentally everyone would be very much obliged if I

lights only three were affected with nystagmus, and these had always used candles. In strong contrast to this, out of 524 men using safety-lamps 164 were affected. There was not a single case in torch-lamp pits among those men who had always used torch-lamps. He therefore looked upon the cause of the trouble as being essentially the insufficient light of a safety-lamp, which threw shadows and tried the eyes severely. When the light was improved, as by the use of a candle, the disease became rarer, and in the light of a torch-lamp giving two and a quarter times that of a candle (which he held was the best light of all) there was no disease. The difficulties in getting good light at a coal face, the black surface of which does not reflect rays but absorbs so very many of them, may be seen from the following observations. The average illumination at the coal face in safety-lamp pits was 0.018 of a foot-candle, in candle pits 0.09; while the smallest illumination which would enable a seamstress to work with black velvet, which absorbs about 97 per cent. of all incidental light, without experiencing discomfort was very much greater. Court took part in a discussion on the subject at the B.M.A. Annual Meeting at Nottingham in 1892, and his important contribution to this appeared in the *British Medical Journal* with those of other observers. In the better-lighted mines of recent years the trouble is not so often met with, but it is still a frequent cause of claims made under the Workmen's Compensation Act.

Court was naturally interested in the threatened invasion of our coal mines with the *Ankylostoma duodenale* of warmer climates. A grave outbreak of this occurred in the chief tin mine of Cornwall at Dolcoath, which was investigated by Haldane and Boycott in 1903. The hookworm also appeared in some Scottish pits. Court wrote a paper in the *World's Work* of the same year on "A New Form of Disease amongst Miners." This gave some account of the distribution of the disease, its main symptoms and the best methods to adopt in its prevention.

H. W. P. sends the following note:

By the death of Sir Josiah Court the Association loses one of its most distinguished general practitioners, and the members of the Derbyshire Branch their oldest and most venerated colleague. Josiah Court was born at Warwick the son of a chemist but of yeoman farmer stock. Through his grandfather, of Charlecote, near Stratford-on-Avon, he could trace descent from Richard Courte, a contemporary of Shakespeare's father. Indeed, the records of the town of Stratford show how the Courtes and the Shakespeares in the time of Elizabeth were associated as aldermen of that borough. Educated at King Henry VIII School at Warwick, Court, at the age of 14 years, entered the offices of a shipping firm in Liverpool, where he stayed for three years. Here he met and began a lifelong friendship with another boy clerk, who subsequently became Sir John Brunner, the founder of the famous chemical firm of Brunner, Mond and Co. At the age of 17 Court decided to enter the medical profession, and was sent to the Sydenham College of Medicine, Birmingham, associated with the old General Hospital, both long since demolished. At the hospital he held the position of resident medical assistant and afterwards moved to Guy's, where he completed his curriculum and qualified.

In 1864, a young man of 24, he bought a practice at Staveley in Derbyshire, and there he was destined to stay for seventy-three years. In his early days there Staveley was a place of green fields and woodlands, and Court led the life of an ordinary general practitioner of the period.

Travelling on horseback or in an old-fashioned gig he covered many miles a day, and his work was general enough for the most general of general practitioners. Medicine, midwifery, and surgery, minor and major, occupied his time. It was before the days of Listerism. Nurses were scarce or unavailable and ambulance and hospital facilities inadequate. Such major operations as amputations and trephines were done in cottages, on kitchen tables, and, as Court used to say, the results were quite good. For over fifty years he gave ungrudging and devoted service to the community. No one was too humble or too poor to claim his help and ready sympathy; no trouble among his people too small to secure his interest and assistance. His humour, his common sense, his outspokenness and sincerity, his hatred of sham and pretence endeared him to all. The great assemblage at his funeral at Staveley was only a slight token of the position he held in the hearts of all, from the Lord-Lieutenant of the county to the humblest worker in the pit. His interests were many and varied. Birds, dogs, and children had his special affection, and his recreations were fishing and shooting. He was a crack rifle-shot, and in 1880 won the Robin Hood Cup at Wimbledon with seven bulls out of seven shots at 200 yards. In 1874 he was mainly responsible for the formation of the Staveley Rifle Volunteer Company and was gazetted captain. In politics he was a strong Conservative, though his independent spirit never allowed him to submit to dictation from party wire-pullers. He was chairman of the local Conservative Association in 1868, and in subsequent years. On six occasions he contested the North-East Derbyshire Parliamentary seat without success; Liberalism at first, and then Labour, in the constituency were too strong for him. Yet in 1895 he reduced a majority of 2,170 to 527, and in 1900 to 268. This, under the circumstances, was a triumph; as the miners said at the time, "Nobbut 't'owd Doctor could 'a' done it." A strong and sincere Churchman, his private benefactions to Church and people were many. During his ninety-first year he walked to church on fifty-two successive Sundays. Up till the same great age, too, he was to be seen week after week attending the open-air services of the Salvation Army in the main street of Staveley. In 1901 he was made a Justice of the Peace for Derbyshire, and in 1920 received the honour of knighthood.

In the medical profession he will be chiefly remembered for his researches into the causes of miners' nystagmus. Among the offices he held was that of consulting surgeon to the Derbyshire Miners' Association, and at the request of that body he undertook the task of inquiring into the question of nystagmus. In the course of his investigations in 1890-1 Court descended numerous pits in Derbyshire, Durham, and the Forest of Dean, and also, abroad, in Belgium, and personally watched the miners at work under varied conditions of lighting, etc. His inquiries covered the cases of no less than 1,400 miners, working with safety-lamps and naked lights. In May, 1891, he unequivocally reported to the Miners' Association that in his opinion the cause of the condition was the defective lighting in the pits. He had received some help in the inquiry from a Dr. Pegler of Stonebroom, Alfreton. It is difficult for us to-day to realize the bitterness of the controversy which arose. The writer, at that time house-surgeon to a famous ophthalmologist, Priestley Smith, well remembers the disturbance which followed. Professional opinion as expressed by Simeon Snell of Sheffield was that "the chief cause is not the safety-lamp, but the position in which the men work." In July, 1892, Court read a paper at the B.M.A. meeting in Nottingham. He

Obituary

SIR F. TRUBY KING, C.M.G., M.B.

Formerly Director of Child Welfare, Dominion of New Zealand

We regret to announce the death on February 9, at Wellington, New Zealand, of Sir Truby King, whose name and teaching are known all over the world through his books *The Expectant Mother*, and more especially *Feeding and Care of Baby*, which is the official handbook of the many Truby King and Mothercraft Training Societies.

Frederic Truby King was born in 1858 at New Plymouth, New Zealand, the son of Thomas King, and studied for the medical profession at the University of



Edinburgh, where he graduated M.B. and was awarded the Ettles Scholarship. Before deciding to make medicine his career he had worked with growing reluctance as a bank clerk in New Zealand. After graduation he spent two further years at Edinburgh, studying preventive medicine, and was one of the first to take the degree of B.Sc. in Public Health. He then held resident posts at the Edinburgh and Glasgow Royal Infirmaries, and returned to New Zealand in

1888, becoming superintendent at Seacliffe Mental Hospital and lecturer on mental diseases in Otago University. In 1907 he founded the Royal New Zealand Society for the Health of Women and Children, which was later named the Plunket Society because of the interest taken in the movement by the Governor, Lord Plunket, and his wife. For thirty years the society and its nurses have followed Truby King's teaching as closely as possible and have spread his doctrines far and wide. Between 1907 and 1928 the infant mortality of the Dominion was halved, and there was a notable improvement in the health of mothers before and after childbirth. In 1913 Truby King visited this country as delegate from New Zealand to child welfare conferences in London, and in 1917 he accepted an invitation to organize work here on corresponding lines; thus was established the mothercraft training centre in Trebovir Road, Earl's Court, and similar centres have arisen in every English-speaking country as well as in other parts of the world, their common aim being to practise and teach the principles laid down by the founder. In 1919 he toured Australia with a view to establishing welfare centres there, and he paid three more visits to England. Now nearly 800 nurses hold the certificate of the Mothercraft Training Society at Highgate, and there are six branches in London and the provinces. From 1921 to 1927 Truby King was Director of Child Welfare in the Department of Health of the Dominion of New Zealand. He had been created C.M.G. in 1917 in recognition of his pioneer work in infant welfare, and received a knighthood in 1925. The American Pediatric Society made him an honorary member.

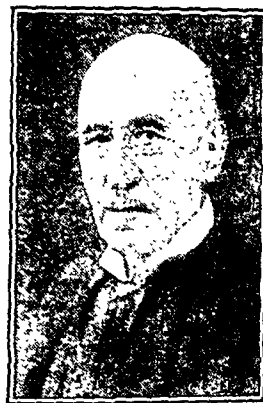
Sir Truby King had been a member of the Wellington Division of the British Medical Association for more than thirty years. An excellent account of his methods of

infant feeding and management will be found in Dr. Reginald Jewesbury's *Mothercraft, Antenatal and Post-natal* (1932), of which a new edition has lately appeared. Public tributes to his fruitful enthusiasm for infant welfare have been paid by the Prime Minister of New Zealand, Mr. Savage; and the Dominion Government has accorded him a State funeral.

SIR JOSIAH COURT, J.P., M.R.C.S.

Sir Josiah Court, who died on February 8 at Staveley, Chesterfield, aged 97, was a general practitioner in a colliery area, who, in the face of strenuous and not always agreeable opposition, established the position of miners' nystagmus as due mainly to the lighting of the mines and not to the posture of the men while at work. He had long been the senior member of the British Medical Association in Derbyshire, having joined the Chesterfield Division more than sixty years ago. At the Annual Meeting of the Association at Newcastle-upon-Tyne in 1921 he was vice-president of the Section of Preventive Medicine with Industrial Diseases.

Josiah Court was born on January 17, 1841. He qualified to practise with the M.R.C.S.Eng. in 1863; two years later he became L.R.C.P.Lond., and after acting as assistant medical officer at Guy's settled in practice. In time he became a leading practitioner at Staveley, and filled many official posts there. Over his many years of busy life he was consulting surgeon to the Derbyshire Miners' Union for claims under the Workmen's Compensation Act, surgeon to the Great Central Railway at Staveley, certifying factory surgeon, public vaccinator, and medical officer of health. As surgeon to the local miners' association he gained first-hand acquaintanceship with the diseases incidental to that occupation, and became well known at home and abroad for his study of miners' nystagmus.



As long ago as 1832 miners were known to have trouble with their eyes and heads which in time disabled them from working in a mine. It was more fully recognized and described by a Sheffield doctor in 1854. The first case recorded in literature occurred in Belgium. The eye muscles were described as being overburdened from continued effort in a deficient light. Thenceforward the disease received much more notice by mine doctors, and the awkward position assumed by the miner hewing at the coal face was looked upon as contributing to its cause. Many observers have written about nystagmus since then, additional symptoms have been described and varying causes assigned to it.

Dr. Court came into the records and discussion of the disease in 1891 and subsequently by writing several papers on it. A lengthy report was then prepared by him for the Derbyshire Miners' Association, and in 1920 his papers on miners' diseases were collected and published by the *Sheffield Daily Telegraph*. By careful observations he showed that nystagmus was common in fiery mines where the safety-lamps must be carried but rare in mines where there was no gas and in which naked lights were used. He found that out of 573 miners using naked

echoes of Stevenson's "Christmas Sermon." I have associated much of it with my old friend Stewart—he is a war-worn veteran who laid down his arms without dishonour, yet hardly had the barrack gates clanged behind him than his strength failed. His steps faltered literally on the day of his release from service. His joy of life might have afforded him a lot of happiness, but if the pleasures of leisure have been denied him its pains have not been experienced. As a loyal friend and as a trusted and loved doctor he will be greatly missed both in public and private life.

Dr. PERCY COLEMAN, who died at Clacton-on-Sea on February 4, studied medicine at St. Thomas's Hospital and at Newcastle-on-Tyne, qualifying M.R.C.S., L.R.C.P. in 1890 and taking the M.B., B.S. of Durham University in 1892. Before settling in practice at Clacton he was house-physician at the Middlesex Hospital and house-surgeon at the Colchester Hospital. In 1899 Dr. Coleman joined the staff of the newly built Clacton and District Hospital, and was for many years chairman of its board of management: in 1929 he was presented with his portrait in oils, with an album containing the names of 335 subscribers and a wallet containing the residue of the testimonial fund. Dr. Coleman was also for many years medical officer to the Middlesex Hospital convalescent home at Clacton and to the Essex and East Counties Asylum convalescent homes. He had been a member of the British Medical Association for forty-four years, and was chairman of the North-East Essex Division in 1924-5.

A HOSPITAL CLEARING HOUSE

A scheme to centralize the arrangements in London for the admission to hospitals of emergency and acute cases is on the point of completion. The co-operation of the hospitals likely to be affected has been secured, and King Edward's Hospital Fund has promised a substantial donation towards the cost. The task of bringing the proposal into practical shape has been that of a sub-committee of the Voluntary Hospitals Committee of the County of London, which is the body set up under the Local Government Act, 1929, for consultative purposes with the local authority regarding hospital provision. It is proposed to set up a central office where a record of beds available at voluntary hospitals will be maintained, and practitioners who desire cases admitted will be encouraged to refer by telephone to that office instead of directly to the hospitals. Practitioners will not, of course, be precluded from making direct application to a particular hospital, and the choice of hospital will be left, as at present, to them; but it is felt that a centralized system will avoid frequent delay and disappointment by discovering at once where beds are available and where they are not, and will also save the time of hospital officers. One necessary step will be to have the admission of cases controlled by only one office in each hospital, so that the clearing house will not have to make inquiries from different sections in turn when applying for a bed. This arrangement, simple as it seems, is said to necessitate quite a considerable amount of reorganization in some cases.

Extensions and Improvements

The latest report of the Voluntary Hospitals Committee, although not concerned with hospital finance, does not seem to reflect the rather dreary picture of the future of voluntary hospitals which has been painted in the correspondence columns of some newspapers. The voluntary hospitals within the county of London number 105, with 16,113 beds, an increase of nearly 1,000 beds upon the figure for 1931. Westminster is erecting a new and enlarged hospital at some distance from its old building; Great Ormond Street is rebuilding on its present site;

St. Bartholomew's is reconstructing section by section behind its existing façade; and the rebuilding of St. George's will be undertaken shortly. Extensive programmes, including the provision of pay-beds for middle-class patients, are in hand or have recently been completed at eight other general hospitals, five more are building new out-patient departments, and much other reconstruction and enlargement is proceeding. All these proposals as they come along are referred by the committee to the London County Council for its observations. One instance of such consultation is mentioned in the case of the London Fever Hospital, which is building an isolation block. The authorities of that hospital approached the committee and asked whether, in view of the provision made by local authorities for fevers, it was considered that the hospital fulfilled a useful purpose within the voluntary system. The question was gone into carefully with the London County Council, which took the view that the services rendered by the London Fever Hospital should be regarded as complementary to its own. The conclusion has been arrived at that the hospital does serve a useful function, and the erection of the isolation block is accordingly proceeding. The hospital programme of the London County Council is also continually expanding. In its general hospitals it has 17,534 beds, and in its special (including fever) hospitals it has 14,136, but extensions are in progress which will increase the total by a further 1,834. The more important of these extensions are at Lambeth, Mile End, Paddington, and St. Nicholas (Woolwich) general hospitals, and the North-Eastern Fever Hospital. A scheme is also in preparation for a new general hospital of 500 beds on part of the site of St. Benedict's, Wandsworth.

A New Contributory Scheme

A matter which has received the attention of the committee is the inadequacy of payments frequently made by provincial contributory schemes to London hospitals treating their patients. Some schemes were found to be paying only 3s. per in-patient day, or even less. As a result of representations a great improvement has lately taken place. It is stated that a contributory scheme is likely to be launched early in 1938 with a basis of contribution of 6d. a week, and income limits of £5 a week for single persons, £7 for married couples, and £8 for married couples with dependants. The corresponding income limits recommended by the British Medical Association, subject to economic and local variation and periodical revision, are £4, £5, and £6. The scheme is put forward by the Advisory Hospital Committee of the Hospital Saving Association. The Voluntary Hospitals Committee has been considering hospital insurance for the middle classes, or at least for persons of moderate means but above the usual income limits, and has had some discussions with the British Provident Association, but the proposed raising of the Hospital Saving Association limits brings a new factor into the situation.

The Voluntary Hospitals Committee at present represents only the voluntary hospitals within the county, but it is proposed to extend its constituency to an area corresponding to that of the King's Fund. The extension to a radius of eleven miles from St. Paul's will bring in forty-two additional hospitals with nearly 3,000 beds. London for hospital as for other purposes can no longer be considered as confined within the county boundary.

A new periodical dealing with research in rheumatism with the title *Zeitschrift für Rheumaforschung* will be published this year in Germany by Theodor Steinkopf of Dresden. It will deal particularly with the medical and sociological aspects of this disease, and is intended to help in the campaign against rheumatism by bringing together information derived from various sources. It will be edited by Dr. P. Köhler of Bad Elster, Professor R. Jürgens and Dr. H. Kaether of Berlin.

was supported by Tatham Thompson of Cardiff, but all the other ophthalmic specialists present were opposed to him. It is on record that so violent was the controversy that after the meeting one well-known ophthalmologist declined to travel home in the same compartment as Court. In strong opposition, too, were the mine inspectors, who feared the adverse effects of Court's suggestions on the introduction of safety-lamps into "gassy" pits, and the owners, who were apprehensive of the expense entailed by a more efficient method of lighting. But Court went on with his work, and gradually professional opinion veered round in his favour. In February, 1922, J. S. Haldane and Llewellyn read a paper before the Royal Society endorsing Court's views, and in the following July he finally triumphed, when, at the Ophthalmological Congress at Oxford, after he had read his paper, it was resolved: "That the character of the illumination is the chief factor in the production of coal miners' nystagmus." The importance to the mining industry of his research can hardly be overestimated. No longer can it be held that miners' nystagmus is an inevitable corollary of the industry, but, on the contrary, it is clear that, given proper precautions, it is almost entirely preventable.

[The photograph reproduced is by Russell, London.]

A. E. HODDER, D.S.O., M.A., M.B.

Dr. Andrew Edward Hodder died at his home in Stafford on February 3, aged 62. A native of Dulwich, he was educated at Bedford School, from which he proceeded to King's College, Cambridge, gaining the Vintner Exhibition and graduating in Arts in 1898, with second-class honours in Natural Science, and in Medicine in 1901. After qualifying he held the appointment of house-surgeon at his old hospital, St. Mary's, Paddington, and later practised for several years in Lancashire. He settled in Stafford in 1911, and was appointed to the Staffordshire Insurance Committee as a representative of the Minister of Health in 1913, in the same year being made a member of the Panel Committee. He later served as chairman of the Insurance Committee for several years, and in 1927 succeeded the late Dr. Ridley Bailey as chairman and honorary treasurer of the Staffordshire Panel Committee, holding these offices, together with that of chairman of the Medical Benefit Subcommittee, at the time of his death.

Dr. Hodder from his earliest days took an active interest in the service of his country and joined the school Cadet Corps, the Volunteers, and the Territorial Army. Proceeding to France as captain in 1915 with the Third North Midland Field Ambulance, his brilliant work in the field gained him rapid promotion, and in 1917 he was given command of the Ambulance, with the rank of lieutenant-colonel, and was awarded the D.S.O. On his return to Stafford after the war Dr. Hodder continued his public activities. He was a Governor and for some years chairman of King Edward VI Grammar School, a Governor of the Girls' High School, and for a period a member of the Town Council, doing valuable work on the Health Committee. He was also chairman of the Stafford Branch of the English Association, a member of the Staffordshire Nursing Association, and a vice-president of the Stafford Cripples' Centre. He took an active part in the modern development of orthopaedics. Dr. Hodder was an active and staunch member of the British Medical Association for thirty-three years and secretary of the Walsall and Lichfield Division in 1922, a member and past-president of the North Staffordshire Medical Society, and a foundation member of the Mid-Staffordshire Medical Society, of

which he was elected president last October. For many years he was also a member of the honorary staff of the General Infirmary, Stafford, first as anaesthetist and later as physician. He leaves a widow and four children.

Even a mere catalogue of a man's activities may give some indication of his character. Hodder, by culture, temperament, and experience, made an ideal chairman. He held the balance of debate with an even poise and had the gift of seeing the other man's point of view; but amidst his various interests one stood out above all others—his efficiency in his daily job. He had a high sense of the dignity of general practice, and while he made full use of the modern methods of diagnosis he regarded the clinical acumen of the family doctor as the final arbiter. He took an active part in preventive medicine, and on more than one occasion acted as liaison officer between the Public Health Service and other branches of medicine.

Hodder had a high code of ethics. He had few dislikes, but to him all forms of pedantry and ostentation were taboo. His services on the Insurance Committee were particularly valued; for while he took every reasonable care to safeguard the interests of the profession, his impartiality and experience were recognized by those representing other interests, and, as the clerk of that committee has expressed it, "He could make the intricacies and difficulties of medical practice plain to all." When all has been said and written concerning Hodder's qualities and achievements, those who knew him best will also cherish the memory of a loyal friend.

Dr. Frank Bryan writes from Tavistock:

His indeed was a sterling character. He came up to King's, Cambridge, about a year older than most of his intimate friends, and, because of this and the solid worth of his common sense and keen sensibility, he greatly endeared himself with a happy fraternity in which were representatives graduating for the Services and all the various professions. His loyalty and steadfastness to those early friendships was continued to the end, and even in the trying days of the great war he found time to keep in touch with some of us away on other fronts and some at home. Not only was he the centre round which friendship for himself revolved, but through him in large part was maintained the friendship of many other of his contemporaries one with another. So much was this the case that he was affectionately known to us all as "Pa Hodder." We all valued his opinion, and he never failed to be anything but absolutely conscientious with his advice to us, just as I am sure he ever was with his patients.

Dr. R. Stirling sends the following tribute to the late Dr. C. PARKER STEWART: The character of the man is my concern. Let it suffice to say that he obtained first-class honours at Edinburgh University in many subjects and also B.Sc. in Public Health. He finally selected public health as a career. His abilities and dexterous fingers early qualified him for any branch of medicine or surgery he chose to adopt. He certainly was a man of more than average ability, full of resource and energy. After a few years of hospital life and in general private practice he gained a clinical knowledge which later proved invaluable in his work as medical officer of health. His interests were too varied to allow him to drift into a narrow groove, and he never became purely an administrator. He brought to bear human sympathetic understanding in all he did. In no department did he show his originality and success more than in the creation of the Perth child welfare centre, which will remain a model worthy of imitation for many years and a lasting tribute to his memory. My thoughts are still lingering with the

that if there was a successful appeal he thought the general damages would be £200 and the special £72 10s. Every surgeon knows how easily infection can track up a metal wire which pierces the tissues, and a major operation may well lower the general resistance to infection. The learned judge's finding seems by far the most likely explanation of the mishap.

Medical Notes in Parliament

The Divorce and Nullity of Marriage (Scotland) Bill was down for consideration in the House of Lords this week.

The business of the House of Commons included the second reading of the Housing (Financial Provisions) Bill and the National Health Insurance (Amendment) Bill, as well as later stages of the Blind Persons Bill and the Population Bill.

The report of the inquiry into the recent outbreak of typhoid fever at Croydon was issued to M.P.s on February 14 (see p. 404). No immediate request was made for a debate on it.

On February 15 there was issued a report by the Departmental Committee on questions arising out of the Workmen's Compensation Acts, making recommendations on the certification of miners' nystagmus, on the appointment and powers of medical referees, and on kindred matters. Appointment of medical appeal tribunals is recommended.

Progress of Slum Clearance

In the House of Commons on February 15 Sir KINGSLEY WOOD moved the second reading of the Housing (Financial Provisions) Bill, which, he said, provided for the furtherance of the work of slum clearance and of dealing with overcrowding. Special provision was also made for agricultural housing, and the exceptional conditions prevailing in small urban areas would also be met. The slum clearance programme covered about 400,000 houses. Some 800,000 persons had passed from slums to new and good housing conditions, and others would be dealt with at the rate, on an average, of 25,000 a month. It was estimated that for the execution of the present programme of slum clearance and for dealing with overcrowding on the present standard some 600,000 new houses were required—400,000 for slum clearance and 200,000 for the abatement of overcrowding. About 200,000 houses had been built to date towards that total, and another 70,000 houses were under construction, while houses were being completed at the rate of about 7,000 a month.

Under the Bill, houses completed not later than December 31, 1938, would rank for subsidies fixed by the Acts of 1930 and 1935. Those finished after that date would rank for subsidies fixed by the present Bill. It was provided that a further review of the position should be made after December 31, 1941. Two important changes were contained in the new financial provisions. The first was the fixing of the two subsidies for slum clearance and overcrowding at the same level, and the second was that there would be an annual contribution for each house built over a period of forty years. The uniform subsidy, so far as slum clearance was concerned, would allow local authorities to let houses at practically the same rents as were contemplated when the slum clearance subsidy was fixed in 1930. With regard to rural housing, the Government proposed to introduce legislation at an early date to extend for four years the Housing (Rural Workers) Act, which would expire in June.

A motion for the rejection of the Bill, moved by Mr. Greenwood, was defeated, and the Bill read the second time.

Mr. ELLIOT, replying to Mr. Henderson Stewart and Mr. Westwood on February 15, said he intended to submit to Parliament a draft order designed to continue the existing rates of subsidy under the Housing (Scotland) Acts of 1930 and 1935.

Medical Aid in China

On February 14 Mr. EDEN informed Mr. Mathers that an English-speaking group appointed under the League of Nations' plan of anti-epidemic assistance to China had been constituted under the leadership of Dr. R. C. Robertson and was already in China.

Pasteurized Milk: Reports of Milk Nutrition Committee

Mr. W. S. MORRISON, replying to Captain A. Evans on February 14, said that the Milk Nutrition Committee had published a report dealing with experiments on rats at the National Institute for Research in Dairying, Reading, and at the Rowett Institute, Aberdeen. Two further reports, dealing respectively with the work at these two institutions on the feeding of calves on raw and pasteurized milk, and with an investigation into the effect of dietary supplements of raw and pasteurized milk on the growth and health of school children, were in preparation and would be published shortly. The committee proposed to issue thereafter a final report dealing with their inquiries as a whole.

Derating of Hospitals.—Sir COOPER RAWSON asked, on February 10, whether the Government would introduce legislation to effect the derating of hospitals in view of the heavy burdens consequent on rebuilding and reassessment. Sir KINGSLEY WOOD regretted it was not possible to do this. Proposals of this kind had been considered on many occasions and strong objections to their adoption had been found.

Silicosis Scheme: Claim by Sheffield Widow.—Mr. A. V. ALEXANDER asked on February 10 that the Home Secretary should further consider the claim of a Sheffield widow, under the Silicosis Scheme, in respect of the death of her husband. He said her claim had been rejected in spite of the fact that this man had previously been awarded compensation for silicosis at the full rate for a period of five years upon a certificate of total disablement due to this disease, and that, after a post-mortem examination, the coroner certified that death was primarily due to silicosis. Sir SAMUEL HOARE said there were two examinations in this case, and that the final authority, the Silicosis Medical Board, came to the decision, after a post-mortem examination, that death was caused by independent conditions and not by silicosis. The Board had unique experience in diagnosis of silicosis, and its decision was authoritative. The Board had always been regarded as a final authority and he did not see what other authority one could have. Mr. ALEXANDER said there should be a right of appeal from the decision of the Board, and Mr. JAMES GRIFFITH remarked that the Medical Board was compelled to find silicosis as the primary cause of death, although in many cases it was a subsidiary one. Sir SAMUEL HOARE promised to look into the points raised, though he had no reason to believe that the Board was not an effective tribunal.

Medical History of ex-Service Men.—On February 14 Mr. ORR-EWING asked the Minister of Pensions whether in future the full medical history of an ex-Service man while in any of the Services could be supplied to his medical adviser if such a man made a written request to this effect. Mr. H. RAMSBOTHAM replied that the Service records were confidential. He could not, therefore, adopt the suggestion. It was, however, the practice of the Ministry to welcome any reasoned statement in support of the claim from the man's own medical adviser, and to give him an opportunity to discuss the case with a medical officer of the Ministry in his area.

Notes in Brief

The report of the Committee on Miners' Nystagmus has been presented to Parliament. Sir Samuel Hoare stated on February 3 that it would be issued shortly.

No special investigation has been made or is contemplated by the Ministry of Health into the nutritive value of margarine that has or has not been vitaminized. The Advisory Committee on Nutrition has recommended that where margarine is used it should be vitaminized. This recommendation has been conveyed to local authorities.

Medico-Legal

EFFECT OF A DELUSION ON A WILL

Not every testator of doubtful sanity is incapable of making a valid will. The classical instance of this principle is *Cartwright v. Cartwright* (1793), in which a chronic mental patient made a sensible will which was held to be valid, although her conduct immediately before and after was disordered and violent. The question before the court is not whether the testator was mad but whether his will was affected by his mental disorder. A frequent, because obvious, form of mental disorder rendering a will invalid is a definite delusion. Until the case of *Bohrmann* (1938) the court had never pronounced one clause in a will invalid for this reason and granted probate of the rest. In that case, however, Mr. Justice Langton found that a clause in one codicil was vitiated by an insane delusion but the rest of the will was not.

An elderly bachelor left an estate worth £180,000. He had made a will in 1926 in which he left small legacies to some of his relatives and the bulk to charities in England. He afterwards executed four codicils, in the last of which, made in 1932, he directed that the clause of the will by which he gave his money to charities should be "read and construed as if the word England were deleted therefrom and the words United States of America were substituted for the word England."

The relatives contested the will and codicils, alleging that the testator when he made them was suffering from insane delusions and obsessions, and was so devoid of ordinary human instincts as not to recognize the claims of family sentiment. The evidence showed that, as the learned judge put it, he was a man of very few friendships; he gave very little in life and got very little out of it. He was not a kindly or an affectionate man, and on smallest provocation he gave way to fits of ungovernable rage. He was a chronic asthmatic and a hypochondriac. In short, he was a most eccentric, very unreasonable, very spoilt, and rather useless human being. From medical evidence it appeared that in 1933 he ought to have been under some form of supervision. Dr. R. D. Gillespie, whom the judge complimented very highly both on his knowledge of psychiatry and on his ability and impartiality as a witness, noted that many of the testator's collateral relatives had been schizophrenes and suffered from paranoia. The testator was a paranoid psychopath, a person who was likely to entertain a definite delusion on one point and to have a clear intelligence on others, and who was deficient in human affections and the common instincts of mankind. The judge had to apply to this evidence the test formulated by Sir Alexander Cockburn, Chief Justice, in *Banks v. Goodfellow*.

"If the human instincts and affections, or the moral sense, become perverted by mental disease; if insane suspicion or aversion take the place of natural affection; if reason and judgment are lost and the mind becomes a prey to insane delusions calculated to interfere with and disturb its functions, and to lead to a testamentary disposition due only to their baneful influence—in such a case it is obvious that the condition of the testamentary power fails, and that a will made under such circumstances ought not to stand."

The law, said Mr. Justice Langton, has not recognized any half-way house between sanity and delusional insanity. One is treading upon dangerous ground if one goes a step further and says that a person who lacks to a certain degree the human instincts is therefore incapable of making a will. Such a step, he considered, could only be taken by legislation. He therefore could not find that this testator was incapable of making a good will. He was particularly impressed by one action of the testator in making a present of £400 to a needy relative and suggesting that if the relative desired to pay interest he should pay it into the bank for the benefit of his children. The testator had also carried out instructions, which had no legal force, in the wills of his brother and his mother

to leave two sums of a thousand pounds each to two cousins. The judge therefore could not believe that the testator was incapable of the human instincts of affection and consideration for relatives, and held that although the testator was a paranoid psychopath he had none the less made a valid will and three valid codicils.

A Delusion of Persecution

The fourth codicil, however, was a different matter altogether. The London County Council, desiring to enlarge a hospital, gave the testator notice that they would expropriate his home on Denmark Hill. Although they treated him with great consideration and twice extended the time within which he should have left the premises, he convinced himself that they were persecuting him because one of their valuers had a private grudge against him. He characterized them on many occasions in ridiculous terms, and even wrote a doggerel poem cursing them. The judge was quite satisfied that the testator had harboured an insane delusion against the Council. From the beginning of 1932 he had thrown his whole energies into a battle with them which was the overmastering motive of his life till he died. His fourth codicil, in which he deflected his bounty from English to American charities, was an expression of his hatred for the Council. His lordship therefore considered it right and proper to treat this particular clause as affected by the testator's delusion and to delete it, while allowing probate of the will, the first three codicils, and the rest of the fourth codicil. He admitted that he knew of no previous case in which a judge, on the ground of delusion, had disturbed a part of a will and left the rest. He could not, however, see that his decision conflicted with established law: the court frequently deleted from wills matter which they were satisfied had never been brought to the knowledge and approval of the testator. The learned judge felt that he was only applying the same principles when he deleted matter which he believed to have been tainted by delusion.

LIABILITY OF A JEWELLER

The standard of care required of a person who does any kind of surgical operation depends upon the profession which he makes to the public. If he says he is a specialist the standard is very high. If he does not claim to be qualified at all it is fairly low. Mr. Justice Goddard had recently¹ to determine what standard of care and skill is required of a jeweller who pierces a client's ears for earrings. A lady asked the jewellery department of a large store to arrange to have her ears pierced. They employed a man who was used to the operation; he sponged the ears with an antiseptic, dipped his fingers into it, and pierced her ears with an instrument which he had brought with him and which he first held in a flame. She had chosen the particular day on which this was done because she was to go into a nursing home on the following day for a severe operation, and considered that her convalescence would give her a good opportunity of healing her ears before the earrings were fitted. For this purpose she had to wear "sleeper" rings, which are rather unsightly. She had her operation, and about ten days after the piercing she developed an abscess of the lymph glands in the neighbourhood of the left ear, for which she had to undergo an incision. She sued the firm, alleging that the employee had been negligent and had not taken reasonable precautions against infection. The learned judge said in his judgment that the jeweller could not be expected to use the degree of care which a doctor should use. The firm would be liable if he had used a wholly unsuitable or dirty instrument. The degree of cleanliness must be one reasonable for a jeweller—not for a surgeon. He saw no grounds for holding that the jeweller had departed from the standard of care appropriate to his profession, nor could he find that the abscess was due to any action of the jeweller's. He thought it much more likely that the infection took place after the piercing. He therefore dismissed the action, but said

¹ *Times*, January 29: *Phillips v. Wm. Whiteley, Ltd.*

EPIDEMIOLOGICAL NOTES

Enteric Fever

During the week there have been 4 more cases of typhoid fever in the Somerset outbreak, bringing the total to 39, while an additional death has brought the total deaths to 5. The outbreak has remained confined to the original districts of Highbridge and Huntspill. Although the source of the infection has not been traced, the initial outbreak appears to have come to an end, and the last few cases probably resulted from contact with the primary cases. Of the two cases of typhoid fever notified in London during the week under review, 1 each occurred in the borough of Kensington and the city of Westminster.

Diphtheria and Scarlet Fever

As pointed out last week the incidences of diphtheria and scarlet fever are appreciably higher this year compared with the corresponding week last year in all five countries. In most of the countries the diseases appeared to be on the increase, but this week there is a drop in the notifications of both diseases for all five countries with the single exception of scarlet fever in Northern Ireland, where 88 cases were notified compared with 84 in the previous week.

Influenza

Notifications of influenzal pneumonia continue to fall in England and Wales—1,128 compared with 1,302 in the previous week—while for London the figures are 78 and 110 respectively. The increase of 6 deaths in England and Wales is probably attributable to the lag of 7 to 14 days between notification and death.

Measles and Whooping-cough

During the week under review there were 37 notifications of measles in the London boroughs in which the disease is notifiable, compared with 23 in the previous week. During the same period 1,152 cases were reported from the L.C.C. elementary schools compared with 784 last week and 522 in the previous week, and the average daily measles admissions to the L.C.C. fever hospitals was 39 compared with 32 and 25 in the two previous weeks. On the other hand, the measles epidemic in Scotland appears on the whole to be abating; there have been only 1,330 notifications compared with 1,661 in the previous week, while the deaths remain at 17. The fall in notifications was seen in Edinburgh and Dundee, while in Glasgow the figures have risen from 1,013 to 1,020. The Belfast outbreak has probably reached its peak, the figures for the last three weeks being 832, 728, and 789 respectively. Mortality from whooping-cough appears to be increasing in England and Wales, deaths for the week being 27 for the whole country and 5 for London, compared with 20 and 2 for London in the previous week.

Acute Poliomyelitis

During the last few months there has been an epidemic of acute poliomyelitis in Victoria, Australia, with 1,695 cases and 88 deaths. The peak of the epidemic has probably been reached. While immune serum continues to be used both in treatment and prophylaxis, there have been no reports so far of the application of chemical substances such as zinc sulphate to the nasal mucous membrane in the hope of averting attack. Sister Kenny's system of treatment of paralysis is being given a thorough trial in the State of Victoria.

Medical News

The 163rd anniversary dinner of the Medical Society of London will be held at Claridge's on Tuesday, March 1, at 7.45 p.m.

The eighth Sir Robert Jones Lecture will be given by Dr. Frederick C. Kidner, President of the American Orthopaedic Association, on the subject of congenital dislocation of the hip, on February 24, at the Hospital for Joint Diseases, Madison Avenue, New York City.

A meeting of the Lancashire and Cheshire Branch of the British Medical Association will be held at Salford Royal Hospital on Wednesday, February 23, at 4 p.m., when Mr. R. Ollerenshaw and Mr. W. Sayle Creer will speak on "Common Foot Deformities and the Function of the Chiroprapist attached to a General Hospital." Further particulars appear in our Supplement.

The annual general meeting of members of the Medical Peace Campaign will be held to-day (Saturday, February 19) at Friends House, Euston Road, N.W., at 5 p.m. Dr. Adrian Stephen will take the chair.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, February 24, at 8.30 p.m., when a paper will be presented by Dr. Gerald Slot and Mr. B. A. Levinson on "The Status, Scope, and Legal Position of the Unqualified Practitioner."

The Hunterian Oration before the Hunterian Society will be delivered at the Mansion House, E.C., on Monday, February 28, at 9 p.m., by Sir Frederick Hobday, on "John Hunter—Pioneer of Veterinary Science."

A meeting of the West London Medico-Chirurgical Society will be held at West London Hospital, Hammersmith, W., on Friday, March 4, at 8.30 p.m., when Dr. Donald Hunter will speak on "Industrial Diseases."

A medical congress will be held at Tunis on April 11 to 13 under the presidency of Dr. Etienne Burnet, director of the Pasteur Institute of Tunis. The chief subject for discussion will be the aetiology, epidemiology, clinical aspects, prophylaxis, and treatment of trachoma. Further information can be obtained from the general secretary, Maison du Médecin, 25, Avenue de Paris, Tunis.

The Grenfell Association of Great Britain and Ireland has arranged a lantern lecture on medical work in Labrador and North Newfoundland, to be given by Dr. Charles Hogarth Forsyth of Labrador, in the Assembly Hall of the Royal Empire Society, Northumberland Avenue, W.C. (entrance in Craven Street), on Tuesday, February 22, at 5 p.m.

Two £100 scholarships are again being offered at Port Regis Preparatory School to sons of medical men. The examination is being held in March, 1938, and candidates must be under 9 years of age at the time of competing. Applications for the scholarships should be addressed to the Headmaster, Port Regis, Broadstairs, not later than February 20. The school is situated in the healthiest and most bracing position in Broadstairs and Kingsgate-on-Sea, and has an excellent record.

The issue of the *Bulletin de l'Office international d'Hygiène publique* for December, 1937, is devoted to plague, scarlet fever, tularaemia, infectious diseases, and mental disorders.

The issue of *Paris Médical* for January 15, which is devoted to dermatology, contains an interesting but by no means flattering description of the new buildings of the *Infirmerie Saint-Lazare* used for the treatment of prostitutes suffering from venereal diseases.

Geh. Rat August Bier, emeritus professor of surgery at Berlin University, celebrated the fiftieth anniversary of his qualification on January 30.

Sir Comyns Berkeley has been nominated an honorary member of the German Society for Gynaecology.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended February 5, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1928-36 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	34	3	13	4	—	37	10	13	1	1		
Deaths		1	2				3	4				
Diphtheria	1,874	204	265	58	43	1,253	163	238	36	40	1,316	224
Deaths	37	4	6	1	—	52	5	6	1	2		
Dysentery	215	50	144	—	—	30	10	5	—	—		
Deaths												
Encephalitis lethargica, acute	1	—	1	—	—	6	—	—	—	—		
Deaths		1					3					
Enteric (typhoid and paratyphoid) fever	69	2	5	8	1	61	8	4	9	—	34	—
Deaths	1	—	—	—	—	4	1	—	—	—		
Erysipelas			89	12	14			70	9	7		
Deaths		4					2					
Infective enteritis or diarrhoea under 2 years												
Deaths	68	19	11	8	2	37	13	7	7	4		
Measles			1,330		798*			41		—		
Deaths	27	3	17	1	27	3	—	—	3	—		
Ophthalmia neonatorum	102	11	38		1	78	4	34		—		
Deaths												
Pneumonia, influenzal §	1,128	78	22	2	23	3,140	132	224	127	16	1,747	160
Deaths (from Influenza)	66	8	5	1	2	976	101	135	65	35		
Pneumonia, primary			274	21				318	20			
Deaths		27		21	27		21	85	28			
Polio-encephalitis, acute	1	—				—	—					
Deaths												
Poliomyelitis, acute	6	—	1	—	—	3	—	2	—	—		
Deaths												
Puerperal fever	6†	6	16	2	—	59	4	20	1	—		
Deaths		2‡					1‡					
Puerperal pyrexia	204	22	29		5	148	12	26		—		
Deaths												
Relapsing fever	1	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,417	168	501	87	88	1,666	173	324	57	47	2,176	250
Deaths	4	—	1	2	—	5	1	—	—	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			33		7			595		8		
Deaths	27	5	—	1	2	40	4	32	4	1		
Deaths (0-1 year)	468	92	91	40	32	467	74	110	56	26		
Infant mortality rate (per 1,000 live births)	78	76				74	61					
Deaths (excluding stillbirths)	5,063	1,063	730	197	199	7,688	1,303	1,127	473	247		
Annual death rate (per 1,000 persons living)	12.5	13.4	13.3	13.3	17.6	19.1	16.2	21.4	32.2	23.6		
Live births	6,575	1,277	937	408	222	6,639	1,325	967	365	223		
Annual rate per 1,000 persons living	16.2	16.1	19.1	27.6	19.7	16.5	16.5	19.8	24.9	21.3		
Stillbirths	281	29				292	39					
Rate per 1,000 total births (including stillborn)	41	22				42	29					

(i) 122 great towns in 1937.
(ii) 12 " " "
(iii) 9 " " "

* 789 cases in Belfast alone.
† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Deaths from puerperal sepsis.
§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

140 Diagnosis of von Recklinghausen's Disease

F. NØRGAARD (*Hospitalsidende*, November 16, 1937, p. 1209) gives an account of two cases of neurofibromatosis in which various abnormalities of the skeletal system were demonstrable, and suggests that when the other manifestations of von Recklinghausen's disease are ill developed these changes may be of value in differential diagnosis. His first patient was a woman aged 21, and the skeletal abnormalities were confined to one side of the body. This fact, and the existence of these changes in infancy, made it probable that they were congenital. After giving details of the second case, that of a cigar-sorter, aged 49, who since childhood had been hunch-backed, the author reviews the bony changes which have already been recorded in the literature. They consist of deformities of the spine, including scoliosis and kypho-scoliosis, changes resembling those of osteomalacia, periosteal cysts, and an increase or decrease in the growth in length of certain of the long bones or of the whole of one limb. The skiagrams taken of the author's two patients revealed most of these skeletal changes, which, in his opinion, must be traced back to defects in the germ cells rather than to later circulatory disturbances or to the influence of the neurofibromata on growth.

141 Chronic Mastopathy

R. WANKE and H. PAULSEN (*Klin. Wschr.*, December 4, 1937, p. 1727) support the view that chronic mastopathy is due to an endocrine dysfunction affecting particularly the production of follicular hormone. In experimental animals mammary conditions resembling those of fibrocystic disease have been found where there is follicular inhibition. The exhibition of folliculin causes regression of the same condition in the human subject. Wanke and Paulsen have measured the amounts of anterior pituitary hormone and follicular hormone excreted in the urine in two patients, aged respectively 32 and 27, with chronic cystic mastopathy. In the first the excretion of anterior pituitary hormone was normal; but the follicular hormone excretion was reduced to 472 units, compared with a normal total of 1,000 to 3,000 mouse units, and showed an inversion of the normal curve—that is, the excretion was least in the interval between the menstrual periods, whereas normally it is greatest at that time. In the second patient the results of the pituitary hormone estimations are not given, but the month's follicular hormone excretion was only 230 units, and from the fifteenth to twenty-third days the average excretion was 8 to 9 units as compared with a normal of 120 to 180 units. Wanke and Paulsen point out that chronic mastopathy with its diminution of folliculin metabolism may be regarded as the antithesis of glandulo-cystic endometrial hyperplasia, in which overproduction of follicular hormone is proved; a coexistence of the two morbid conditions, they state, has so far never been reported.

142 Malaria in Italian East Africa

G. LEGA, G. RAFFAELE, and A. CANALIS (*Riv. Malariol.*, 1937, 16, -5, 325) have surveyed malarial conditions in Abyssinia, Amhara, Eritrea, and Italian Somaliland during 1936. Owing to the paucity of communications epidemic regions were rare, but diffuse endemic infection was noted over extensive areas, especially 900 to 1,400 metres above sea level. In the plateaux and mountains more than 2,000 metres above the sea malaria was not encountered. At about 1,000 metres splenic indices of 70 to 90 per cent. were not uncommon; *Plasmodium falciparum* and *P. vivax* were found, chiefly the former. *P. vivax* prevails at great altitudes and in the eastern

plains. *P. malariae* is comparatively uncommon. Quartan infection was rarely seen, but the benign tertian cases seemed more severe than in Italy, and a new variety of *P. falciparum* was found in certain malignant tertian cases; the ringed trophozoites averaged 3.7 μ in diameter as compared with 2.66 μ for the typical *P. falciparum*, and the male gametocytes become flagellated in as little as three to five minutes. Thirteen species of anophelids were found, in the higher regions chiefly *A. cinereus* and *A. demeilloni*.

Surgery

143 Osteosynthesis for Fracture of the Femoral Neck

K. LEHMANN (*Hospitalsidende*, November 30, 1937, p. 1) has performed Johansson's osteosynthesis on thirty-four patients suffering from fracture of the neck of the femur. Of the twelve patients in one hospital two died as a result of the operation and one some time after it of cancer. After an observation period of two to three years it could be claimed for six of the surviving nine patients that the results were perfect, and for two that they were comparatively good. Only in one case was the result bad. In another hospital the observation period for the twenty-two patients was too short to warrant claiming final results. Four of the operations had already to be regarded as failures, and one of the patients had died at operation. In fifteen cases the results promised to be good. The author is on the whole greatly impressed by recent achievements in this field, and he draws attention to the way in which Johansson's operation is approved by all with an extensive experience of it. Three failures in the second series were due to late dislocation or the formation of a pseudarthrosis. These failures have taught the author to keep his patients in bed for as long as six weeks, and not to let any weight be borne by the pegged femur till at least two months after the operation. Only in one case did necrosis of the head of the femur threaten. This complication, which is fairly common to judge by the literature, is, in the author's opinion, the most important cause of the failures for which the surgeon is not responsible. It is generally agreed that the foreign body introduced into the bone is not responsible for this complication, which occurs even when no operation is attempted. The author advises against massage for after-treatment as it is difficult to control and may be carried out with injurious forced movements. The operation should be performed early; an interval of two to three months between fracture and pegging is enough to affect the results. The author is reserved in his advocacy of pegging for lateral fractures of the neck of the femur.

144 Lobectomy for Bronchiectasis

J. HOLST (*Finska Läk.Sällsk. Handl.*, October, 1937, p. 794) believes that the combination of dilated bronchi and infection creates a vicious circle which cannot be broken solely by combating the infection with drugs, vaccines, or bacteriophage. But it can be broken by mechanical means directed against the factors responsible for the retention of secretions in the bronchi. His indications for lobectomy are liberal, as, in his opinion, the wait-and-see alternative leads sooner or later in most cases to pneumonia, pulmonary abscesses, empyema, metastatic abscesses, or amyloid disease after years of suffering. His material consists of nineteen cases of "primary" bronchiectasis, in as many as ten of which the disease was limited to the left lower lobe. In five cases it was limited to the right lower lobe, and in one to the middle lobe. In the remaining three cases several lobes were involved. In as many as ten cases the disease had begun before the age of 15, and only in seven cases was the onset after the age

Letters, Notes, and Answers

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QUERIES AND ANSWERS

Primary Vaccination at the Age of 12

"CHELSEA" writes: Can any reader advise me in regard to the following problem? My son, aged 12, was not vaccinated as an infant, and he is now being entered as a scholarship candidate at one or two public schools. The memorandum published by the Ministry of Health deprecates primary vaccination after the age of 1 year owing to the risk of encephalitis, and I fear that most schools will be closed to him unless he is vaccinated. Have any readers faced this problem with their patients' children? If so, I should like to know how they dealt with the situation.

Enlarged Foliate Papillae

"D. Y. C." writes: I have had difficulty in treating a case of enlarged foliate papillae in a woman, aged 26, who for the last two years has had attacks of granular pharyngitis, which usually occurs in December or January. There is periodic enlargement of the papillae on one or other side, sometimes on both, accompanied by severe tenderness and dryness; sucking lozenges, for example, aggravates the condition. I have tried painting with Mandl's paint, with argyrol, and with glycerin. I have prescribed various gargles, and have administered tonics containing iron and vitamin preparations. I have also had her teeth seen to, but there are no dentures to cause this condition. I should be grateful for any advice on the subject.

Fomites et Alia

Professor MILES H. PHILLIPS writes: Of course "Senex" is correct in his condemnation of my misuse of the word "fomites." Actually I had realized the danger and had intended, but forgotten, to throw the responsibility on to Dr. Henry by placing the word in quotation marks. It would be clearer and fairer to use Henry's phrase "contagion of fomites." I am glad of this opportunity to correct two other mistakes. In my desire to confine my lecture within a time limit I discarded a sentence stating that "my own attention was first forcibly directed to this danger of spray infection by the Scottish Board of Health Report on Maternal Mortality in Aberdeen by Parlange Kinloch, J. Smith, and J. A. Stephen (Edinburgh, 1928), and, later, by the further investigations and papers of J. Smith" (*J. Obstet. Gynaec. Brit. Emp.*, 1933, 40, 991). Colebrook in his book drew special attention to the work of J. Smith of Aberdeen. I now realize that I thus came to omit the name of one of the most convincing of the pioneers in this special quest. However, I cannot explain the blunder I made in referring to Professor DeLee as Benjamin instead of Joseph B., but I can ask for his forgiveness.

Herpes and Varicella

Dr. E. R. HARGREAVES (East Keswick, near Leeds) writes: The close association of varicella and herpes zoster is well known, but it is impossible to exclude other sources of infection. In this respect the following case is perhaps worthy of record. On December 3, 1937, I was called to see a governess employed at an old manor house in the depths of the country; she was suffering from a very mild attack of right-sided cervical herpes zoster. Eleven days later I visited the youngest son of the house, a boy of 15, who had contracted chicken-pox. This boy, who had been "backward" since birth, had his own rooms at the back of the house, his education being in the hands of the governess. Apart from daily walks in the surrounding park, the boy had not been out of his rooms during the month preceding his illness. So far as I am aware there has been no case of chicken-pox in the district for over a year.

Sterilization of Catheters

Dr. C. L. L. MURRAY (Box 322, Murraysburg, South Africa) writes: Some time ago I came across a prescription for a special non-corrosive solution for keeping rubber and metal catheters constantly sterile. Would anyone who knows this prescription kindly communicate with me?

LETTERS, NOTES, ETC.

Strength of Intravenous Saline Infusion

Dr. W. KERR RUSSELL (London) writes: As the number of doctors who are becoming interested in artificial fever treatment is greatly increasing I think it may be helpful to draw the attention of readers to a small error which appeared in the reprint of a very interesting article on fever therapy by Drs. P. S. Hench, C. H. Slocumb, and W. C. Popp of the Mayo Clinic in the *Journal of the American Medical Association*, pp. 1779-90. On page 25 of the reprint there is a typographical error. In mentioning that in about 3 per cent. of cases having hyperpyrexia treatment there are protracted anorexia, nausea, and frequent vomiting for a period lasting from twenty-four to forty-eight hours, they say that "the condition can be promptly overcome by the intravenous administration of from 500 to 1,000 c.cm. of 10 per cent. dextrose and 10 per cent. saline solution." This latter amount is incorrectly reprinted, and should read 1 per cent. saline solution. Though this article was published as long ago as May 18, 1935, it is still very frequently referred to and quoted.

Slough Social Centre

Dr. F. M. DAY (assistant county medical officer of health and medical officer attending the Slough Social Infant Welfare Centre) writes: In your issue of January 29 (p. 246), in an article dealing with Slough Social Centre, a statement is made that 150 children are seen weekly at the infant welfare centre by the visiting doctor. I should like to point out that this number attend the Centre weekly and that any of them may see the doctor, but that the number actually brought to him does not exceed fifty children a week.

The Bart's Journal

We welcome the enterprise shown by St. Bartholomew's Hospital Journal in persuading Mr. Eric Gill to engrave a design for the cover. The picture of Rahere healing the sick has a truly mediaeval effect, and recalls the antiquity of the hospital. Many Bart's men will be surprised to learn that Marcus was the Christian name of their founder, and will ask why Sir Norman Moore and Sir D'Arcy Power did not know it. The design on the cover is apparently but an introduction to further changes in format, and it is announced in the February issue that the letterpress will next month be printed in Baskerville type.

South African Sound Films

A programme of South African sound films is being privately displayed in the Cinema Hall at South Africa House. Among other items the programme includes films of the Zimbabwe Ruins, the Mountain Waters of Natal, and the aerial journey from Johannesburg to Cape Town. Application for admittance, which is free, should be made to the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, London, W.C.2.

Ophthalmology

150 Vitamin A in Ocular Disturbances

A. M. YUDKIN, A. U. ORTEN, and A. H. SMITH (*Amer. J. Ophthalm.*, November, 1937, p. 1115), experimenting on adult albino rats, noted lachrymation, photophobia, and enophthalmos followed by viscosity of the tears, congestion of the eyeball, keratitis, and corneal herpes. There is a substitution of stratified keratinizing epithelium for normal epithelium with a cellular exudative reaction beneath. Later, vascularization occurs with ulcer formation. Giving vitamin A leads to recovery, and hyperkeratosis of the epithelium. Subclinical vitamin A deficiency as shown by variations in dark adaptation is fairly common. Certain cases of keratitis with ulceration, at first resembling a catarrhal, later a rodent, type, of which the treatment is often unsatisfactory, are benefited by an increased vitamin intake.

151 Infantile Glaucoma

B. J. TISCORNIA (*Rev. méd. Lat.-Amer.*, September, 1937, p. 1329) discusses the subject of glaucoma in children and examines the various theories put forward in explanation of this disease. He inclines to the opinion that infantile glaucoma, buphthalmos, or hydrophthalmos is in most cases due to congenital causes, particularly syphilis, congenital malformations, foetal rickets, and possibly to consanguinity in the parents, all of which favour the onset of the inflammatory vascular lesions which are to be seen in this condition. He administers specific treatment not so much in the hope of influencing the course of the disease (for he has never observed any improvement even in cases which were obviously due to syphilis), but mainly with a view to increasing the general resistance before operation. The author also regards symptomatic treatment as being extremely valuable both for the alleviation of symptoms and as a method of pre-operative preparation. Although he has obtained good results with other methods, Tiscornia prefers Elliot's operation to all others.

152 Cataract and Vitamin C

L. SILVA and J. L. NOVAES (*Brazil-med.*, December 11, 1937, p. 1223) discuss the aetiology of cataract and its treatment with vitamin C. The lens, being completely avascular and suspended and immersed in the aqueous humour, must derive its nourishment from the constituents of this "secreto-dialysata," which is in turn derived from the blood. Apart from traumatic cataract (including that due to x rays, ultra-violet rays, or radium) the more usual forms of cataract are accompanied by changes in the composition of these two media. The only way in which the lens can react to these changes is by losing some of its transparency—that is, by the formation of opacities of one kind or another. The chemical changes in the blood which occur in the metabolic disturbances which accompany such conditions as diabetes, nephritis, etc., cannot entirely account for the changes in the lens. The occurrence of post-asphyxial cataract is a proof that lens opacities can be produced by oxygen deficiency, and, provided the changes are not too advanced, their reversal may be accelerated by the administration of oxidizing substances. It has been shown that the lens absorbs oxygen and gives out hydrogen, so that its metabolism may be likened to a form of respiration. Vitamin C exists in three forms: reduced, oxidized but reversible, oxidized and fixed. In the aqueous humour it occurs normally in the reduced form. Hence, vitamin C forms part of a natural oxidation-reduction system. Silva and Novaes have now treated with vitamin C over twenty cases, some of which they describe in detail; many were greatly

benefited, but in others the process had gone too far for any hope of improvement. The authors are convinced that medical treatment should be tried in all early cases, and they consider that up to the present vitamin C is the substance which best assists the "respiration" of the lens. They give intravenous injections because it has been shown that vitamin C may under certain conditions be destroyed in the alimentary canal.

153 Filarial Keratitis

MARRAIX and APPLEMAN (*Arch. Ophthalm.*, Paris, November, 1937, p. 978) state that changes in the conjunctiva and cornea, cutaneous symptoms, and eosinophilia in a person who has lived in a tropical country suggest filariasis. The *Onchocerca volvulus* is a connective-tissue parasite with special affinity for the conjunctiva. The adult worm forms a subcutaneous nodule on the costal cartilage at articulations or on the cranium. The embryos are mobile in the skin and eyes. A biopsy on a piece of conjunctiva showed an infiltration of eosinophils in the glandular layer. The vessels were engorged but there was no diapedesis. A localized degenerating inflammatory nodule resembled that of leprosy, spirochaetosis, ophthalmia nodosa, or a foreign-body granuloma, but the eosinophilia pointed to parasitic disease. Microfilariae were discovered immediately below the epithelium. The parasites act not only as a foreign body but also as a chemical irritant when they decompose, causing tissue changes similar to those in cysticercosis and trichinosis. The tissue reactions noted are probably in response to dead filariae. The case of onchocerciasis described showed an almost haemorrhagic injection of the conjunctiva with no discharge. The cornea had several raised, superficial, non-ulcerated, avascular, opaque areas at its margin. The epithelium and Descemet's membrane were normal, and the vision was unaffected. The prognosis is grave, blindness often supervening from keratitis and uveitis, the microfilariae invading the interior of the eye. Treatment should be directed at extirpation of the adult nodules. Medicaments are of little use, though emetine chlorhydrate has been used with benefit.

154 Retinitis of Pregnancy

J. N. DUGGAN and V. K. CHITNIS (*Brit. J. Ophthalm.*, November, 1937, p. 585) note three interesting cases. The first had oedema of the legs and sudden failure of vision. There was a marked bilateral neuro-retinitis with much soft exudation and oedema in the macula region and detachment below. The second patient, aged 35, had "silver wire" arteries, a macular star, early secondary optic atrophy, and absorbing haemorrhages, following neuro-retinitis. This case probably began as a chronic nephritis complicated by pregnancy. The third case had unilateral retinal oedema and soft exudates. Vision improved on the termination of pregnancy. Blurring of vision had occurred with the previous pregnancy. The other eye showed past retinitis. In all three cases the eyes were unaffected in the first two pregnancies, and termination of pregnancy led to great ocular improvement. The sudden onset, the marked oedema, and the quick recovery mark this type from the retinitis of other forms of Bright's disease. Retinal lesions are commonest in pregnancy with chronic nephritis, pre-eclamptic toxæmia, eclampsia, and the low-reserve kidney, and frequently assist in differential diagnosis and in indicating when labour should be terminated.

155 Disciform Degeneration of Macula

F. H. VERHOEFF and H. P. GROSSMAN (*Arch. Ophthalm.*, Chicago, October, 1937, p. 561) analyse all recorded cases as occurring in white races at from 39 to 83 years of age. In about half the degeneration was unilateral. Central vision was greatly impaired or abolished at the first exam-

of 20. In nine cases the disease had simulated pulmonary tuberculosis for many years, several of which had been spent in institutions for the tuberculous although tubercle bacilli had never been found. The author tabulates the results of various operative interventions, including lobectomy in nine cases. Of these nine patients, seven could be considered as cured and one as improved; the ninth patient, operated on bilaterally, developed a fatal empyema. The author concludes that the literature and his own experience justify the opinion that there is no other way of effecting a radical cure of a localized bronchiectasis than by total extirpation of the diseased lobe or lobes of the lungs, and he does not think that even bilateral disease, poor general health, or an age over 50 should be regarded as absolute contraindications, provided the patient has at least two normal lobes, both on one side or one on each side.

Therapeutics

145 Non-specific Treatment of Gonorrhoea

J. FORSSMAN (*Nord. med. Tidskr.*, December 4, 1937, p. 1984) considers dead or living micro-organisms easily the most effective of the non-specific agents, and he suggests that at present non-specific treatment by parenteral injection is practised on a much greater scale than is generally realized, for all the presumably specific vaccines and sera contain proteins whose action on the body is, also non-specific. Forssman suspects that the effectiveness of specific gonococcal vaccines depends mainly on their non-specific properties, for the benefits of an injection begin too early to be attributed to any specific process, which would require at least four to five days in which to develop. The fact that intramuscular injections of milk act on gonorrhoea in the same way as specific vaccines also suggests that the effects of the latter are non-specific. For about twenty years Forssman has treated the complications of gonorrhoea with a *B. coli* vaccine given by intravenous injection, and he has been much impressed by the prompt response thereto of the most exquisitely tender gonococcal arthritis. As a rule, such joint affections subside completely after four to six intravenous injections.

146 Treatment of Female Gonorrhoea

ST. WOLFRAM (*Wien. klin. Wschr.*, December 31, 1937, p. 1776) points out that the accurate diagnosis of gonorrhoea in the female by examination of the vaginal secretion, cultural methods, and the complement fixation test is of primary importance in the prevention of the serious complications of this condition. The treatment of superficial gonorrhoea (usually with a negative complement fixation reaction) is effected by bactericidal, that of deep-seated gonorrhoea with immuno-biological, agents. Active therapy is contraindicated in the acute stages, when rest in bed and sitz-baths should be ordered. In subacute and chronic cases instillations of silver preparations into the urethra are indicated. The more acute the process the less should be the strength of the bactericidal agent employed. Warmed solutions and frequent change of the preparation used are beneficial. The patients should be encouraged to pass urine before treatment. Diuretics and urinary disinfectants should be used. The rectum should be treated by small enemas of 15 c.cm. of 5 per cent. protargol solution. Treatment of the cervix should be preceded by removal of the mucus plug by suction. Intravenous injection of 10 c.cm. of a 1 per cent. solution of trypaflavine is a useful adjuvant. Applications of acriflavine locally to the vagina are good, but the dye must be carefully removed to prevent erosion of the epithelium. Vaginal massage, electrocoagulation of the cervical mucous membrane, and iontophoresis with silver

preparations have given excellent results. An ascending infection must be treated with absolute rest in the acute stages. In the subacute stages diathermy to the pelvis, non-specific protein therapy, and the use of specific vaccines are indicated. The latter are contraindicated in tuberculosis, metabolic disturbances, and heart failure. Cure can only be established following the use of the usual provocative measures and examination of intramenstrual secretions. The administration of follicular hormones orally or intramuscularly is indicated in cases of infantile vulvovaginitis in addition to local treatment.

147

Diphtheria Carriers

J. GOECKER (*Dtsch. med. Wschr.*, December 17, 1937, p. 1902) gives an account of an outbreak of diphtheria in the autumn of 1936 in an institution for children. A systematic examination for diphtheria bacilli showed that as many as twenty-eight of the ninety inmates were carriers. Various devices were employed to treat these carriers, the infected surfaces being swabbed with solutions of potassium permanganate and various other modern preparations. The author succeeded in ridding sixteen of the carriers of their diphtheria bacilli, but twelve remained refractory after an average observation period of forty-five days. He then tried tincture of mucidan, which contains a gelatine compound of formaldehyde, the action of which is said to be promoted by certain alkalis designed to facilitate exudation from the infected tissues. This preparation was painted on the tonsils in a 20 per cent. solution, or was introduced into the nose on tampons soaked in it. The mucidan was also administered as a spray. This preparation proved more effective than those employed earlier, ten of the twelve refractory carriers being sterilized by it. In the two cases in which the carrier state persisted after futile efforts lasting ninety days, tonsillectomy proved successful. No uniform relationship could be established between the size of the children's tonsils and the duration of the carrier state, which was uninfluenced by the injection of serum. It seemed also immaterial whether the carriers had or had not previously suffered from diphtheria.

148

Properties of Benzedrine

V. FRIIS-MÖLLER (*Ugeskr. Laeg.*, December 30, 1937, p. 1408) relates his experiences with benzedrine, which is sold in Denmark as "mecodrin." He has found it markedly effective in combating a craving for sleep, lassitude, and mental heaviness. Soon after it has been taken by the mouth it begins to induce a state of mental and physical well-being, lasting for five to six hours, after which the normal desire to sleep returns. In his own case the author has observed no untoward complications. In two cases the drug proved effective in steadying the nerves and promoting the mental efficiency of young men entering for examinations. In several cases good results were obtained by giving the drug for a few pre-menstrual days, which had previously been passed in a state of depression and tearfulness. In no case has the author found it necessary to give the drug daily for more than a fortnight, and he believes that its administration should always be under close medical supervision.

149 N. PETERSEN (*ibid.*, p. 1408) gives an account of a schoolmaster who suffered from narcolepsy, and who was much inconvenienced by attacks of drowsiness which overtook him at any time of the day. He had only slight warning of their onset, and they were so imperative that he felt absolutely obliged to sleep even when they overtook him in school. These attacks were quite brief, and after three to eight minutes of sleep he would wake up and be able to resume his work. After several other drugs had been given without effect, mecodrin was prescribed, and was successful in keeping him awake during school hours. The narcoleptic state promptly returned when the drug was discontinued.



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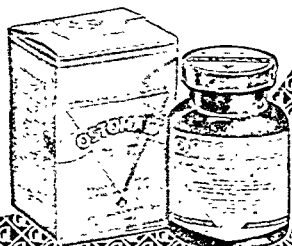
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ination; in some cases there was a macular subretinal haemorrhage, but in most, the condition being advanced, haemorrhages were less often noted. There is a high, greenish or almost black, sharply defined mound, later becoming white with the deposition of pigment and flatter. It followed senile changes in some cases or was associated with retinitis circinata. Microscopically there were secondary degenerative changes, with much proliferated pigment and fibrous tissue forming the mound; in many the lamina vitrea showed some pathological change. The aetiology of this condition has been stated to be inflammatory or vascular. A juvenile type tends to heal, leaving little or no changes or impairment of vision. The authors describe and illustrate cases they have examined.

Obstetrics and Gynaecology

156

Pruritus Vulvae

E. VAYSSIÈRE (*Gynéc. et Obstét.*, September, 1937, p. 209) presents a very full review of the aetiology and treatment of pruritus vulvae. He insists on the necessity for a full investigation of the cause of the condition before attempts at treatment are made, except in those very acute cases where immediate treatment is necessary to give quick relief to the sufferings of the patient. Of 190 cases observed by him, fifty-six were in women during the period of genital activity without menstrual troubles, seven were associated with diabetes, sixty-one coincided with pregnancy, thirty-five were attributed to endocrine dysfunction, and thirty-one were due to the menopause, whether physiological or surgical. Causes are classified as: (1) local—for example, leucorrhoea, trichomonas, monilia; (2) regional—for example, uterine, vesical, rectal, or other pelvic conditions; (3) general—for example, jaundice, albuminuria, and diabetes; and (4) hormonal, chiefly lack of ovarian secretion. For local treatment of acute crises cold acid sitz-baths are useful. A lotion containing phenol and chloral hydrate is advised. After the bath or the application of the lotion, powdering with sterilized talc is advocated. In the pruritus of pregnancy, in which there is local infection and some endocrine disturbance, acid or alkaline injections are given according to the infecting agent; silver nitrate 1 in 2,000 solution (mycoses), stovarsol pessaries (trichomonas), painting the vulva with silver nitrate 1 in 20 solution or gentian violet 1 in 100, are indicated. Hormonal treatment is frequently required in the form of intramuscular injections of oily solutions of dihydro-folliculin benzoate, 1,000 to 50,000 international units. The good results of hormonal treatment are often very quickly seen, but it is necessary to allow at least two months' treatment before admitting failure. Radiological or surgical treatment is rarely required.

157 Prevention of Post-operative Thrombosis

R. VORSTER (*Med. Welt*, October 16, 1937, p. 1463) has been using leeches regularly for the last four and a half years after every gynaecological operation, with a view to preventing post-operative thrombosis and embolism. Three to four leeches were applied to the thighs on the day following the operation even in very anaemic patients. In cases predisposed to embolism and thrombosis the leeches were applied again on the fourth day after the operation. The women were also made to wash themselves, comb their hair, and feed themselves as early as possible. Since the introduction of this method the author has not lost a single patient from embolism or thrombosis.

158

X-Ray Treatment of Sterility

I. I. KAPLAN (*Amer. J. Obstet. Gynec.*, September, 1937, p. 420) maintains that, provided always that no embryo is present, x-ray and radium therapy properly applied produces no harmful effect on future offspring, but is actively

curative of amenorrhoea and sterility. Menstruation was restored in seventy-six of Caplan's cases, though fifty-two remained unaffected. All had been previously examined, and treated by surgery or by endocrines, without avail. The ovaries were irradiated once weekly for three, sometimes four, successive weeks. Of the 128 cases in this series, eighty received irradiation of the pituitary, and five of the thyroid also. Menstruation was re-established in seventy-five, of whom forty-four became pregnant, seventeen have conceived more than once, five aborted; thirty-six patients gave birth to forty-seven living children in all, with one abnormal foetus stillborn. Amenorrhoea had existed up to fourteen years, sterility from one to eighteen years, in some of these patients. The oldest of the children is now 10½; all are perfectly normal. The mode of action of the x rays is still debatable. It is certain that irradiation of the pituitary has the effect of stimulation, and does not result in menstruation in cases with atrophic changes in the endometrium due to the absence of gonadotropic hormones. It seems also that persistent cystic follicles or a persistent corpus luteum might be destroyed by x rays, with consequent release of menstrual function.

Pathology

159 Tuberculosis of Bovine Origin in Poland

E. PIASECKA-ZEYLAND (*Rev. d'Hyg.*, October-November, 1937, p. 540) cultivated and typed 160 strains of tubercle bacilli from human patients at Poznan suffering from various forms of tuberculosis. Altogether eleven strains were found to be of the bovine type. Seven out of eighty-six strains came from tuberculous infants, and two of the remaining bovine strains came from abattoir workers suffering from tuberculosis of the skin. Since nine out of thirty-one samples of milk bought in the open market at Poznan contained tubercle bacilli, it is surprising that a higher proportion of bovine infections was not found among the patients examined. The reason for this is considered to be twofold: in the first place breast-feeding is the rule in Poland, and in the second place milk is generally boiled before being used for human consumption.

160 Mineral Residues in Silicotic Lungs

J. B. ROBERTSON, F. W. SIMSON, and A. S. STRACHAN (*S. Afr. J. med. Sci.*, October, 1937, p. 124) report with case notes ten complete analyses on silicotic lung residues obtained by the nitric acid sliming process. There was a general similarity between the results. Free silica was always present in association with material mineralogically allied to sericite in ratios varying from 5:1 to 1:1, but mostly about 2:1. Considerable variation in the P_2O_5 content was attributed to the treatment with nitric acid. The percentage of TiO_2 was greater than in mine dust, suggesting that this oxide is selectively retained by the lungs. Comparative analyses of the same material by the sliming process and by dry ignition indicated that there was considerable loss of aluminiferous material as the result of the acid treatment. The rate of development and the extent of the silicotic lesions apparently depended on the amount of dust inhaled and the rapidity of concentration of the dust in the lung tissue. In a second part of their paper the authors report determinations of the solubilities of quartz and mica particles of a fineness comparable to the particles in silicotic lungs, in sodium chloride-bicarbonate solutions isotonic with and having the same pH as blood serum. Ten times as much silica dissolved from quartz as from mica. The addition of protein (egg albumen) reduced the solubility of silica from quartz to about half that in the saline-bicarbonate solution. They conclude that if the solubility of minute mineral particles is essential to the production of silicosis, silica rather than a silicate appears to be the chief mineral concerned.

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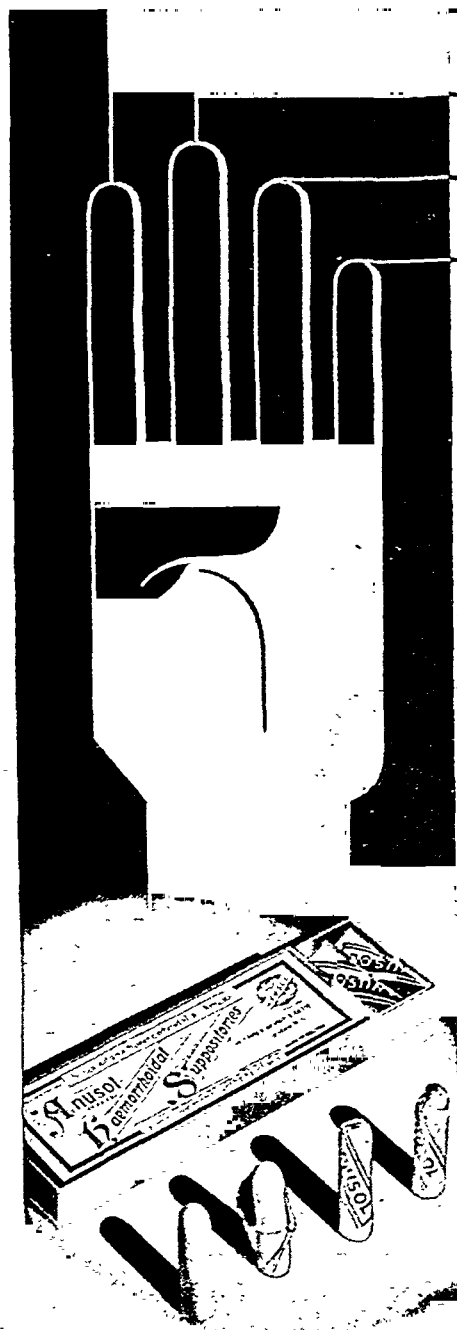
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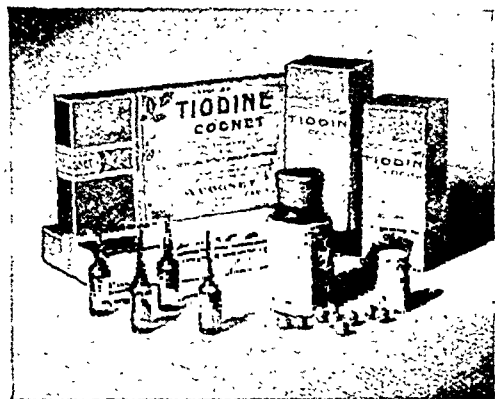
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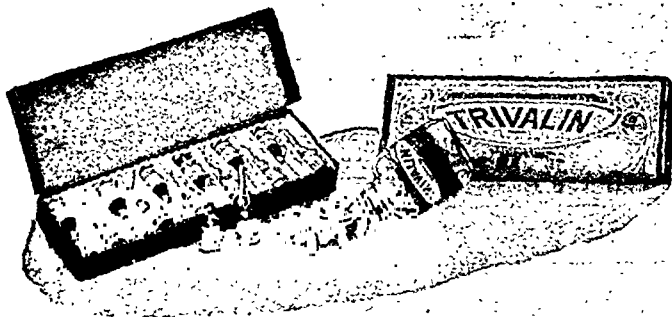
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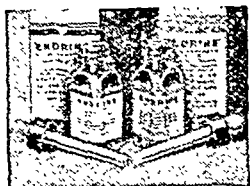




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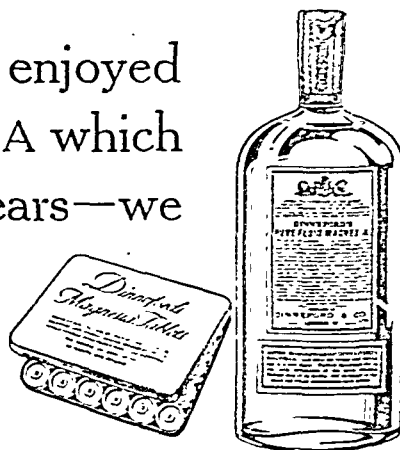
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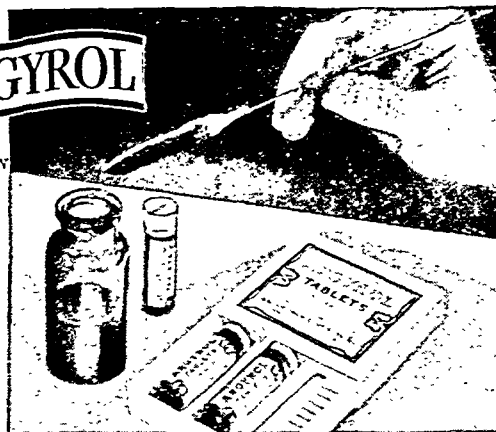
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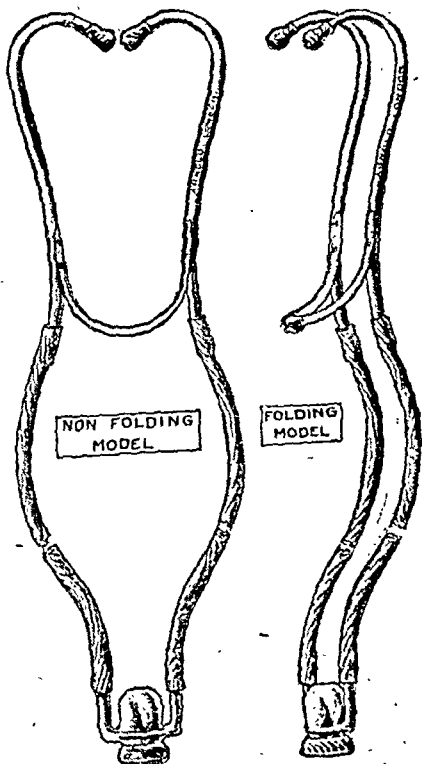
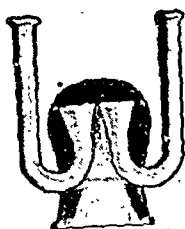
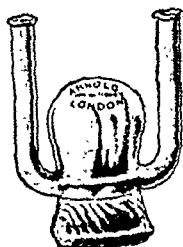


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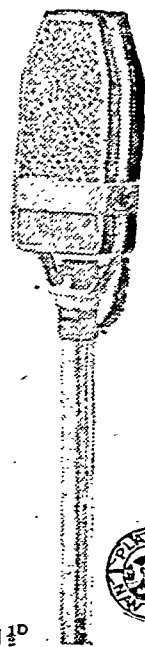
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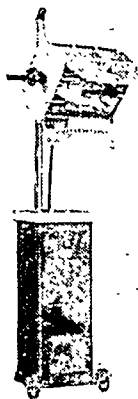
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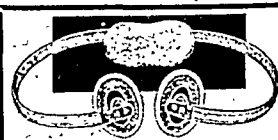
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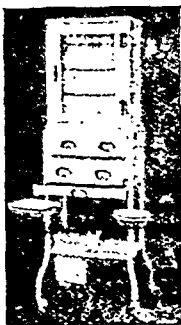
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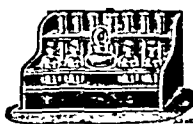
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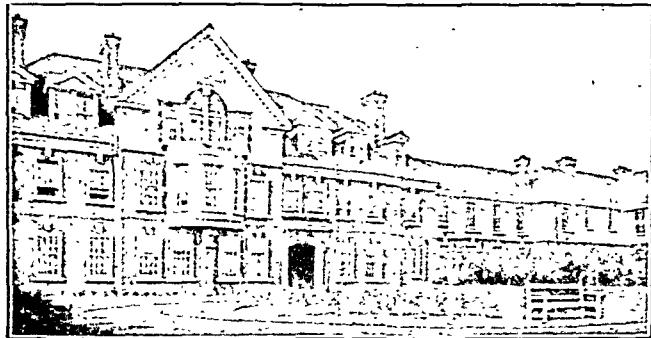


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Delightfully situated in private wooded park of 60 acres, 500 feet above sea-level. Only 18 miles from London.

Recent structural alterations have greatly improved the facilities. Additions to the equipment include the installation of 100 KV X-Ray, etc.

The well-regulated Diet Department for the supervision of individual diets; the Physiotherapy Departments, including Hydrotherapy, Electrotherapy, Light Therapy, Occupational Therapy in addition to outdoor amusements and the lawns and gardens make The Stanboroughs very desirable for rheumatic and metabolic disturbances, neuroses, and fatigue states

Surgical and Maternity Sections—
Two Resident Physicians.

Medical Superintendent—

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Prospectus and full information
on application to the Manager.

The Stanboroughs Hydro

Stanborough Park,
Watford, Herts.

Telephone: Garston (Watford) 2262-3.

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(Removed from Ashford, Middlesex.)

PRIVATE HOME for the CARE and CURE of ALCOHOLIC PATIENTS (Ladies). Large mansion, beautifully situated in 100 acres of park land. Extensive views. Home farm. R.C. Chapel. Under the management of the Sisters of the Good Shepherd. Apply, Rev Mother. Tel.: Staplehurst 61.



Full range of Hydro-therapeutic Treatments: a Complete range of Baths, Packings and Brains Baths, etc. and Vichy Drinking. Includes: Hot Springs Treatment, Sulphur, Chloride, Electric, Inhalation for Coughs and other Medical purposes. Douches, Electric Heat, Hot and Cold, and of various kinds. Also Hot and Cold Frequency Bathing. Northern Bath, Sulphur Bath, etc. "Cottages" built from own farm. Large Water Garden. Orchestra. Special treatment for children. Night Attendance. Over 40 trained Male and Female Nurses. Museum, Amusement, etc.

Terms 13/- to 18/6 per day inclusive board. Illustrated Brochure M.J. on request.

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Phone: No. 17. "Grams": Smedley's, Matlock.

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H. BERKELEY HOLLYER, Gen. Manager (Late Manager, Brine Baths, Dronowich Spa)

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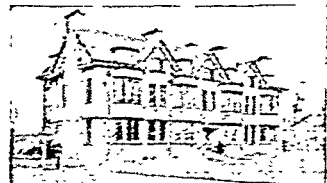
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Specially built and licensed for the care and treatment of a limited number of Ladies and Gentlemen suffering from Nervous and Mental breakdown. Voluntary and certified patients received. Ladies also admitted as Temporary Patients without Certification. Terms moderate. Apply, RESIDENT PHYSICIAN, who may be seen at 31, Rodney Street, Liverpool, by appointment. Tel.: No. 8 Formby

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HOME FOR EPILEPTICS MAGHULL (near LIVERPOOL) FARMING and OPEN AIR OCCUPATION FOR PATIENTS.

A few vacancies in 1st and 2nd Class Houses. FEES: 1st Class (men only) from £3 p.w. upwards. 2nd Class (men and women) 12/- p.w.

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ST. ANDREW'S HOSPITAL FOR MENTAL DISORDERS NORTHAMPTON

FOR THE UPPER AND MIDDLE CLASSES ONLY

President: THE MOST HON. THE MARQUESS OF EXETER, C.M.G., A.D.C.

This Registered Hospital is situated in 120 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or wish to prevent recurrent attacks of mental trouble, temporary patients and certified patients of both sexes, are received for treatment. Careful clinical, biochemical bacteriological, and pathological examinations. Private rooms, with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds, with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the most modern treatment of Mental and Nervous Disorders. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical bath, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, and X-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High Frequency treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupation Therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.

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The seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres, Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate, a mile off sea coast forms the boundary. Patients may visit this Branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton) who can be seen in London by appointment.

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Tele.: Street, Ashton-in-Makerfield.

Phone: Ashton-in-Makerfield 7111.

* For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily, temporarily, or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

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A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Six acres of ground, highly situated, facing Finsbury Park. Voluntary and Temporary Patients received without certification. Occupational Therapy, Psychotherapy, and other modern forms of treatment.

Telephone: STAMFORD HILL 2688. Telegrams: "SUBSIDIARY, LONDON."
Convalescent Home, KEARSNEY COURT, DOVER. For further particulars apply to the Medical Sup.

COURT HALL, KENTON, near EXETER,

for the treatment of eight Ladies, voluntary, temporary, or certified patients.
Large gardens and own dairy

CLIFFDEN, TEIGNMOUTH, for early and convalescent cases. A well-appointed house, with spacious balconies, and extensive views of the South Devon coast. Sub-tropical gardens, own dairy in 25 acres. Private road to beach.

Resident Physicians: BERTHA M. MULES, M.D., B.S. Starcross 59
ANNE S. MULES, M.R.C.S., L.R.C.P. Teignmouth 289

THE COPPICE, NOTTINGHAM HOSPITAL FOR MENTAL DISEASES

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Occupational Therapy. Voluntary and Temporary Patients received.
Tel.: 64117. For terms, etc., apply to the Medical Superintendent.

BAILBROOK HOUSE, BATH.

For sufferers from Nervous and Mental Disorders with or without certificates.
The house is gloriously situated in wooded grounds of 20 acres with magnificent views of the City and the Avon Valley. (See Medical Directory, page 2322.)

For terms apply, A. GUDDHAM, M.A., D.M., B.Ch., D.P.M., Resident Physician.
Telephone: Bathaston 8189.

HEIGHAM HALL, NORWICH

A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness. Voluntary Patients, Temporary Patients and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician. Apply to Dr. J. A. SMALL. Telephone: 80 Norwich. Telegrams: Small 80 Norwich.

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A PRIVATE HOME for the treatment of Gentlemen suffering from Mental and Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Bracing hill country. See Medical Directory, p. 2325.—Apply to the Medical Superintendent. Phone: 10 P.O. Church-Stretton.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS.

(20 miles from London)

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Hospital. Convalescent or mild cases can be treated in a delightful country mansion with extensive grounds known as—

HIGHFIELD HALL,

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For further particulars, apply to the Medical Supt., W. J. T. KIMBER, L.R.C.P., D.P.M.
ST. ALBANS, HERTS.

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A REGISTERED HOSPITAL for the CARE and TREATMENT OF LADIES and GENTLEMEN suffering from NERVOUS and MENTAL DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 300 acres. Voluntary Patients of both sexes are also received for treatment. Special accommodation for Lady Voluntary Patients is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the Main Hospital. For particulars as to terms, etc., apply to G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M., Medical Supt.
Telephone: No. 6207 Barnwood.

CHISWICK HOUSE, PINNER, MIDDLESEX

Telephone: PINNER 251.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes.

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CENTRAL LONDON THROAT, NOSE & EAR HOSPITAL

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GENERAL PRACTITIONERS' WEEK

MARCH 21st to 26th, 1938

During this week the teaching work of the Hospital, both in the Out-patient Dept. and in the Operating Theatres, will be restricted to that most helpful to those engaged in general practice and every endeavour made to meet the problems met with by general practitioners in so far as they relate to the throat, nose and ear.

Detailed programme obtainable from C. GILL-CARFY, F.R.C.S.E., Dean.

BRITISH POSTGRADUATE MEDICAL SCHOOL

(UNIVERSITY OF LONDON)

Department of Medicine

A COURSE OF SIX LECTURES
on

VENEREAL DISEASES

will be given by

Mr. KENNETH M. WALKER, O.B.E., M.A.
M.B., B.Ch., F.R.C.S.

on

MARCH 10th, 17th, 24th, 31st, APRIL 7th, and
14th, 1938, at 4.30 p.m.

Department of Surgery

A COURSE OF THREE LECTURES ON
**THE SURGICAL APPLICATION OF
ENDOCRINOLOGY WITH SPECIAL
REFERENCE TO THE ADRENAL GLANDS**
will be given by
Mr. L. R. BROSTER, O.B.E., M.A., D.M.
F.R.C.S.

on
FEBRUARY 24th, MARCH 3rd and 10th, 1938, at
2.30 p.m.

**A COURSE OF FIVE LECTURES ON
DISEASES OF THE BREAST**

will be given by
Mr. GEOFFREY KEYNES, M.D., F.R.C.S.
on
MARCH 11th, 18th, 25th, APRIL 1st and 8th, 1938,
at 2.30 p.m.

Department of Pathology

A COURSE OF THREE LECTURES ON
**TUMOURS OF THE CENTRAL
NERVOUS SYSTEM AND MENINGES**

will be given by
Dr. DOROTHY RUSSELL, M.D.

on
FEBRUARY 23rd, MARCH 2nd and 9th, 1938, at
4.30 p.m.

**A COURSE OF THREE LECTURES ON
THE THYROID AND ITS
SECRETIONS**

will be given by
Professor C. R. HARRINGTON, M.A., Ph.D.,
F.R.S.
on
MARCH 16th, 23rd, 30th, 1938, at 4.30 p.m.

Department of Obstetrics and Gynaecology

A COURSE OF THIRTEEN LECTURES ON

PRESENT-DAY GYNAECOLOGY

will be given as follows: THURSDAY afternoons at 3.30 p.m.

Mar. 3rd. The Female Sex Hormones ..	Dr. A. S. PARKES, M.A., Ph.D., D.Sc., F.R.S.	Apr. 21st. Neoplasms of the Ovary ..	Mr. WILFRED SHAW, M.A., M.D., F.R.C.S., F.C.O.G.
" 10th. Dysmenorrhoea ..	Mr. MALCOLM DONALDSON, F.R.C.S., F.C.O.G.	" 28th. Malignant Neoplasms of Uterus	Mr. VICTOR BONNEY, M.D., M.S., F.R.C.S., F.R.A.C.S.
" 17th. Sterility ..	Mr. V. B. GREEN-ARMYtage, M.D., F.R.C.P., F.C.O.G.	May 6th. Radiation Therapy in Gynaeco- logy	Miss LOUISA MARTINDALE, C.B.E. M.D., B.S., F.C.O.G., J.P.
" 24th. Irregular Uterine Haemorrhage	Mr. WILFRED SHAW, M.A., M.D., F.R.C.S., F.C.O.G.	" 12th. Gonorrhoea in Women	Colonel L. W. HARRISON, D.S.O., F.R.C.P.
" 31st. Hormone Therapy in Gynaeco- logy	Dr. T. N. MacGREGOR, M.D., F.R.C.S., F.C.O.G.	" 19th. Salpingitis	Mr. ALEX. BOENEY, M.A., F.R.C.S., F.C.O.G.
Apr. 7th. Genital Prolapse ..	Professor W. FLETCHER SHAW M.D., F.C.O.G.	" 26th. Birth Control	Dr. HELENA WRIGHT, M.B., B.S., M.R.C.S., L.R.C.P.
" 14th. Benign Neoplasms of Uterus ..	Mr. L. CARNAC RIVETT, M.C., F.R.C.S., F.C.O.G.		

These lectures are for regular students of the school, but a limited number of tickets are available, without fee, to medical practitioners. Applications for tickets should be addressed to The Dean, British Postgraduate Medical School, Ducane Road, W.12.

DEPARTMENT OF PATHOLOGY

A Laboratory Course on HAEMATOLOGY conducted by Dr. JANET VAUGHAN,
D.M., M.R.C.P., will commence on February 21st, 1938.

A Laboratory Course on CHEMICAL PATHOLOGY conducted by Dr. HAZEL
J. KING, M.A., Ph.D., will commence on April 18th, 1938.

The courses are whole-time and each will last for six weeks. Fee £9 9s.—for each Course.

These Courses are part of the Course for the Diploma in Clinical Pathology and only a limited number of students can be admitted. Early application for enrolment should be made to the Dean, British Postgraduate Medical School.

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FOR THE DIAGNOSIS AND TREATMENT OF ALL FORMS OF TUBERCULOSIS

Managing Director: DAVID LAWSON, M.D., F.R.S.E.

Southern aspect. Low rainfall. Pure bracing air. Sheltered grounds. Beautiful surroundings. All modern equipment for diagnosis and treatment, including operating theatre. No extra charge for X Rays, Artificial Pneumothorax, Ultra-Violet Light, or other special treatment.

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Medical Superintendent: J. M. JOHNSTON, M.B., M.R.C.S., D.P.H. For terms and prospectus apply to the Secretary. Telephone: CULTS 107.

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First opened in 1898 and rebuilt in 1925. On the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis. Aspect S.S.W., sheltered from North and East, elevation 800 feet. Pure bracing air. Special Treatment by Artificial Pneumothorax (X-ray controlled). Tuberculin and Ultra-violet Rays are available, when necessary, without extra charge. X-ray plant. Fully equipped Dental Department. Electric light. Radiators, hot and cold basins, and Wireless in all rooms. Up-to-date main drainage.

Full day and night Nursing Staff.
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DAVEY, M.B., B.Ch. Consult. Laryngologist. CASSIDY-DE W. GIBB, F.
R.C.S.Lond. Apply Secretary, The Cotswold Sanatorium, Cranham.

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and 82 Witcombe. "Grams": "HOFFMAN, BIRKBE."

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Ideally situated for the treatment of Tuberculosis. Sheltered from E. and N.E. winds. Climate mild and bracing. Low rainfall, high average of sunshine. The Sanatorium is situated in its own park. There are miles of graduated walks through pine, gorse and heather, rising to 1,000 ft., and commanding extensive sea and mountain views. Central heating, electric light, X-ray installation. Wireless in all rooms. Full day and night nursing staff. Special milk supply from a tuberculin tested herd. Easily accessible from LONDON (4½ hours), MANCHESTER, LIVERPOOL, BIRMINGHAM and the North.

Resident Physicians: DENNISON PICKERING, M.D.; J. N. P. MOORE, M.D.

For particulars apply to the Secretary, Pendyffryn Hall, Penmaenmawr, North Wales.

Phone 20.



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Carefully discriminated and graduated treatments of all nervous and mental affections. Happy environment, magnificent country, temperate climate.

Pathopsychological Institute annexe (Pupillography, &c.). Villa for abnormal children.

Head Physician: Dr. W. BOVEN, Professor of Psychiatry and Characterology at the University of Lausanne. (Consultation Room at Lausanne, by appointment: Tel.: Lausanne 25838.)

Collaborators: Dr. O. Löwenstein, formerly Professor at the University of Bonn, inventor of the pupillographic method.
Madame Dr. Calme

Centre of Research and Medico-Psychological Treatments

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(Incorporated by Royal Charter)
CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to make MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

DIPLOMA IN OPHTHALMOLOGY DIPLOMA IN RADIOLOGY DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY

Short Intensive Revision Courses, Oral and Postal in preparation for these Diplomas.
For full details write SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

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BEHNKE METHOD. Estab. 1880. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. "Pre-eminent success in education and treatment of stammering and other speech defects."—"Times." "Thoroughly physiological principles."—"Lancet." "The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

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143, Cannon Street, London, E.C.4.

Publishers of

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The Practice of the Hospital is limited to Medical Practitioners. Particulars from J. BROWNING ALEXANDER, M.D., Dean.

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Full details of above and Oral Classes.—H.C. OPPIN, F.R.C.S., Surgeon's Hall, Edinburgh.

TANCRED'S STUDENTSHIPS.

Shortly after midsummer next the Governors and Trustees propose to ELECT ONE STUDENT IN PHYSIC at GONVILLE and CAIUS COLLEGE, CAMBRIDGE AND ONE STUDENT IN DIVINITY at CHRIST'S COLLEGE, OXFORD AND ONE STUDENT IN...

Candidates must have been born in England, Scotland or Wales and be members of the Church of England, unmarried, and within the ages of 17 and 20 years for Physic and Divinity and 18 and 23 for Law.

After 1938 the Election will take place about Whitsuntide, and the age limit for the Law Studentship (which will be awarded without examination) will be 19 and 23 years.

The annual stipend of each student is £100. The last day for sending in Petitions this year is May 15th.

Applications, stating kind of Studentship and mentioning this paper, should be made to the Clerk, Mr. CHAMBERS, 28, Lincoln's Inn Fields, London, W.C.2.

MANCHESTER ROYAL INFIRMARY

POST-GRADUATE DEMONSTRATIONS.

Clinical Demonstrations will be given on the Wards on Fridays at 4.15 p.m. by members of the Honorary Medical Staff, commencing February 23rd and ending May 27th. No fee is charged and the Demonstrations are open to all medical graduates.

EXPERIENCED COACHING IN PHYSIOLOGY, Pathology, and Medicine, by M.D. Lond (Hons.), M.R.C.P.Lond., B.Sc., Physiology, Lond. All exams. Classes held.—Address, No 7902, B.M.A. House, Tavistock Square, W.C.1.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

LANCASHIRE COUNTY COUNCIL SCHOOL MEDICAL AND CHILD WELFARE DEPARTMENT.

APPOINTMENT OF AN ASSISTANT COUNTY MEDICAL OFFICER.

The Lancashire County Council invite applications from registered Medical Practitioners for the post of an Assistant County Medical Officer.

Applicants must not be over 40 years of age and must possess the Diploma in Public Health.

The duties of the post include the Medical Inspection of school children; work under the Maternity and Child Welfare Acts; general Public Health work; and such other duties as may from time to time be imposed by the County Council.

The candidate appointed will be required to devote his whole time to the service of the County Council, to pass a medical examination, and to contribute to the Council's Superannuation Fund. The salary will be £800 a year, rising subject to satisfactory service, by annual increments of £50, to a maximum of £1,000 a year, together with travelling expenses.

Applications must be made upon a form which can be obtained, together with further particulars, from the County Medical Officer of Health, School Medical and Child Welfare Department, County Offices, Preston, to whom the completed forms should be returned not later than March 31, 1938. All communications must be endorsed "Assistant County Medical Officer." Any form of canvassing is strictly forbidden, and will disqualify.

County Offices, GEORGE ETHERTON,
Preston, Clerk of the County Council.
February, 1938.

COUNTY BOROUGH OF HUDDERSFIELD. ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited for the above post, for which a good knowledge of diseases of children and experience in bacteriology are essential. Salary according to scale—£500 per annum increasing to £700. The commencing salary will be based on the candidate's previous experience.

The post is designated under the Superannuation Act, 1922, and the appointment, therefore, is subject to a satisfactory medical examination.

Applications, stating age and giving full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, along with copies of two recent testimonials, so as to reach him not later than Friday, February 25th.

CITY OF PLYMOUTH. CITY GENERAL HOSPITAL (570 Beds.)

Applications are invited from duly qualified and registered medical practitioners for the following posts:—

(1) ASSISTANT MEDICAL OFFICER.

Salary at the rate of £350 per annum, with full residential emoluments. All fees received by the Officer must be refunded to the Council.

The appointment will be for a period of twelve months, terminable by one month's notice on either side. Previous experience in a maternity hospital or in the maternity wards of a general hospital is essential. As the duties of the post also include general work, preference will be given to candidates who have had such experience.

(2) JUNIOR ASSISTANT MEDICAL OFFICER.

Salary at the rate of £250 per annum, with full residential emoluments. All fees received by the Officer must be refunded to the Council.

The appointment will be for a period of six months in the first instance, and renewable for a further period of six months, and will be terminable by one month's notice on either side.

Forms of application may be obtained from the undersigned, and should be forwarded, together with copies of not more than three recent testimonials, not later than February 25th.

Town Hall, T. PEIRSON,
Stonehouse, Medical Officer of Health.
Plymouth, February 5th, 1938.

CITY OF BIRMINGHAM. SEELY OAK HOSPITAL. (520 Beds.)

JUNIOR MEDICAL OFFICER (male).

Applications are invited from fully-qualified medical practitioners for the whole-time appointment of Junior Medical Officer (male) at the Seely Oak Hospital, Birmingham. The appointment will be for a period of six months in the first instance, but may be extended at the end of that time for a further period of not exceeding six months.

Salary at the rate of £200 per annum, and full residential emoluments.

Further particulars may be obtained from the Medical Superintendent at Seely Oak Hospital, to whom applications, stating age, experience and qualifications, with copies of recent testimonials, should be forwarded not later than Wednesday, February 23rd, 1938.

The Council House, F. H. C. WILTSHIRE,
Birmingham, Town Clerk.
February, 1938.

ESSEX COUNTY COUNCIL. JUNIOR ASSISTANT MEDICAL OFFICER.

The County Council of the Administrative County of Essex invite applications for the appointment of Junior Assistant Medical Officer at the Black Notley Sanatorium, near Braintree.

This Sanatorium has 300 beds for the treatment of pulmonary and non-pulmonary tuberculosis in men, women and children, and has all modern facilities for diagnosis and treatment, together with a staff of seven Specialists.

The appointment is for a period of one year, and the salary will be at the rate of £250 per annum, together with board, lodging and laundry.

The successful applicant will be required to pass a medical examination, and will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications in candidate's own handwriting, stating age, qualifications and experience, accompanied by copies of not more than three recent testimonials (which will not be returned), should be addressed to me and delivered at the County Hall, Chelmsford not later than 10 a.m. on Thursday, February 24th, 1938.

County Hall, E. S. HOLCROFT,
Chelmsford, Clerk of the County Council.
February 7th, 1938.

COUNTY BOROUGH OF DERBY DERBY CITY HOSPITAL. ASSISTANT RESIDENT MEDICAL OFFICERS.

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above hospital of 300 beds. This hospital provides treatment for acute medical and surgical cases, obstetrics and children's diseases, etc. Vacancies will occur near the end of March and the end of April, and applicants should state when they are free to commence duties.

Candidates must be registered in Medicine and Surgery. The appointment is for a period of six months; two months' notice of termination of duties may be given on either side.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

Public Health Department, GORDON LILICO,
1, Derwent Street, Medical Officer of Health.
Derby.

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Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

ROYAL NAVAL DENTAL SERVICE

Applications are invited for appointment to commissions as **DENTAL OFFICERS** in the Royal Navy. Candidates must be British subjects below the age of 28 years, and preferably unmarried. They must hold the degree or diploma of a British University or College of Surgeons and be registered under the Dentists' Act or Medical Acts, and will be required to attend at the Admiralty for interview and physical examination. Copies of the regulations for entry, rates of pay and allowances, and forms of application may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1. and from the Deans of Dental Schools.

INSTITUTE OF PSYCHO-ANALYSIS

A COURSE OF THREE LECTURES will be given on Tuesdays, at 8.30 p.m., at 96, Gloucester Place, W.1.

by Dr. EDWARD GLOVER, on
GASTRIC AND CIRCULATORY DISTURBANCES,
on March 22nd and 29th and April 5th.

Each lecture will be followed by a discussion.

Fees for the Course: For medical practitioners, 5s. For medical students, 2/6. Single lectures 2/- and 1/-, respectively. Payable at the door.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. B. E. SCHLESINGER will deliver the *Milroy Lectures* on February 24th and March 1st at 5 o'clock at the College, Pall Mall East, S.W.1.

Subject: "The Public Health Aspect of Heart Disease in Childhood."

Any member of the Medical Profession admitted on presentation of card.

By Order of the President.

H. M. BARLOW, Secretary.

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POST-GRADUATE COURSE IN VENEREAL DISEASES

LONDON COUNTY COUNCIL.

(WHITECHAPEL) CLINIC.

TURNER STREET, E.1 (ADJOINING THE
LONDON HOSPITAL).

A THREE MONTHS' COURSE OF INSTRUCTION IN MODERN METHODS IN THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES will be given by Lieut.-Colonel E. T. BURKE, D.S.O., the Director of the Clinic, during March, April and May, 1938. Attendance at this course will qualify, subject to the other conditions in the Regulations of the Ministry of Health, for the Certificate enabling the possessor to hold the post of a Venereal Diseases Officer under the Council of a County or County Borough. The course will consist of twenty-five systematic lectures, accompanied by lantern demonstrations, on Mondays and Thursdays at 2.30 p.m., beginning on February 28th and ending on May 26th. Every Wednesday at 2 p.m. cases will be demonstrated. Those taking the course will also attend the practice of the Clinic in order to obtain tuition in intravenous injections, etc. During the three months 130 hours of attendance must be put in.

Those intending to take the course must send their names to the Director on or before February 21st, 1938. Fee: £10 10s.

CITY OF MANCHESTER.

ROOTH HALL HOSPITAL FOR CHILDREN.
(760 Beds.)

The Public Health Committee invites applications from registered medical men for the post of **RESIDENT ASSISTANT MEDICAL OFFICER** at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Sunlight House, Quay Street, Manchester, 3, and applications for the post must be received by him not later than March 5th, 1938.

Town Hall, F. E. WARBRECK-HOWELL,
Manchester, 2. Town Clerk.
February 2nd, 1938.

UMTATA HOSPITAL BOARD. SIR HENRY ELLIOT HOSPITAL.

APPOINTMENT OF SENIOR RESIDENT :
MEDICAL OFFICER.

Applications are invited from qualified Registered Medical Practitioners for the above-mentioned post. The salary attached to this position, which is whole-time, is at the rate of £600 per annum, plus free house, water, light and sanitation. A double-storied dwelling-house is shortly to be erected in which the successful applicant will be required to reside, but pending its completion he will be allowed an amount of £10 per month in lieu of quarters and incidental costs.

The successful applicant is to assume duty on July 1st, 1938, and to enter into contract of service for three years (which may be renewed), the first year to be on probation.

The Hospital has 154 beds (22 European, 112 Native), but this accommodation will be increased by approximately 60 beds in the near future. Duties include assisting at operations, anaesthetics, radiology, the general ward work of a resident medical officer, lecturing to nurses, and the general superintendence of the whole Hospital.

Applicants to state full particulars of:
(1) Their Medical and, in particular, Radiological and Surgical experience.

(2) Nationality, age, and whether married or single.

(3) Whether fully conversant with both English and Afrikaans.

Applications, with copies of three recent testimonials and health certificate, must be lodged with the undersigned not later than noon on March 15th, 1938.

Umtata, C. E. BEVAN,
Cape Province, South Africa. Secretary

BOROUGH OF CHATHAM.

ASSISTANT MEDICAL OFFICER OF HEALTH
AND ASSISTANT SCHOOL MEDICAL
OFFICER.

Applications for the above post are invited from registered medical practitioners (male or female), under the age of 45 and holding the D.P.H. or its equivalent.

The commencing salary will be £500 p.a., rising, subject to satisfactory service, by annual increments of £25 to £700 per annum.

The post is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate passing a medical examination.

The person appointed will be required to devote his or her whole time to the duties of the office, to act under the direction and supervision of the Medical Officer of Health, who is also School Medical Officer, and must have had at least three years experience subsequent to graduation. Experience in School Medical Inspection, Refraction, Dental Anaesthetics, Ante-Natal and Child Welfare Clinics and Diphtheria Immunization is very desirable, and full details of such experience should be given in the application.

The duties of the office will be chiefly Medical Officer for the various Clinics, and will include appointment, subject to consent of Minister of Health, as Deputy Medical Officer of Health.

Applications, stating age, qualification and experience, together with copies of not more than three recent testimonials, must reach me by 10 a.m. on Tuesday, February 22nd, 1938.

Canvassing, directly or indirectly, will disqualify.

Town Hall, EDWARD B. LEE,
Chatham. Town Clerk.

February 12th, 1938.

CITY OF BIRMINGHAM. COLESHILL HALL.

DEPUTY MEDICAL SUPERINTENDENT.

Coleshill Hall, a colony for Mental Defectives of all ages and both sexes, consists of two divisions, five miles apart, situated at Colehill and Marston Green respectively, each about ten miles from Birmingham.

Applications are invited for the whole-time appointment of Deputy Medical Superintendent for the Colony, aged 40 to 45, with experience in institutional administration. Salary according to experience (Scale £500-£700 per annum), subject to satisfactory service, plus emoluments consisting of unfurnished house, fuel, light and laundry, valued for superannuation purposes at £200 per annum. An additional £50 per annum will be granted if holding a recognized qualification in psychological medicine. All fees, allowances and remunerations received other than the foregoing must be repaid to the City Council.

The candidate appointed will be required to pass satisfactorily a medical examination and to be subject to the provisions of the Asylum Officers' Superannuation Act, 1909, as modified by the Asylums and Certified Institutions (Officers' Pensions) Act, 1918. The appointment will be subject to one month's notice on either side.

Application forms may be obtained from the Medical Superintendent, Colehill Hall, Colehill, near Birmingham, and must be returned to him not later than Monday, March 7th, 1938.

Council House, F. H. C. WILTSHIRE,
Birmingham, 1. Town Clerk

SEATON VALLEY URBAN DISTRICT COUNCIL.
WHITLEY AND MONKSEATON URBAN DISTRICT COUNCIL.
LONGBENTON URBAN DISTRICT COUNCIL.

APPOINTMENT OF WHOLE-TIME MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of a Whole-time Medical Officer of Health for the combined area consisting of the above-mentioned Urban Areas, at a commencing salary of £850 per annum, plus car or travelling allowances, in the first instance amounting to £100 per annum. The Medical Officer appointed will be required to furnish to the Joint Committee a record of his mileage and out-of-pocket expenses at the end of each twelve months, when the question of the expenses to be paid during the ensuing year will be considered.

The successful applicant will also be required to serve as Medical Superintendent of the Earsdon Joint Isolation Hospital Board, which Board receives and treats the whole of the infectious diseases occurring within the above area, together with the Boroughs of Blith and Walswood. The additional salary to be paid in connection with the Hospital appointment will be £200 per annum.

The total population of the three combined areas is 76,491; the population of the Hospital District is 15,526.

Applicants must be registered in the Medical Register as a holder of a Diploma in Sanitary Science, Public Health or State Medicine, in addition to the statutory qualifications, and the successful applicant shall be restricted by the terms of his employment from engaging in private practice as a Medical Practitioner.

The successful applicant will be required to submit to the Ministry of Health and the County Council the appropriate information required under the Local Government Act, 1933, and the Sanitary Officers' (Orders, Letters and Circulars), 1933, report to and attend the appropriate Committee of the above authorities, perform the duties imposed on a Medical Officer of Health by statute and by any orders, regulations or directions from time to time made or given by the Minister and any Byelaws or instructions of the Local Authorities applicable to him.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

The appointment will commence on the first day of August, 1938, and may be determined by the Medical Officer of Health appointed by three months' notice.

The successful applicant will be required to reside in the area above mentioned.

Applications, stating age and qualifications, together with copies of not more than three recent testimonials, to be sent in to the undersigned by first post on Saturday, March 19th, 1938.

Dated the 11th day of February 1938.
Council Offices, **ARTHUR S. RUDDOCK,**
Whitley Bay. Clerk to the Joint Committee

LANCASHIRE COUNTY COUNCIL.
BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.

Applications are invited from duly qualified and registered Medical Practitioners for the following posts at the above Hospital, which contains 85 beds:—

SENIOR HOUSE SURGEON (duties to commence May 1st), salary £250 per annum, together with board, residence and laundry. Candidates must have had experience in a general hospital. Preference will be given to candidates who have had orthopaedic experience.

JUNIOR HOUSE SURGEON (duties to commence April 1st).—Salary £200 per annum, together with board, residence and laundry. Preference will be given to candidates who have held resident hospital appointments, and who are competent anaesthetists.

Both appointments will be for a period of six months in the first instance, and for a further six months at the option of the Council, but will not be renewable after that time.

Applications, with copies of two recent testimonials, should be sent, not later than March 3rd, 1938, to Dr. F. HALL, School Medical and Child Welfare Department, County Offices, Preston.
County Offices, **GEORGE ETHERTON,**
Preston. Clerk of the County Council.
February, 1938.

CITY OF BRADFORD.
MUNICIPAL GENERAL HOSPITAL,
St. Luke's.

HOUSE PHYSICIANS AND HOUSE SURGEONS required. Salary in each £150 per annum, plus board and lodgings. These appointments are for six months, renewable for a further period of six months.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned not later than March 4th, 1938.
Town Hall, **N. L. FLEMING,**
Bradford. Town Clerk.

SURREY COUNTY COUNCIL.
WARREN ROAD HOSPITAL, GUILDFORD.
(26 Beds.)

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the appointment of Resident Assistant Medical Officer at the Warren Road Hospital, Guildford.

The Medical Officer appointed should preferably have had previous experience as House Physician or House Surgeon.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum, making an aggregate of £375 per annum.

Applications, stating age, qualifications and experience and enclosing copies of not more than three recent testimonials should be addressed to the County Medical Officer, County Hall, Kingston-upon-Thames, so as to be received not later than February 25th, 1938. Canvassing will disqualify.

DUDLEY AUKLAND,
County Hall, Clerk of the Council.
Kingston-upon-Thames.
February 15th, 1938.

SURREY COUNTY COUNCIL.
PUBLIC HEALTH DEPARTMENT.

REDHILL COUNTY HOSPITAL (500 beds).

RESIDENT ASSISTANT MEDICAL OFFICER

Applications are invited from registered Medical Practitioners for the appointment of Resident Assistant Medical Officer at the Redhill County Hospital, Redhill. The Medical Officer appointed should preferably have had previous experience as House Physician or House Surgeon.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum, making an aggregate of £375 per annum.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Redhill County Hospital, Earlswood Common, Redhill, so as to be received not later than February 25th, 1938. Canvassing will disqualify.

County Hall, **DUDLEY AUKLAND,**
Kingston-upon-Thames. Clerk of the Council
February 15th 1938

SURREY COUNTY COUNCIL.
PUBLIC HEALTH DEPARTMENT

KINGSTON COUNTY HOSPITAL (530 Beds).

RESIDENT ASSISTANT MEDICAL OFFICER

Applications are invited from registered Medical Practitioners for the appointment of Resident Assistant Medical Officer at the Kingston County Hospital, Kingston-upon-Thames.

The Medical Officer appointed should preferably have had previous experience as House Physician or House Surgeon.

The appointment is for a period of six months, renewable for a further period of six months, and the salary is at the rate of £250 per annum, together with full residential emoluments valued at £125 per annum, making an aggregate of £375 per annum.

Applications, stating age, qualifications and experience, and enclosing copies of not more than three recent testimonials, should be addressed to the Medical Superintendent, Kingston County Hospital, Wolverson Avenue, Kingston-upon-Thames, so as to be received not later than February 23rd, 1938.

County Hall, **DUDLEY AUKLAND,**
Kingston-upon-Thames. Clerk of the Council.
February 12th, 1938.

CITY OF SHEFFIELD.
CITY GENERAL HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men for the appointment of Junior Assistant Medical Officer at the above hospital.

The Medical Officer appointed will be required to take duty in the Medical, Surgical or Maternity Departments, as directed by the Medical Superintendent.

The appointment will be for one year only, and the salary offered is £200 per annum, with the usual residential allowances.

Previous hospital experience desirable.
Applications, stating age, qualifications and experience, and accompanied by not more than three testimonials of recent date, should be sent to the Medical Superintendent, City General Hospital, Sheffield, 5.

CANNOCK URBAN DISTRICT COUNCIL.
APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

The above Council invites applications from registered medical practitioners, of under 35 years of age, for the above-named post. The salary will be at the rate of £500 per annum, rising, subject to satisfactory service, by annual increments of £25 to £700 per annum, plus a travelling allowance of £30 per annum. Applicants must have had at least three years' experience in the practice of their own profession and special experience of practical midwifery, ante-natal, and Maternity and Child Welfare work, and hold a diploma in Public Health.

The person appointed will be required to devote the whole of his or her time to the duties, which will be performed under the direction of the Medical Officer of Health, and will consist chiefly of School Medical and Maternity and Child Welfare work, together with such other duties related to Public Health as may be required.

The appointment is subject to the approval of the Board of Education, and will be determinable by one month's notice on either side.

The Council has, subject to the approval of the Ministry of Health, decided to adopt the Local Government and Other Officers' Superannuation Act, 1922, as from April 1st, 1938, and the successful candidate will be required satisfactorily to pass a medical examination.

Sealed applications, on forms to be obtained from the undersigned (upon receipt of a stamped addressed footslop envelope), accompanied by copies of three recent testimonials and endorsed "Assistant Medical Officer of Health," must be delivered to the undersigned not later than Wednesday, February 23rd.

Canvassing, directly or indirectly, will be deemed a disqualification.
Council House, **WM. C. SPEEDY,**
The Green, Cannock. Clerk of the Council.
February, 1938.

BARRY URBAN DISTRICT COUNCIL.
ACCIDENT AND SURGICAL HOSPITAL.

Applications are invited for the under-mentioned positions:

(a) **RESIDENT SURGICAL OFFICER** (to commence duties at noon as possible).
Salary at the rate of £150 per annum, rising by two increments of £50 per annum to £450, together with board and lodging.

(b) **HOUSE SURGEON** (male, duly qualified and registered to commence duties immediately). Salary £150 per annum, with board and lodging.

The appointment of the Resident Surgical Officer is terminable by three months' notice on either side, and that of the House Surgeon will be for a period of six months; to be renewed, if thought fit, for a further period of six months, but not for any subsequent period.

Candidates for the position of Resident Surgical Officer must be capable of performing major surgical operations. Preference will be given to applicants holding higher surgical qualifications and able to assist in carrying out the X-ray work of the Hospital. This appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The successful candidates will act under the direction of the Medical Superintendent and the Surgeon.

Applications, stating age and full particulars with regard to experience, and copies of three recent testimonials, to be sent to Dr. E. I. DAVIS, Medical Officer of Health, Public Health Office, Barry, Glam., so as to reach him not later than March 4th, 1938.

Council Offices, **T. D. HOWELLS,**
Barry. Clerk to the Council.
February 14th, 1938.

JOINT COMMITTEE OF THE COUNTY COUNCILS OF DURHAM AND NORTHUMBERLAND AND THE COUNTY BOROUGH COUNCILS OF GATESHEAD AND NEWCASTLE-UPON-TYNE.

HOUSE SURGEON AND JUNIOR CLINICAL ASSISTANT (Male, non-resident).

Applications are invited from duly qualified Medical Practitioners for the post of House Surgeon and Junior Clinical Assistant to the Joint Committee of Venereal Diseases Clinics, situated at beds in the Newcastle General Hospital. Duties include assistance in the male and female out-patients' departments and in the in-patients' departments, and commence April 1st, 1938. Appointment is for one year. Salary £150 per annum, plus an allowance of £100 per annum in lieu of residential expenses (if any) and will be provided when on duty. Applications, stating age, nationality, qualifications, special experience in Venereal Disease work (if any) should be forwarded to Dr. A. E. W. McLachlan, Clinical Medical Officer, Joint Committee's Clinic, Newcastle General Hospital, Westgate Road, Newcastle-upon-Tyne, 4 on or before February 26th, 1938.

COUNTY COUNCIL OF MIDDLESEX. PHYSICIAN—GRADE I. REDHILL COUNTY HOSPITAL, EDGWARE.

Applications are invited from registered medical practitioners for the above appointment on the pensionable staff. The appointment is a senior one in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments, who are devoting their time wholly or chiefly to the practice of clinical medicine. The officer appointed will work under the direction of the Medical Superintendent of the Hospital and will give his whole time to the duties of the post. He must be prepared to undertake the teaching of nurses and, if required, of students and to carry out such other duties as the Council may from time to time direct.

The Hospital is one of 225 beds for acute medical and surgical cases and for maternity. Large extension of over 300 further beds are nearing completion. In addition to a full-time physician, surgeon, obstetrician and pathologist, there is a resident medical staff of five and a part-time radiologist, pathologist, and dental surgeon.

Salary £1,000 per annum, rising by annual increments of £50 to £1,500 per annum. The salary is inclusive and any fees received by the officer appointed must be paid over to the Council.

The appointment is non-resident, but the successful candidate will be required to reside within a short distance of the Hospital. The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Physician, Redhill County Hospital".

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1

February 3rd, 1938.

COUNTY BOROUGH OF DERBY. DERBY CITY HOSPITAL.

SENIOR ASSISTANT MEDICAL OFFICER (RESIDENT).

A vacancy as Senior Assistant Medical Officer (male) will occur, at the beginning of April, at the above Hospital of 300 beds for the treatment of acute medical and surgical cases, obstetrics and children's diseases, etc., and applications are invited for the post.

Candidates, who must be registered in Medicine and in Surgery and have held resident appointments in a General Hospital, must not exceed 40 years of age. The Officer appointed will work under the control of the Medical Superintendent, and will devote his whole time to the official duties, which may include acting as deputy to the Medical Superintendent.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450, with board and residence.

The appointment (determinable by two months' notice on either side) is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and previous experience, and accompanied by copies of three recent testimonials, should be sent to the undersigned as soon as possible.

Public Health Department, GORDON LILICO,
1, Derwent Street, Medical Officer of Health
Derby.

COUNTY OF THE CITY OF WORCESTER. ASSISTANT MEDICAL OFFICER (FEMALE)

Applications are invited for the above appointment from women of not more than 35 years of age, who are duly qualified Medical Practitioners holding a Diploma in Public Health.

The duties will include work under the School Medical Service and the Maternity and Child Welfare Service, and experience in this work is desirable. Special experience in refraction and ante-natal work will be an advantage.

The Officer appointed will work under the direction of the Medical Officer of Health and will be required to assist him in other duties as directed.

The salary offered is £500, rising by annual increments of £25 to £700, and the post is designated for purposes of superannuation.

Further particulars and a form of application may be obtained from the Medical Officer of Health, to whom applications should be returned not later than March 5th.

Canvassing, directly or indirectly will be a disqualification.

C. H. DIGBY-SEYMOUR,
Town Clerk

Worcester
February, 1938

COUNTY COUNCIL OF MIDDLESEX. OBSTETRIC SURGEON.

Applications are invited from registered Medical Practitioners for the appointment on the pensionable staff of an Obstetric Surgeon, Grade II, at West Middlesex County Hospital, Isleworth. The appointment is a senior one in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments, who have devoted their time wholly or chiefly to the practice of obstetrics and gynaecology. The successful candidate will work under the direction of the Medical Superintendent of the Hospital, and the whole of his time must be given to his official duties. He must be prepared to undertake the teaching of midwives and students, if required, and to carry out such other duties as the County Council may from time to time direct.

Salary £650 per annum, rising by annual increments of £50 to £900; and after eight years' service in this grade, two additional annual increments of £50 each. The salary is inclusive, and any fees received by the officer appointed must be paid over to the County Council.

The appointment is non-resident, and the successful candidate will be required to reside within a short distance of the Hospital. In the case of an unmarried officer, if accommodation is available, board, lodging, laundry, and service may be provided by the County Council, and in this event a deduction of £150 per annum will be made from the officer's salary.

The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Obstetric Surgeon, West Middlesex County Hospital".

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1

February 3rd 1938.

URBAN DISTRICT COUNCIL OF CHEADLE AND GATLEY.

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

The Urban District Council of Cheadle and Gatley invite applications for the appointment of a Medical Officer of Health.

The Officer appointed will also act under the Cheshire Education Committee as Assistant School Medical Officer for the Urban District of Cheadle and Gatley and a surrounding area.

Every candidate must not be less than 28 years and not exceeding 45 years of age, and must be a duly qualified Medical Practitioner and registered in the Medical Register as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine.

The salary will be at the rate of £800 per annum, with a travelling allowance.

Office accommodation will be provided by the Council.

The person appointed will be required to devote the whole of his time to the performance of the duties of his office, and he will not be permitted to engage in private practice as a Medical Practitioner. He will be required to enter into an Agreement, and also to reside within the Urban District.

The appointment will be made subject to the approval of the Minister of Health, the provisions of Section 110 of the Local Government Act, 1933, and the Sanitary Officers' (Outside London) Regulations, 1935.

Full particulars of the appointment and forms of application can be obtained from the undersigned.

Application forms, duly completed and endorsed "Medical Officer of Health, etc.," together with copies of three recent testimonials, must be delivered to the undersigned not later than the first post on Monday, March 7th, 1938.

Council Offices, W. TIPHERLEY,
19, High Street, Clerk to the Council.
Cheadle, Cheshire.
February 10th, 1938.

CITY OF EDINBURGH. PUBLIC HEALTH DEPARTMENT. EASTERN GENERAL HOSPITAL

Vacancies exist at this Hospital for TWO RESIDENT MEDICAL OFFICERS at a salary of £100 per annum, with apartments, board, laundry, etc. The appointments will be made for a period of six months commencing April 1st.

Applications, giving age, qualifications, and enclosing copies of testimonials, should be addressed to the Medical Officer of Health, Johnston Terrace, Edinburgh

COUNTY COUNCIL OF MIDDLESEX. RESIDENT CASUALTY MEDICAL OFFICER.

Applications are invited for the above appointment at West Middlesex County Hospital, Isleworth. Candidates must be registered medical practitioners who have held the post of both house physician and house surgeon at a general hospital, and have had considerable all-round experience.

Salary £350 per annum, with board, lodging and laundry, valued at £100 per annum.

The officer appointed will be required to deal with casualties and admissions to the hospital, and to carry out such other duties as may be allotted to him.

The appointment, which does not at present carry any superannuation rights, will be subject to medical examination, is for a period of six months in the first instance, and is terminable by one month's notice on either side.

The officer appointed will work under the direction of the Medical Superintendent and will devote his whole time to official duties.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than February 26th. Application forms are not provided. Envelopes must be endorsed "Casualty Medical Officer, West Middlesex County Hospital". Relationship to any member or officer of the Council must be disclosed in the application.

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"

Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1.
February 1st, 1938.

COUNTY COUNCIL OF MIDDLESEX.

THE COUNTY (TUBERCULOSIS) SANATORIUM, HAREFIELD, MIDDLESEX. JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment. Candidates must be registered Medical Practitioners who have held resident appointments in a General Hospital. Experience in the diagnosis and treatment of tuberculosis will be an additional qualification. Salary £250 per annum, with board, lodging and laundry.

The officer appointed will work under the direction of the Medical Superintendent, and will devote his whole time to official duties.

The appointment (which does not at present carry any superannuation rights, will be subject to medical examination and is terminable by one month's notice on either side) is for a period of six months in the first instance, and may be extended for an additional six months.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 5th. Relationship to any member or officer of the Council must be disclosed in the application.

Application forms are not provided. Envelopes must be endorsed "Junior Assistant Medical Officer, Harefield Sanatorium". Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"

Clerk of the County Council
Middlesex Guildhall, Westminster, S.W.1.
February 9th, 1938.

CITY OF ABERDEEN. REGIONAL MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.

The Town Council of Aberdeen are prepared to receive applications for the appointment of Regional Medical Officer for Maternity and Child Welfare for the City of Aberdeen and for the Counties of Aberdeen and Kincardine.

Applicants must be registered Medical Practitioners and must hold a Diploma in Public Health or equivalent qualification. They must also possess qualifications enabling them to act as Supervisor of Midwives in terms of the Maternity Services (Scotland) Act, 1937.

The successful applicant will act as Assistant to the present Medical Officer for Maternity and Child Welfare until the re-irail of that Official on June 30th next. On appointment, the salary will be £850 per annum and will be increased to £900 per annum on the re-irail referred to, thereafter rising to £1,000 per annum by annual increments of £50, with placing on the scale according to qualifications and experience. The office is an established post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination. Applications will be entertained from candidates up to the age of 45 years.

Applications, stating age, qualifications and experience, together with one copy of three recent testimonials, should be lodged with the undersigned not later than March 14th, 1938, from whom also can be obtained details regarding duties, terms of service, etc.

Town House, G. S. FRASER,
Aberdeen, Town Clerk
February 14th 1938

THE PRINCE OF WALES'S GENERAL HOSPITAL, LONDON, N.15.

The following Resident posts will be vacant on March 15th next:

- ONE JUNIOR HOUSE PHYSICIAN.
- TWO JUNIOR HOUSE SURGEONS.

Salary at the rate of £90 per annum, board, residence and laundry.

Appointments held for six months, but holders are eligible for a further term as Senior Candidates (male and unmarried) must be fully qualified and registered, and applications (on the prescribed form), together with copies of three recent testimonials, should be sent to the undersigned on or before March 1st, 1938.

J. C. BURDETT,
Director and House Governor
February 1st, 1938.

THE LONDON LOCK HOSPITAL, 251, Harrow Road, W.6

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) to all departments. Candidates must be duly qualified and duly registered. The appointment is for six months, commencing March 14th, salary at the rate of £175 p.a., with furnished rooms, full board and laundry. Preference will be given to candidates having previous obstetric experience.

Applications, enclosing copies (only) of three recent testimonials, must be in the hands of the undersigned by first post on Friday, March 4th, and from whom any further particulars can be obtained.

J. F. MORTON,
Secretary
February 1st, 1938.

ALL SAINTS' HOSPITAL (FOR GENITO-URINARY DISEASES), Austral Street, West Square, St. George's Road, S.E.11.

RESIDENT HOUSE SURGEON (Male) required on April 1st, 1938, for six months, before three months as Junior House Surgeon, with salary at £100 per annum, followed by three months as Senior House Surgeon, with salary of £150 per annum.

Applications, giving particulars of age, experience, qualifications, and enclosing copies of three recent testimonials, should reach me not later than February 25th.

D. H. EADE,
Secretary

CHARING CROSS HOSPITAL, SURGICAL REGISTRAR.

The Council invite applications from candidates, who must be registered Medical Practitioners (Male), for the post of Second Surgical Registrar. Honorarium £150 per annum.

A copy of the regulations can be obtained from the undersigned, to whom applications, together with copies of three recent testimonials, must be submitted not later than Monday, February 25th, 1938.

GEORGE J. JONES,
Secretary,
Charing Cross Hospital,
London, W.C.2.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd Street, St. Pancras, W.C.1.

Applications are invited from registered medical practitioners for the posts of SENIOR AND JUNIOR HOUSE SURGEON, vacant on March 1st. The Junior House Surgeon is a candidate for the Senior post. Salary £120 and £100 per annum respectively, with board and residence.

Applications, with copies of three testimonials, should reach the Secretary on or before February 28th.

DREADNOTH HOSPITAL, Greenwich, S.E.10. (Seamen's Hospital Society)

HOUSE SURGEON required for six months from April 1st. Salary £110 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male and single. Duties include attendance once a week at V.D. Clinic and charge of V.D. beds, for which there is a special honorarium of £25.

Applications, with copies of three testimonials, to be sent in on or before March 2nd to the undersigned.

F. A. LYON, Secretary.
February 11th, 1938.

DREADNOTH HOSPITAL, Greenwich, S.E.10. (Seamen's Hospital Society).

HOUSE PHYSICIAN required for six months from April 1st. Salary £100 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male and single.

Applications, with copies of three testimonials, to be sent in on or before March 2nd to the undersigned.

F. A. LYON, Secretary,
February 11th, 1938.

THE ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E.1.

SENIOR HOUSE SURGEON and TWO ASSISTANT HOUSE SURGEONS required at the above Hospital. The appointment is in the first instance for a period of six months, with board and residence, as from April 1st.

Salaries: Senior House Surgeon at the rate of £150 per annum; Assistant House Surgeons at £100 per annum.

Candidates must be registered practitioners. Applications, with copies of three recent testimonials, should be sent to the Secretary not later than Tuesday, March 1st.

F. E. D'ALTON,
Secretary

QUEEN MARY'S HOSPITAL FOR THE LAST END, E.15

Applications are invited for the post of HONORARY ASSISTANT OBSTETRIC AND GYNAECOLOGICAL SURGEON at the above Hospital. Candidates must be Fellows of the Royal College of Surgeons of England and Members or Fellows of the British College of Obstetrics.

Applications, with copies of three recent testimonials, should be forwarded to the undersigned not later than Thursday, February 24th, 1938.

RAPHAEL JACKSON (Major),
Secretary

GENERAL LYING-IN HOSPITAL, York Road, Lambeth, S.E.1

Applications invited for the post of JUNIOR RESIDENT MEDICAL OFFICER and ANAESTHETIST. Salary at the rate of £100 per annum, with board, residence and laundry. Appointment for three months, commencing April 1st, 1938. The successful candidate will, subject to satisfactory service, be required to succeed to the Senior Medical Officer's post for a further three months.

Applications, stating age and qualifications, with copies of three recent testimonials, to be sent to the Secretary not later than Monday, March 7th, 1938.

ALBERT DOCK HOSPITAL, Connaught Road, E.16. (Seamen's Hospital Society).

RESIDENT MEDICAL OFFICER required for six months from April 1st. Salary £110 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male.

Applications, with copies of three testimonials, to be sent in on or before March 22nd to the undersigned.

F. A. LYON, Secretary,
February 11th, 1938. Seamen's Hospital Society.

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars.

The Committee of Management will shortly appoint an additional member of the HONORARY STAFF. Candidates must either be Members of the Royal College of Physicians (London) or Fellows of the Royal College of Surgeons (England).

Applications, with testimonials in support, must be sent before March 15th to L. MUNDY, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars.

Applications are invited for positions as CLINICAL ASSISTANTS. Preference will be given to those with dermatological experience.

Applications, with testimonials in support, must be sent before March 15th to L. MUNDY, Secretary to the Hospital for Diseases of the Skin, 71, Blackfriars Road, S.E.1, from whom any further information may be obtained.

HOXTON SCHOOLS TREATMENT CENTRE, Shoreditch.

DENTAL SURGEON (part-time) required. Sessions 2½ hours. At present, Mondays p.m., Wednesdays a.m. and p.m. Salary 27s. 3d. per session. Appointment, April till July 22nd, 1938, with probability of renewal. Experience with children essential. Applications, stating age, with copies of two recent testimonials, to Mrs. Laskey, 37, Holland Street, W.8, by February 25th.

LONDON HOSPITAL E.1.

There is a vacancy for the post of ASSISTANT PHYSICIAN at this Hospital.

Candidates must be Members of the Royal College of Physicians in London.

Applications should be sent to the House Governor, and should arrive not later than Saturday, March 12th, 1938.

ARTHUR G. ELLIOTT,
House Governor.

LONDON HOSPITAL, E.1.

A vacancy occurs for the post of PHYSICIAN to the London Hospital. An Assistant Physician is a candidate for the post.

ARTHUR G. ELLIOTT,
House Governor.

WEST LONDON HOSPITAL, Hammermith Road, W.6 (239 Beds).

Required, one HOUSE PHYSICIAN and one HOUSE SURGEON. The duties of the House Physician include some work in the Children's Department, and the House Surgeon will have some work in the Genito-Urinary Department. These appointments (males) are tenable for six months from April 1st next, subject to one month's notice on either side. Salary at the rate of £100 a year, with board, lodgings and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Wednesday, March 16th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at the Medical Council meeting on Friday March 25th, at 4.30 p.m., and the House Committee meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

THE CHILDREN'S HOSPITAL (King Edward VII Memorial), Birmingham, 16.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post. Candidates must be qualified and registered, and have held a responsible Resident appointment at a teaching Hospital. The salary is at the rate of £175 per annum, with board, residence and laundry. The appointment is tenable for one year, and the Officer is eligible for re-election for a second year. Candidates should forward their applications, with Certificate of Registration, and any credentials which they may desire to offer, to the undersigned on or before March 5th, 1938.

Owing to the resignation of the present holder of the office, the duties will commence forthwith.

HAROLD F. SHRIMPTON,
February 14th, 1938. House Governor.

ST. BARTHOLOMEW'S HOSPITAL.

RESIDENT ASSISTANT PHYSICIAN-ACCOCHEUR AND DEMONSTRATOR OF PRACTICAL MIDWIFERY.

Applications are invited for the post of Resident Assistant Physician-Accoucheur and Demonstrator of Practical Midwifery.

Candidates must be Fellows of the Royal College of Surgeons of England.

The salary attached to the Office is fifty guineas per annum, with residence in the Hospital, plus £1,000 per annum payable by the Medical College.

Appointment will be made for one year as from July 1st, 1938, with eligibility for re-election.

Applications, with testimonials (copies only), should reach the undersigned not later than Saturday, March 5th, 1938.

C. C. CARUS-WILSON,
Acting Clerk to the Governors.

ST. BARTHOLOMEW'S HOSPITAL.

APPOINTMENT OF DENTAL HOUSE SURGEON.

Applications are invited for the office of House Surgeon to the Dental Department. Candidates must hold a registrable Dental qualification, and a Medical qualification in addition is desirable but not essential.

Appointment will be required to call upon the three Dental Surgeons and the three Assistant Dental Surgeons. Appointment will be made for six or twelve months as from May 1st, 1938. The salary attaching to the office is £50 per annum (non-resident).

Twelve copies of applications, with testimonials, should be left with the undersigned not later than Monday, February 25th.

February 8th, 1938. C. C. CARUS-WILSON.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

HOUSE PHYSICIAN required April 1st, 1938. EAR, NOSE AND THROAT HOUSE SURGEON required April 1st, 1938.

Six months' appointments. Salary at the rate of £100 per year, with board, lodgings, and laundry in each case.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before March 7th, 1938.

CHARLES H. BESSSEL,
February 10th, 1938. Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2.

CLINICAL ASSISTANT to Medical Out-Patients required. Attendance on Saturday at 9.30 a.m. for about 2½ hours. An honorarium of 25s. per attendance will be paid. The appointment will be for six months in the first instance and cannot be held for longer than two years. Applications, with copies of not more than three testimonials should be addressed to the undersigned.

CHARLES H. BESSSEL,
February 3rd, 1938. Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL, COVENTRY.

Applications are invited for the appointment of two HONORARY ANAESTHETISTS.

Candidates must be duly qualified practitioners. The appointments will be made for one year subject to reappointment annually.

Candidates shall be resident in the City of Coventry, or within six miles radius thereof, or shall take up their residence within that radius within six months from the date of appointment.

Canvassing, either directly or indirectly, will be deemed a disqualification.

Applications, with original testimonials and registration certificates, must reach the undersigned on or before February 25th, 1938.

Candidates will in due course receive notice of their eligibility or otherwise from the House Governor, and after receipt of such notice eligible candidates are at liberty to send through the post printed copies of their application and testimonials to the Members of the Board of Management of the Hospital, a list of whose names and addresses will be furnished by the House Governor. No such applications or copies of testimonials shall be sent until receipt of such notification from the House Governor.

By Order of the Committee,
S. CECIL HILL,
House Governor and Secretary.

February 10th, 1938.

HORSFORTH URBAN DISTRICT COUNCIL.**APPOINTMENT OF PART-TIME MEDICAL OFFICER OF HEALTH**

for the Horsforth Urban District. Sanitary Officers' (Outside London) Regulations, 1935.

Applications are invited for the above-mentioned post at a salary of £100 per annum. No travelling or other allowances will be made. The appointment will be made in accordance with the provisions of the above-mentioned Regulations, and will terminate on March 31st, 1939.

Applications, endorsed "Medical Officer," should reach me by noon on February 28th, 1938. Forms of application may be had on receipt of a stamped foolscap envelope.

The Green, G. W. BOYES, F.C.I.S.,
Horsforth. Clerk of the Council.

ANCOATS HOSPITAL, MANCHESTER, 4.

CASUALTY OFFICER (Lady or Gentleman), twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred.

Salary £175 per annum, with board, residence, laundry, etc. The successful candidate will do duty for the Resident Surgical Officer at alternate week-ends and other scheduled times.

Applications, stating age, qualifications, experience, and full particulars, to be forwarded to the undersigned on or before February 23rd, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
General Supt. and Secretary.

BATH AND WESSEX CHILDREN'S ORTHOPAEDIC HOSPITAL,
Combe Park, Bath.

HOUSE SURGEON required to commence duty April 1st, 1938.

The appointment will be for six months, with salary at the rate of £120 per annum, together with quarters, board, and laundry.

Orthopaedic experience an advantage, together with experience in administering anaesthetics.

Applications, with copies of three recent testimonials, should be forwarded by March 7th to the undersigned.

HAROLD J. FRICKER,
Secretary.

EAR AND THROAT HOSPITAL,
Birmingham, 3.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Salary at the rate of £150 per annum, with lunch on six week-days and an allowance of £50 per annum in lieu of board and lodging.

Appointment for six months, to commence April 1st.

Candidates are eligible for election to senior posts. Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned.

W. H. LOMAS,
Secretary.

GENERAL INFIRMARY, SALISBURY.
(Voluntary Hospital—194 beds, now in course of extension to 215 beds.)

HOUSE SURGEON (MALE) required to commence duty March 17th, 1938.

The appointment is for six months, with the right of applying for reappointment for a further period of six months. Candidates must be unmarried, fully qualified, and registered.

Salary £125 per annum, with board residence. Applications, with copies of testimonials, to be sent to the House Governor and Secretary, from whom a copy of the rules may be obtained.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

Applications are invited from unmarried gentlemen, doubly qualified and registered, for the post of **HOUSE SURGEON**, with duties under Consulting Surgeon in Male, Female, and Children's Surgical Wards, vacant April 1st, 1938; six months' appointment.

This post is recognized by the Royal College of Surgeons as surgical practice in connexion with the Final Examination for the Fellowship.

Salary at the rate of £150 per annum, with board, residence, and laundry.

Total Resident Staff: eight.

Applications, stating age, qualifications, and experience, together with copies of recent testimonials, to be forwarded to the undersigned as soon as possible.

JOHN GIBSON,
Superintendent and Secretary.

KELLING SANATORIUM, HOLT, NORFOLK.

SECOND ASSISTANT RESIDENT MEDICAL OFFICER (Male), unmarried, required at above Sanatorium to take up duties on April 1st next. First appointment twelve months (renewable), with three months' notice on either side. Salary £250, with apartments, board and laundry.

Candidates must be duly registered Medical Practitioners.

Applications, in candidate's own handwriting, stating age and qualifications (with one copy of three recent testimonials), to be sent to the Medical Superintendent, Kelling Sanatorium, Holt, Norfolk, not later than March 5th.

GREAT YARMOUTH GENERAL HOSPITAL.
(72 Beds.)

Applications are invited for the post of **HOUSE SURGEON** (one of two appointments). Duties to commence March 15th.

Applicants must be male and unmarried.

Salary at the rate of £140 per annum, with board, residence, and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, to be forwarded to the undersigned.

FREDK. L. GATFIELD,
Secretary.

LIVERPOOL MATERNITY HOSPITAL,
Oxford Street.

HOUSE SURGEON required for the six months commencing April 1st next. Salary at the rate of £90 per annum, with board, residence, and laundry. Previous experience as House Surgeon essential. Membership of a Medical Defence Society is a condition of appointment.

Applications, stating age, qualifications, and experience, together with copies of testimonials, to be sent to the Honorary Secretary of the Medical Board on or before Friday, February 25th.

PRESTON HALL SANATORIUM,
Near Maidstone, Kent (300 Beds).

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER (male)**.

Salary at the rate of £250 per annum, with board, residence and laundry.

Candidates, who must be unmarried, are requested to forward their applications as soon as possible to the Medical Director, stating age, qualifications, etc., together with copies of not more than three testimonials.

AYR COUNTY HOSPITAL.

The Board of Management invite applications for the following Honorary appointments:

- (1) VISITING SURGEON.
- (2) ANAESTHETIST.

Applications, stating age, qualifications and experience, to be lodged with the undersigned on or before February 23rd, 1938.

Ayr County Hospital. JOHN J. GOUDIE,
February 10th. Secretary and Treasurer.

BRIDGWATER GENERAL HOSPITAL,
Salmon Parade, Bridgwater, Somerset.

HOUSE SURGEON required. Salary £130 per annum, with board and residence. Applications, with copies of three recent testimonials, stating age, nationality, qualifications, to be sent to the Secretary by February 22nd.

BIRMINGHAM MATERNITY HOSPITAL.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER AND REGISTRAR**, to commence duties on April 1st, 1938. Applicants must have had previous experience in Obstetrics and Gynaecology. Salary £200 per annum. Applications and copies of testimonials to be sent not later than February 28th to Mr. Hugh C. Aston, 45, Newhall Street, Birmingham, 3.

LEIGH INFIRMARY, LANCASHIRE.

Wanted, **JUNIOR HOUSE SURGEON** immediately. Salary £150 per annum. The appointment is for six months, with eligibility for re-election. Must be good Anaesthetist. Exceptional opportunities for Surgery.

Applications to be addressed to Mr. J. A. SMITH, Secretary, 5, Silk Street, Leigh, Lancashire.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.

Applications are invited for the posts of Two Non-resident ASSISTANT MEDICAL OFFICERS at the "Out-Patients" Department, Garside Street, Manchester. Salary at the rate of £150 per annum, and the appointments are for a period of six months, one from March 1st, 1938, and one from April 1st, 1938. Candidates must be on the Medical Register.

Particulars of duties can be obtained from the Secretary. The hours of duty are from 9 a.m. till 1 p.m., or until the work of the Dispensary is finished. Patients' attendances number about 100,000 per annum.

Applications, stating age, and accompanied by copies of not more than three testimonials, to be sent to the undersigned immediately. Canvassing, directly or indirectly, may disqualify.

By Order,
H. HEARDMAN,
Secretary.

ROYAL DEVON AND EXETER HOSPITAL,
Exeter. (280 Beds.)**RESIDENT SURGICAL OFFICER.**

HOUSE SURGEON.
HOUSE SURGEON to the Ear, Nose and Throat Department.

The above resident posts (male only) will become vacant on April 1st, 1938.

The appointment of Resident Surgical Officer (Salary £250) is for one year; the other appointments (salary £150) for six months, with eligibility for re-election.

Candidates must possess registered qualifications. Applications, stating age, qualifications, and copies of three recent testimonials, should be sent to the undersigned on or before Tuesday, March 1st, 1938.

S. S. COLE,
Secretary and Manager.

SWANSEA GENERAL AND EYE HOSPITAL.
(336 Beds.)

Applications are invited for the appointment of whole-time ASSISTANT PATHOLOGIST (male or female) non-resident. Salary £500 rising to £600 per annum.

Candidates must be graduates in medicine of a recognized British University or members of a College of Physicians of the British Isles.

Duties to commence April 4th, 1938.

Applications, stating age, nationality, qualifications, and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before February 28th.

O. C. HOWELLS,
Secretary-Superintendent.

ROYAL EYE HOSPITAL.
Pevensey Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith. Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications and Ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement, candidates have to be interviewed by appointment by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE,
Secretary.

ROYAL SURREY COUNTY HOSPITAL,
Guildford. (216 Beds.)

Applications are invited for the posts of:
(a) One HONORARY SURGEON AND GYNAECOLOGIST.

(b) One HONORARY SURGEON.

Applicants must hold the degree of Master Surgery or the Fellowship of one of the Royal Colleges of Surgeons, and they should state whether they are in consultant or general practice.

Duties to commence on April 1st if possible.

Applications, with copies of not more than three recent testimonials, should reach the Secretary-Superintendent not later than February 28th, 1938.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL,
Ryde.

JUNIOR HOUSE SURGEON, woman, wanted for April 1st, unmarried. Salary at the rate of £120 yearly, with board, residence and laundry. Apply, stating age and nationality, with copies of testimonials, to the Secretary before Tuesday, March 8th.

A. S. GORDON, Secretary.

THE CASSEL HOSPITAL FOR FUNCTIONAL NERVOUS DISORDERS.
Swaylands, Fenchurch, Kent.

LOCUM TENENS (male) required for the above hospital from May to September inclusive. Previous experience essential. Salary eight guineas per week, with board, lodging, and laundry. Apply to "The Medical Director," enclosing testimonials, not later than March 1st.

APPOINTMENTS—Important Notice

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugh Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer)	OAKDALE, MON (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN. (Workmen's Medical Scheme)	NEATH AND DISTRICT. (Medical Aid Association)	PUBLIC HEALTH
LIVWYNPIA, CLYDACH VALE. PENYGRAIG, GLAMORGAN. (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme.)	SALOP MENTAL HOSPITAL, SHREWSBURY (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C. 1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Societies Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries.)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practices)	The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

February 16, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL. (220 Surgical and Medical Beds.)

CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.

Applications are invited from fully qualified men for the above post, to commence March 1st, 1938. The appointment is for six months, salary at the rate of £200 per annum, with board, apartments and laundry. The duties include the post of House Surgeon to the Director of the Fracture Clinic, under whose care the whole of the fractures, both in- and out-patients, are treated, and deputy to the Resident Surgical Officer. Candidates for this post should have had special fracture experience.

Applications, stating age, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

M. H. BOONE,
February 8th, 1938. Superintendent and Secretary.

GLASGOW CORPORATION MENTAL HOSPITALS.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted for the Hawkhead Mental Hospital; previous experience unnecessary, but preference will be given to one who has engaged in pathological work or has been house physician; ample opportunity afforded for research. Salary to commence at £200 per annum, with board, lodging, and laundry. Full particulars on application to the Medical Superintendent, Hawkhead Mental Hospital, Crookston Road, Glasgow, S.W.2.

THE ST. HELENS HOSPITAL.

Applications are invited for the position of **JUNIOR HOUSE SURGEON (Male)** to this Hospital at a salary of £150 per annum, plus board, residence and laundry.

Applications, stating age and nationality, accompanied by copies of three recent testimonials, to be sent to the Secretary, the St. Helens Hospital, St. Helens, Lancashire, not later than Tuesday, February 22nd.

The successful applicant will be required to commence duties on March 1st next.

CUMBERLAND INFIRMARY, CARLISLE. (151 Beds.)

Applications are invited from men only for the following posts:

**HOUSE PHYSICIAN,
TWO HOUSE SURGEONS.**

HOUSE SURGEON to Special Departments (Eye, Ear, Nose and Throat).

Appointments are for six months from April 1st, 1938, and holders will be eligible for a further term. Salary in each case at the rate of £160 per annum, with board, residence and laundry.

The posts of House Surgeon are recognized by the Royal College of Surgeons of England under the regulations for the Final Fellowship Examination.

Applications, on forms obtainable from the undersigned, together with copies of not more than four testimonials, to be received not later than February 25th.

J. S. RIPPIER,
February 7th, 1938. Secretary-Superintendent.

HARTLEPOOLS HOSPITAL, HARTLEPOOL. (95 Beds.)

Applications are invited for the post of **HOUSE SURGEON (male)**. Salary £150 p.a. with board, residence and laundry.

The appointment is for six months (commencing February 25th).

Applications, stating nationality, age, qualifications and experience, should be addressed to the undersigned.

NORMAN O. DEANS,
Secretary.

MERTHYR GENERAL HOSPITAL. (118 Beds.)

RESIDENT HOUSE SURGEON required for a period of six months.

Salary at the rate of £150 per annum, with board and laundry. Applications, stating age, nationality, qualifications, and accompanied by three (copies only) recent testimonials, should be addressed to the Secretary of the Merthyr General Hospital.

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth. (Formerly South Devon and East Cornwall Hospital.) 254 Beds.

Applications are invited for the post of **RESIDENT ANAESTHETIST** and **HOUSE SURGEON** to the Special Departments.

Salary £170 per annum, with board, residence and laundry.

Appointment is tenable for six months and is subject to renewal. Duties to commence March 10th.

The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Acts. Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than February 25th.

ARTHUR R. CASH,
February 7th, 1938. Secretary.

THE GENERAL INFIRMARY AT LEEDS. (673 Beds.)

Applications are invited for the post of **RESIDENT ORTHOPAEDIC OFFICER**. Salary £145 p.a., with board, residence and laundry.

The appointment is for twelve months, subject to renewal. Candidates must be legally qualified and registered, and have held a Resident Surgical post and had special experience in Orthopaedic work.

Applications, with copies of testimonials, to be received by the undersigned as soon as possible.

S. CLAYTON FRYERS,
House Governor and Secretary.

DONCASTER ROYAL INFIRMARY AND DISPENSARY. (165 Beds.)

CASUALTY HOUSE SURGEON (Male) required immediately. Salary at the rate of £175 per annum, with residence, board and laundry.

Applications, accompanied by not more than three testimonials, to be sent to the Secretary-Superintendent.

(Appointments continued on p. 65.)

COUNTY BOROUGH OF BOLTON. RESIDENT ASSISTANT MEDICAL OFFICER.

BOROUGH ISOLATION HOSPITAL.

Applications are invited from duly qualified medical men for the position of Resident Assistant Medical Officer.

Candidates must have had experience in the treatment of cases of infectious disease in an Isolation Hospital. The duties will include the medical care of patients in the Isolation Hospital, assisting at the male Venereal Diseases Clinics, and such other work as the Medical Officer of Health may direct.

The person appointed will be required to reside at the Isolation Hospital. The salary will be £450 per annum, together with board and residence, valued at £150 per annum. Married quarters are not available. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the selected candidate passing a medical examination.

Forms of application, with particulars of the duties, may be obtained from the Medical Officer of Health, Howell Croft, North, Bolton, and completed applications, with copies of three recent testimonials, should be sent to the undersigned not later than March 7th, 1938. Canvassing, either directly or indirectly, will be a disqualification.

Town Hall, HAROLD B. ASHFORD.
Bolton. Town Clerk.
February 18th, 1938.

LONDON COUNTY COUNCIL.

Applications invited for temporary position of ASSISTANT AURIST (part-time) in connection with Council's school medical service. Not less than two sessions (2½ hours each) a week during school terms. Remuneration 34s. 6d. a session. Applicants must hold the M.S. degree of a British university or F.R.C.S. qualification of England, Scotland or Ireland, and must have had experience in ionisation.

Applications (in letter form) giving date and place of birth, war service (if any), qualifications and experience, and enclosing copies of testimonials, should be addressed to Medical Officer of Health (S.D.5) County Hall, Westminster Bridge, S.E.1, to reach him by March 5th. Canvassing disqualifies.

NORTH STAFFORDSHIRE ROYAL INFIRMARY.

Stoke-on-Trent (390 Beds.)

HOUSE SURGEON (CASUALTY).

The Committee invite applications for the above post—half duties in Casualty. Over 6,000 casualties per annum. Salary at the rate of £150 per annum, with board, residence and laundry.

The appointment will be made for six months, renewable.

Eligible for the other resident posts as vacancies arise.

Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary and House Governor.

February 14th, 1938.

NORTH STAFFORDSHIRE ROYAL INFIRMARY.

Stoke-on-Trent. (390 Beds.)

HOUSE PHYSICIAN (SECOND).

The Committee invite applications for the post of House Physician (second), who will have charge of the beds allocated to the Honorary Assistant Physicians, and he will attend them in the Out-patient Department, which is very extensive.

Salary at the rate of £150 per annum with board, residence and laundry.

The appointment will be made for six months, renewable.

Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
Secretary and House Governor.

February 14th, 1938.

BRISTOL HOMOEOPATHIC HOSPITAL (Bruce Melville Wills Memorial)

BRISTOL, 6.

The Board of Management invite applications for the appointment of RESIDENT MEDICAL OFFICER, to commence duty on April 1st next at a salary of £120 to £150 per annum, according to experience, with board, laundry and accommodation.

The Hospital is a modern one with the latest equipment, and a most comfortable suite of rooms is provided in the institution.

Opportunity for good Surgical and General

warded with copies
of, not later than
the undersigned,
Lt.-Colonel,
Secretary.

LEICESTER ROYAL INFIRMARY. (500 Beds.) VACANCIES FOR APRIL 1st, 1938.

HOUSE SURGEON.

Salary £125 per annum. Applicants must have held a resident Hospital post, or had similar experience of Hospital work.

HOUSE PHYSICIAN.

Salary £125 per annum. Applicants must have held a resident Hospital post, or had similar experience of Hospital work.

JUNIOR CASUALTY OFFICER.

Junior Casualty Officer. Salary £100 per annum. Applications, giving full details, to be forwarded to the Secretary not later than February 28th, 1938, together with copies of three testimonials.

Appointments will be made on March 9th, 1938, February 11th, 1938.

THE RADCLIFFE INFIRMARY, OXFORD.

Applications are invited from qualified men or women for the post of RESIDENT MEDICAL OFFICER to that section of the Hospital, consisting of 52 beds and dealing with the diagnosis and treatment of pulmonary tuberculosis, known as the Osler Pavilion, Headington, Oxford, as from March 15th, 1938.

Appointment will be for six months in the first instance. Salary at the rate of £120 per annum, with board, etc.

Applications, with copies of testimonials, must be forwarded to the undersigned at the Radcliffe Infirmary not later than February 21st, 1938.

A. G. E. SANCTUARY,
February 7th, 1938. Administrator.

LIVERPOOL OPEN-AIR HOSPITAL FOR CHILDREN.

Leasowe, Cheshire.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER at the above hospital for a period of six months, commencing March 14th next. Salary at the rate of £200 per annum, plus board, residence and laundry.

The hospital has 240 beds for treatment of Surgical Tuberculosis and orthopaedic conditions, and has one ward for adult patients.

Applications, stating age, sex, nationality, qualifications and experience, together with copies of three recent testimonials, to be addressed to the Secretary, not later than March 5th next.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

Applications are invited for the post of RESIDENT HOUSE SURGEON to the MATERNITY HOSPITAL (43 beds), vacant April 1st, 1938. Duties, under Consultant Obstetrician, include ante-natal and post-natal Clinics. Six months' appointment.

Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience, together with copies of recent testimonials, to be forwarded to the undersigned as soon as possible.

JOHN GIBSON,
Superintendent and Secretary.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL.

Woodchurch Road, Birkenhead.

RESIDENT MEDICAL OFFICER (Junior). The Board invites applications for the post of Junior Resident Medical Officer (male or female) for a period of six months from April 1st, 1938. Honorarium at the rate of £90 per annum, with board, residence and laundry.

The Hospital is a recognized Training School for Sick Children's Nurses.

Applications, together with copies of testimonials, to be addressed to the Hon. Secretary, at the Hospital, not later than February 26th, 1938.

BRISTOL EYE HOSPITAL.

80 Beds (12 Private Patients); 1,017 In-patients;
17,794 Out-patients.

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum. Senior post available after six months. Vacant April 1st, 1938.

Suitable experience for D.O.M.S. Applications, stating age and qualifications, etc., with three recent testimonials, to reach the undersigned by March 11th.

D. M. BABER,
Secretary and House Governor.

WARNEFORD GENERAL HOSPITAL.

Leamington Spa (164 Beds.)

Applications are invited for the post of RESIDENT CASUALTY OFFICER AND HOUSE SURGEON to one of the Hon. Surgeons. Six months' appointment. Salary £150 per annum, with board and laundry.

Applications from qualified registered Medical Practitioners should be sent, together with three recent testimonials, to the undersigned by February 21st, 1938.

EDWARD L. WIRGMAN,
House Governor and Secretary.

WEST KENT GENERAL HOSPITAL (Incorporated). Maidstone (136 Beds.)

Applications are invited for the post of HOUSE SURGEON, who must be a male of British nationality, and unmarried.

Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess registered qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before March 1st, 1938. The successful candidate will be required to take up residence on March 10th, 1938.

EDWARD J. GREGG,
House Governor and Secretary.

ROYAL INFIRMARY, BRADFORD.

HOUSE PHYSICIAN (Male) wanted for April 1st. Seven months' appointment.

Candidates must be single and legally qualified. Salary £150 per annum, with board, residence and washing.

There are 345 beds and 10 Resident Officers. Applications, stating age, qualifications and previous experience, with copies of recent testimonials, should be sent to the undersigned at once.

H. TRUSSON,
House Governor and Secretary.

February 11th, 1938.

THE ROYAL LIVERPOOL CHILDREN'S HOSPITAL.

There will be a vacancy on April 1st next for One RESIDENT MEDICAL OFFICER (woman) at the Heswall Branch of the Institution (240 beds). The appointment will be for a period of six months. Salary at the rate of £120 per annum.

Applications, with copies of recent testimonials, to be sent to the Secretary, Royal Liverpool Children's Hospital, Myrtle Street Liverpool, 7, on or before Tuesday, March 1st, 1938.

HERTFORD COUNTY HOSPITAL. (169 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) (Three Residents). Salary, £200 per annum, with board, residence and laundry. The appointment is for six months in the first instance.

Applications, with three recent testimonials, should be sent to the undersigned not later than Tuesday, March 1st, 1938.

PERCY G. BROOKS,
Secretary.

YORK COUNTY HOSPITAL. (204 Beds.)

The post of HOUSE PHYSICIAN will become vacant on March 31st, 1938. Salary £150 per annum, with board, residence and laundry.

Applications, stating age and previous experience, together with copies of not more than three recent testimonials, to be sent to the undersigned not later than 9 a.m. on Monday, February 28th, 1938.

J. R. MACKRILL,
Secretary.

QUEEN'S HOSPITAL, BIRMINGHAM 15. DENTAL DEPARTMENT.

A CLINICAL ASSISTANT is required for the above department. Candidates must hold a Dental qualification. Further information may be obtained from the undersigned.

P. CROCKER, House Governor

THE WOMEN'S HOSPITAL.

Catherine Street, Liverpool.
(Gynaecological Hospital—120 beds.)

HOUSE SURGEON required for six months, commencing March 1st. Salary £100 per annum. Applications, with copies of three testimonials, to be sent to the Hon. Secretary of the Medical Board.

ROYAL NORTHERN HOSPITAL.

Holloway, N.7.

Applications are invited for the post of PATHOLOGICAL REGISTRAR. The appointment is for one year, with eligibility for re-election. Times of attendance on application Honorarium £200 per annum, with lunch and tea provided.

Applications, with copies of testimonials, should be sent by March 4th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

ROYAL FREE HOSPITAL, GRAY'S INN ROAD, W.C.1.

Applications are invited from duly qualified and registered medical women for the following post: RESIDENT CASUALTY OFFICER.

Duties to commence April 1st, 1938, for six months. Salary £150 per annum. Candidates must have held previous resident hospital appointments. Application form may be had from the undersigned and should be duly filled in and returned on or before March 5th, 1938.

RICHARD T. BARTLEY,
Secretary.

IMMEDIATE SALE—HALF SHARE IN PARTNERSHIP about £3,400. Principally industrial. Panel over 3,000. Premium £1,200. Midland city. Good house to rent.—Address, No. 3747, B.M.A. House, Tavistock Square, W.C.1.

KENT, 12 MILES FROM LONDON.—THIRD PARTNER wanted to replace partner retiring on October 1st through ill-health. Excellent mixed general practice. Average gross receipts for the last three years over £6,000, increasing; great scope. Panel over 4,000. Good appointments. No Poor Law. Well-equipped hospital. Must be experienced. over 30. 3 to 6 months' introduction as desired.—Address, No. 3137, B.M.A. House, Tavistock Square, W.C.1.

KENT, NEAR LONDON.—THIRD PARTNER wanted. Old-established practice, quarter share, about £1,000 to commence. Two years' purchase, short preliminary advantage preferred.—Address, No. 3791, B.M.A. House, Tavistock Square, W.C.1.

LINCOLNSHIRE, PARTNERSHIP IN OLD- established country practice. No opposition. Vendor retiring owing to ill health. Gross partnership receipts £2,200. Panel 1,100. Scope for considerable increase. Charming house and garden for sale, great on lease. Good hunting district. Premium two years' purchase.—Address, ANDREW, RACE, MIDGLEY and HILL, Solicitors, Lincoln.

M.R.C.P. ED. 29, MARRIED, HOS- pital and C.P. experience. desires PARTNERSHIP good-class practice. Capital available.—Address, No. 3716, B.M.A. House, Tavistock Square, W.C.1.

M.B., B.S. (LOND.), AGE 30, ENGLISH, well connected, five years hospital appointments, requires immediate PARTNERSHIP or PRACTICE in Kent, Surrey, or Sussex. Income £1,000 upwards.—Address, No. 3789, B.M.A. House, Tavistock Square, W.C.1.

M.S., LOND., F.R.C.S. ENG. WITH extensive surgical experience and good knowledge of general practice requires PARTNERSHIP in good class practice with surgical scope and prospective hospital appointment. Near London or South Coast preferred.—Address, No. 3735, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED BY CONSULTING Surgeon. Mainly gynaecology and obstetrics, with some general surgery. F.R.C.S. Eng. and M.C.O.G. essential.—Address, No. 3515, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP IN ESTABLISHED MEDICAL practice in North-East Scotland for sale. Price required about £2,000, for full particulars apply, stating age, qualifications, and professional history, to—Address, No. 3793, B.M.A. House, Tavistock Square, W.C.1.

S. WALES COAST.—PANEL 2,300. £1,200 p.a. HALF SHARE at 2 years' purchase. House in best part.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22689), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

WOMAN'S PRACTICE, NORTH LONDON, £1,350. Panel 600.—Appointments £340. HALF-SHARE offered 2 years' premium. Modern house with garden and garage can be rented £80.—Address, No. 3533, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED, COUNTRY OR COUNTRY TOWN PRACTICE or PARTNERSHIP by M.B., Ch.B., M.R.C.S., L.R.C.P., aged 42, who has recently disposed of his own large industrial practice. Income to produce about £2,000. Active capital. Free July.—Address, No. 3709, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AFTER APRIL, MIXED PRIVATE and PRACTICE, £1,500 to £2,000 p.a., country town, country or seaside. Good house and garden essential. Capital ready.—Address, No. 3732, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AFTER MARCH, COUNTRY PRACTICE, £1,000 to £1,500, including panel, south or Leicester.—Address, No. 3602, B.M.A. House, Tavistock Square, W.C.1.

WANTED BY PRIVATE ADVERTISER in three to six months' time, good mixed Panel PRACTICE on South Coast. Preferably Brighton and Sussex Coast. Replies strictly confidential.—Address, No. 3702, B.M.A. House, Tavistock Square, W.C.1.

WANTED SOON, GENERAL PRACTICE, £1,000 to £2,000, London or large town. Private advertiser—ready cash. Reply with full particulars to—Address, No. 3730, B.M.A. House, Tavistock Square, W.C.1.

WANTED SEPTEMBER, IN ST. LEONARDS or Bexhill, PRACTICE, about £1,500 p.a. Good house to rent. All replies in strict confidence.—Address, No. 3736, B.M.A. House, Tavistock Square, W.C.1.

WANTED, WITHIN 50 MILES OF LONDON, PRACTICE with annual income about £1,500, including panel producing not less than £600. Must be good house.—Write, Box 21, PAYNE-JENNINGS PUBLICITY, LTD., 5/6, Clerk Street, W.1.

WANTED URGENTLY BY PRIVATE advertiser NUCLEUS, or small or medium-sized PRACTICE, with house, London area. Very confidence.—Address, No. 3728, B.M.A. House, Tavistock Square, W.C.1.

A GENERAL PRACTICE IN LONDON IS required private advertiser. Income £1,500 (£2,000) with a fairly substantial Panel. Replies in strict confidence to—Address, No. 3534, B.M.A. House, Tavistock Square, W.C.1.

BRISTOL—SMALL PRACTICE CAPABLE OF great increase, good locality. Receipts £390 p.a. Panel 200. Good house, garage and garden for sale. Include Premium £1,500 or best offer.—Address, No. 3710, B.M.A. House, Tavistock Square, W.C.1.

DOCTOR, RETIRING, HAS SOUND PRACTICE WITH PROPERTY for sale. Modern house (three bedrooms) surgery, good garden, tennis court, etc. Within one hour London.—Address, No. 3706, B.M.A. House, Tavistock Square, W.C.1.

DEATH VACANCY—LONDON, W.1 AN into-retiring PRACTICE worth about £1,500 p.a. with complete modern equipment, for immediate disposal at best offer.—Address, No. 3795, B.M.A. House, Tavistock Square, W.C.1.

DORSET—SMALL FASHIONABLE SOUTH- coast PRACTICE. Average annual receipts £1,700. Panel 350. Rent £100 per year. 2 years' purchase.—Address, No. 3505, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, MIDDLE-CLASS PRACTICE. Lancs. Panel 700. Audit gross £1,202. Loan offered. Going abroad. Premium £1,350, or near Good house, let or sell.—Address, No. 3727, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE—OLD-ESTABLISHED PRACTICE in large London suburb within easy reach of coast and delightful country. Gross income for the past twelve months over £2,400 (certified). Panel 2,400 and increasing. Valuable insurance connections. Good house, rent or sell. Low expenses. Good introduction given. Vendor taking up appointment. Premium 4 years' purchase.—Address, No. 3750, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE BY M.D., M.R.C.P. (RETIRED) old-established good-class PRACTICE in Spa city, averaging recently £1,200 p.a. but excellent scope for increase in suitable (Christian) man immediate disposal desired. Excellent house in best position, 4 public, 6 bedrooms. House £1,500. Practice 2 years' purchase.—Address, No. 3719, B.M.A. House, Tavistock Square, London, W.C.1.

FOR SALE.—PRACTICE, ESTABLISHED 35 years scope for development; together with large freehold house, surgery and large garden with tennis court. Selling owing to illness. Quick sale wanted. £1,600 inclusive.—Address, "UPLANDS," Ilkerton.

KENT, 16 MILES LONDON.—WOMAN doctor's COUNTRY PRACTICE in growing neighbourhood. Panel 200. Gross £500. Premium £600. House available.—Address, No. 3744, B.M.A. House, Tavistock Square, W.C.1.

KENT.—WELL-ESTABLISHED MIXED PRACTICE; panel 990; night-work mixed; receipts £1,300, increasing; excellent freehold house, with good professional quarters. Low expenses. Premium including house, £5,500.—Address, No. 3746, B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.W.—OLD-ESTABLISHED PRACTICE. Freehold house in pleasant district. Garage. Receipts over £1,200 p.a. for past three years. No midwife. Good scope. Panel 1,300. £3,000.—Address, No. 3796, B.M.A. House, Tavistock Square, W.C.1.

LONDON.—CASH PRACTICE, PANEL ABOUT 4,400, receipts about £2,500 p.a. House, rent.—THE WESTERN MEDICAL AGENCY, 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532), and 22, Clare Street, Bristol, 1 (Bristol 22689).

MANCHESTER, PLEASANT SUBURB— Sound middle-class PRACTICE. Cash receipts over £1,000 a year. Visits 3s. 6d. to 7s. 6d. Confinements 3 to 7 guineas. Panel over 900. Exceptionally good scope for increase. Price, 2 years' purchase. Delightful modern house, 2 reception rooms, 4 bedrooms, surgery and waiting room. Price £1,100.—Address, No. 3609, B.M.A. House, Tavistock Square, W.C.1.

OPPORTUNITY OCCURS FOR YOUNG Doctor to purchase freehold HOUSE with 2 acres and GOOD NUCLEUS OF PRACTICE in Oxfordshire. Pleasant country district adjoining new aerodrome. Pleasant country district adjoining new aerodrome. Semi-detached £1,300. Nearest Ditching, 10 miles.—Apply, W. G. A. RUSSELL and Co., 33, Newhall Street, Birmingham, 3.

NURSING HOME FOR SALE. The old-established NURSING HOME carried on by the Misses Moxey and McAlpine at No. 22, MORAY PLACE, EDINBURGH, IS FOR SALE by private bargain. The home is centrally situated and has accommodation for fifteen patients, in addition to the staff, and is fully equipped with up-to-date appliances, including modern, well-lighted operating theatre, automatic electric bed lift to all floors, and sterilizing equipment. The kitchen premises have recently been entirely modernized, and equipped with up-to-date cooking and heating arrangements. The property in which the home is carried on will preferably be included in the sale.

Further particulars and permits to view can be obtained from Messrs. SKENE, EDWARDS and GARRISON, W. S., 5, Albany Place, Edinburgh.

MEDICAL PRACTICE WANTED £1,000 OR more gross income. Within 50 miles of London.—Address, No. 3506, B.M.A. House, Tavistock Square, W.C.1.

MIDLANDS—UNOPPOSED COUNTRY PRACTICE. Average receipts steady £500. Premium, 2 years' purchase. Exceptionally attractive house, large garden, tennis court, orchard, etc., for sale. Beautiful country, all sports. Vendor entering partnership.—Address, No. 3718, B.M.A. House, Tavistock Square, W.C.1.

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A vacancy has been declared in the office of
PHYSICIAN to the Hospital.

Candidates must be Fellows of the Royal College
of Physicians of London, and they are required
to submit a certificate of age, thirty copies of
their applications, with thirty copies of each of
three testimonials, to the undersigned not later
than Monday, February 21st, 1938.

Candidates will be required to attend the House
Committee on Tuesday, February 22nd, 1938, at
4 p.m. The Senior Physician in charge of out-
patients is a candidate for the office.

By order of the House Committee,
CHARLES M. POWER,
Secretary.

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Applications are invited for the appointment of
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Forms of application may be obtained from the
Secretary.

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Vincent Square, Westminster.

Applications are invited for the post of HOUSE
PHYSICIAN (either sex). Salary at the rate of
£100 per annum, with board, residence and
laundry. The appointment is for six months from
April 1st.

Applications, with copies of testimonials, to be
forwarded to the undersigned not later than
February 28th.

ALFRED J. SMALL, Secretary.

**ROYAL NATIONAL ORTHOPAEDIC
HOSPITAL.**

Applications are invited for the posts of HOUSE
SURGEONS (two, male, unmarried), for a period
of six months commencing April 1st, renewable for
a further period of six months, on the recom-
mendation of the Medical Board. £150 per annum,
with full board, quarters and laundry. Applicants
should be registered medical practitioners.

Applications, with copies of testimonials, should
be sent to the House Governor, 234, Great Portland
Street, W.1, not later than March 11th.

**THE PRINCE OF WALES' GENERAL
HOSPITAL, London, N.15.**

Applications are invited for the post of
HONORARY MEDICAL REGISTRAR.
Honorary £100 per annum. Candidates must
be Graduates in Medicine of a British University,
or be Members of a Royal College of Physicians.

Applications, together with copies of three testi-
monials, to be sent to the undersigned on or before
March 1st, 1938.

J. C. BURDETT,
Director and House Governor.

COVENTRY & WARWICKSHIRE HOSPITAL.

Applications invited for post of HOUSE
SURGEON to Ear, Nose and Throat Department.
Salary at the rate of £150 per annum, with full
board, quarters and laundry.

Applications, with full particulars, should be
addressed to the House Governor, Coventry and
Warwickshire Hospital.

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Practices and Partnerships for Disposal (continued).

24 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,800 p.a. Panel 4,600. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.

25 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.

26 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.

27 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of London. Receipts last year just over £700. Panel 60/70. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.

28 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, panel or midwifery. Premises to rent at £135 p.a. Premium £500.

29 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third share at two years' purchase.

30 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

31 DEATH VACANCY.—CUMBERLAND.—Old-established good-class non-dispensing PRACTICE, over £700 p.a., in rapidly growing town. No panel. Large house for sale or rent. Good scope.

32 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30/35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,000 p.a. at first at two years' purchase.

33 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,900. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

34 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

35 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from

Marble Arch. Select panel 303. House (5 bedrooms), with large garden and garage. Price freehold, £2,750, or rent £150 p.a. Scope. Premium £2,000.

36 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year, £2,277. Expenses light. Premium £2,460 cash or £2,400 terms (English currency). Purchaser should be at least 30 years of age with experience.

37 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to 1/1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

38 S.W. OF ENGLAND.—Country PRACTICE, averaging £2,500 p.a., easy distance of coast (appointments and panel return about £650 p.a.). Large house (3 reception, 6 bedrooms, etc.), in grounds of four acres, including orchard. Price £3,200. Hunting, golf, etc. Premium one and three-quarter years' purchase.

39 EASTERN COUNTIES.—Country PRACTICE, averaging £1,750 p.a., within easy distance of county town. Panel 1,070. Good house (in 2½ acres) with 7 bedrooms, etc., garage, company's water and main drainage. Price £2,000 freehold. Premium two years' purchase.

40 S. COAST.—PARTNERSHIP in mixed Practice, averaging £2,800 p.a., in seaside resort. Panel about 2,000. Semi-detached house (5 bedrooms, etc.), with good garden, for sale or rent. Excellent hospital. Scope for major surgery. Premium one half-share two years' purchase.

41 W. OF ENGLAND Inland Watering Place.—Old-established good-class easily worked PRACTICE. Receipts past year, £722. No panel. Practically non-dispensing. House with 6 bedrooms, etc., large garage and small garden, to rent on lease. Premium £1,000.

42 LONDON, E.1.—Old-established PRACTICE of about £800 p.a., including appointments about £150 p.a. and panel 1,300. Large house (6 bedrooms, etc.), to rent or purchase. Very good scope for increase. Premium £1,600, to include contents of surgery and waiting room, etc.

43 NORTHERN IRELAND.—Middle and working-class PRACTICE in suburb of important seaport. Receipts past year, £963. Panel nearly 1,200. Well-situated house (5 bedrooms), garage, etc., to rent. Practice capable of expansion. Premium £1,400.

44 HOME COUNTY.—PARTNERSHIP in country town Practice, averaging over £4,000 p.a. (increasing), within 25 miles of London. Good appointments and panel about 2,000. Suitable house obtainable. Incoming partner should not be over 30 and must have had one year's P.G. work. One-fourth share at first at two years' purchase.

45 MIDLANDS.—Unopposed country PRACTICE in very pleasant hunting district. Cash receipts last year, £1,097, including good appointments and panel about 500. Well-built house (5 bedrooms, etc.), with good garden and garage. Main electric light and water supply. Price £1,100 freehold. Golf, etc. Premium £1,600.

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D. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,300.

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ASSISTANTS ARE URGENTLY REQUIRED.

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1 EAST ANGLIA.—Upper and middle-class PRACTICE in progressive town. Receipts last three years average nearly £1,100 p.a. No appointments, panel or midwifery. Visits 5/- to £1 11s. 6d. Semi-detached house (7 bedrooms, etc.), with good garden, for sale. Scope. Premium one and a-half years' purchase.

2 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant outlying residential district. Visits 3/6 to £1 1s. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.

3 S. OF ENGLAND.—Experienced SURGEON required for purely EAR, NOSE and THROAT WORK in good-class Practice. Must hold Fellowship and have good experience. Further details on application.

4 DEATH VACANCY.—Residential town S. of England.—Good-class PRACTICE with some special work (Cardiology). Receipts January/October, 1937, about £1,700. House could be purchased.

5 N. MIDLANDS.—PARTNERSHIP in steadily increasing middle-class Practice, averaging £5,500 p.a., in county town. Panel 4,900. House with 5 bedrooms, garage and good garden, to rent. One-fourth share now at two years' purchase.

6 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £1,000 p.a., in rapidly developing district. Panel about 517. Visits generally 5/-, 7/6. Modern two-storied house with ample accommodation and separate entrance to professional parts, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.

7 LONDON, S.W.—Good-class PRACTICE, about £1,900 p.a., in residential area. Good semi-detached house (6 bedrooms), garage, to rent on lease. Premium £3,800.

8 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £2,000, in very pleasant agricultural district. Moderate panel. Pleasantly situated house with ample accommodation. Rent £100 p.a. on lease. Extra grass land available if needed. Good scope for increase by young energetic man. Premium one-half share two years' purchase.

9 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10s., medicine extra. House (5 bedrooms), electric light and gas, garage and garden. Welsh not necessary, but an asset. Premium one-half share, to include remainder of lease, £2,500.

10 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-room), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.

11 S. MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,800. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

12 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.

13 S. COAST, Favourite Watering Place.—PRACTICE doing about £1,500 p.a. Panel about 700. Detached house (6 bed and dressing-rooms), garage and nice garden. Rent £150 p.a. Premium two years' purchase.

14 LONDON, S.E.—PARTNERSHIP in rapidly growing district, 20 minutes from Charing Cross. Receipts average £4,275 p.a. Panel about 3,000. Specially designed modern labour-saving house (4 bedrooms), garage and good garden. Rent £110 p.a. Hospital facilities. Premium one-fourth share £2,250, to include drugs, etc. Possible further share in about 12 months.

15 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 0d. Good house, containing 14 rooms with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.

16 LONDON, S.E.6.—PRACTICE doing at rate of about £770 p.a. in thickly populated district. Panel 670 and P.M.S. Rent of small house (3 bedrooms), £80 p.a. Branch surgery, £40 p.a. Premium £1,150, to include drugs, etc.

17 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £5,000 p.a., in county town. Panel over 5,000. Main surgery premises (4 bedrooms, etc.), garage and garden, to rent. Premium one-fifth share two years' purchase. Further share in seven years. Short Assistantship.

18 HOME COUNTIES.—PARTNERSHIP in sound old-established Practice, averaging about £4,800, in beautifully situated country town. Panel about 2,000. Visits 3/6 to £1 1s. Incoming partner should preferably be a graduate of Oxford or Cambridge, must have held hospital appointments and be experienced in surgery. Excellent hospital. Share worth about £1,000 (or more) at two years' purchase with good prospects of increase.

19 LONDON, S.E.—Old-established PRACTICE in growing suburban district. Receipts average over £1,500 p.a. (appointments worth about £100 and panel over 1,050). Visits 3/6 to 6/-. Semi-detached corner house (3 bedrooms), with separate surgery accommodation, garage and small garden, for sale. Premium two years' purchase.

20 HOME COUNTIES.—PARTNERSHIP in good-class Practice, about £3,000 p.a., in favourite market town. Small select panel. Visits 5/- to £1 1s. Charming modern labour-saving residence (5 bedrooms, etc.), garage and beautifully stocked garden. Price £3,000. Very good society. Scope. Premium one-half share two years' purchase.

21 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-, majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.

22 MIDDLESEX.—Medical Woman's PRACTICE in rapidly growing residential district within 15 miles of London. Cash receipts, 1937, £528. Panel 69. Excellently situated modern house (5 bedrooms), with large garage and garden. Rent £125 p.a., or might be sold. Ample scope. District rapidly increasing. Premium £750.

23 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.

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The maximum commission payable on the sale of any Practice or Partnership in Great Britain placed exclusively in the hands of this Agency is £50 (fifty pounds), which sum covers goodwill, drugs, surgery fittings, fixtures and furniture, instruments and book debts, but not house property. Schedule of Terms will be forwarded on application.

Accountancy and legal services furnished by the Agency, where desired, at moderate inclusive charges. No charge is made to Principals for the introduction of Locum Tenens or Assistants.

1. **DEATH VACANCY.—BORDERS OF CAMBS. AND NORFOLK.**—Old established country PRACTICE producing between £1,250 and £1,300 p.a. including panel of about 600. Good house in nearly an acre of garden (3 reception, 6 bedrooms, professional accommodation, etc., electric light, garage). Rent on lease £70 p.a. Premium 1½ years' purchase.
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8. **LADY DOCTOR'S PRACTICE.—OUTLYING EASTERN SUBURB.**—Increasing PRACTICE producing at present £1,070 p.a. including panel of 700. Suitable house. Premium 2 years' purchase.
9. **LONDON.—WESTERN DISTRICT.**—Old-established PRACTICE held by vendor 12 years. Gross cash receipts last year £2,338, this year at rate of about £2,700 p.a. Panel of 1,450 to 1,500. House in good position on rental. Premium 2 years' purchase.
10. **SOUTH DEVON.—COAST TOWN.**—Well-established PRACTICE producing last year over £1,000 (this year at rate of about £1,200 p.a.). Freehold house with 2 reception, 6 bedrooms, etc., for sale or might rent. Premium 1½ years' purchase.
11. **SOUTH-WEST COUNTY.—A ONE-SIXTH SHARE** is offered in old-established Practice producing nearly £7,000 p.a. Incoming partner must have made a special study of medicine and preferably hold the M.R.C.P. or have held a medical registration. Short preliminary assistantship. Suitable house available. Premium 2 years' purchase.
12. **SOUTH WELSH COAST.—PARTNERSHIP.—A ONE-HALF SHARE** in old-established Practice producing over £3,000 p.a. Large panel. Very good house. Freehold for sale. Premium 2 years' purchase.
13. **EASTERN COUNTIES.—A QUARTER SHARE** (with increase later) is offered in old-established Practice producing about £1,200 p.a. With substantial panel and good scope for increase. Very convenient house on rental at £50 p.a. Premium 2 years' purchase.
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16. **LONDON, SOUTH-WEST.—Middle and working-class PRACTICE.** Receipts last year £705 p.a. Panel of 940. Suitable house, rent £75 p.a. Premium 2 years' purchase or near offer.
17. **PARTNERSHIP.—A TWO-FIFTHS SHARE**, with increase to one-half later, is offered in old-established good country Practice within about 70 miles of London. Gross cash receipts for past 12 months approximately £5,500 p.a., including large panel. Moderate expenses. Very nice house with ample accommodation and all modern conveniences. Freehold for sale or might be rented. Premium 2 years' purchase.
18. **NORTH WALES.**—(Wealth not essential).—Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £500 p.a. from outpatients and clubs. Very convenient house in excellent etc. Price of freehold, £1,500. Premium will be given.
19. **WILTSHIRE.—A ONE-THIRD SHARE** in PRACTICE producing about £1,500 p.a., appointments worth about £170 p.a. Good room for Practice and house £3,500 (or house for sale) offer considerable scope. Panel of about 1,000.
20. **WILTSHIRE.—A ONE-THIRD SHARE** in PRACTICE producing about £1,500 p.a., appointments worth about £170 p.a. Good room for Practice and house £3,500 (or house for sale) offer considerable scope. Panel of about 1,000.
21. **WILTSHIRE.—A ONE-THIRD SHARE** in PRACTICE producing about £1,500 p.a., appointments worth about £170 p.a. Good room for Practice and house £3,500 (or house for sale) offer considerable scope. Panel of about 1,000.
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28. **SOUTH COAST.—FAVOURITE TOWN.**—Old-established PRACTICE producing over £1,700 p.a. Panel of about 1,500. Appointments about £300 p.a. Scope for surgery. Prospect of hospital appointment. Low expenses. Suitable house with garden and garage on lease. Premium 2 years' purchase, to include book debts and drugs.
29. **DORSET COAST.—PARTNERSHIP.—A ONE-THIRD SHARE** with increase later in a well-established Practice averaging about £3,000 p.a. Panel of over 2,700 and P.M.S. about 1,000. Various appointments producing £250-£300 p.a. Low expenses. Suitable house with 5 bedrooms, etc., can be purchased or rented. Premium 2 years' purchase.
30. **NORTH LONDON.**—Well-established middle and working-class PRACTICE producing about £600 p.a., but offering considerable scope, especially for Panel, which has only recently been started. Suitable accommodation available on rental. Reasonable offer for quick sale, vendor taking up appointment.
31. **NORTH LONDON SUBURB.**—Recently established PRACTICE in fast developing area. Receipts last year about £720, including Panel of about 200 patients. Architect-built modern house with ample accommodation. Freehold for sale. Premium £550 or near offer.
32. **GLoucestershire.—A ONE-THIRD SHARE** in beautiful country district averaging for past 4 years about £1,300 p.a. Panel over 1,100. Appointments about £80 p.a. Good house in own grounds. Freehold for sale. Premium 2 years' purchase.
33. **LONDON, EAST.**—Exceptionally sound old-established PRACTICE in populous area averaging for past 3 years over £2,240 p.a. Panel of approximately 3,500. Suitable house with excellent professional accommodation can be rented at £120 p.a.
34. **LANCS.—SEASIDE RESIDENTIAL TOWN.**—Easily worked, mostly non-dispensing PRACTICE producing about £1,000 p.a., including Panel of about 325. Low expenses. Suitable house available with consulting and waiting rooms, 2 reception, 3 bedrooms, maid's room, etc. Large garden. Garage. For sale or can be rented. Premium 1½ years' purchase.
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MANCHESTER.—Well-established mixed-class PRACTICE. Cash receipts £1,600 p.a. Panel 1,600. Good surgery premises to rent at £52 p.a. Purchaser can choose own residence. Prem.—1½ years' purchase. Vendor retiring.—No. 1079.

SOUTH YORKSHIRE.—Mixed Panel and Private PRACTICE; in present hands 48 years. Cash receipts last year £640. Panel 437. Scope for increase. Good house, 2 reception, 4 bedrooms, garage and ½-acre garden. Rent £60 p.a. Premium—£800.—No. 1080.

EAST COAST.—PARTNERSHIP (after preliminary Assistantship) in middle- and better working-class. Practice in large seaport town. Cash receipts £3,800 p.a. Panel 2,600. Choice of suitable houses. Premium—1¼ or 1⅓ share—2 years' purchase. No. 1076.

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SOUTH COAST.—Old-established middle-class PRACTICE in first-rate seaside resort. Average cash receipts £1,200 p.a. Panel 640. Good house, 2 reception, 4 bedrooms, maid's room, 3 Professional rooms, garage and garden. To rent. Premium—£2,500.—No. 1058.

LANCS TOWN.—Old-established mixed Panel and Private PRACTICE, near Manchester. Average cash receipts £2,100 p.a. Panel 2,112. Scope. Good house, 3 reception, 4 bedrooms, garage and garden. Price £1,200, or would rent on lease. Premium—1½ years' purchase.—No. 1064.

YORKSHIRE (W.R.).—Very old-established Mixed Panel and Private PRACTICE. Cash receipts £1,200 p.a. Panel 900. Scope. Good detached house, 2 reception, 4 bedrooms, Professional rooms, garage and garden. Premium—1½ years' purchase.—No. 1060.

MIDLANDS.—Old-established mixed Panel and Private PRACTICE. Cash receipts approximately £2,055 p.a. Panel 2,000. Scope. Excellent house, with nice garden, garage, etc. Premium—Practice—2 years' purchase.—No. 983.

MIDLAND HEALTH RESORT.—(last two months) in very last year £3,774. Panel Protestant, and may choose own residence. Possibility of Hospital appointment. Prem.—½ share—2 years' purchase. Further share in three years.—No. 1069.

YORKSHIRE (N.R.).—Old-established and practically unopposed PRACTICE in delightful country district. Cash receipts last year £970. Panel 480 and appointments £50 p.a. Charming house, 3 reception, 5 bedrooms, 3 Professional rooms, garages and nice garden, electric light. Rent £65 p.a. Sport of all kinds. Premium—2 years' purchase, or near offer.—No. 1065.

NORTH WALES.—Good-class long-established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with two small gardens, to rent or purchase, freehold. Socially very pleasant. Premium—£1,800.—Vendor retiring.—No. 929.

LIVERPOOL.—Very old-established middle-class PRACTICE in residential district. Cash receipts £1,100 p.a. Panel 599. Good scope for energetic man. Excellent house, 3 reception, 5 bedrooms, etc. Price £700. Premium—£1,600. Vendor retiring.—No. 1046.

NEAR BUXTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £740 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 989.

SHEFFIELD.—MEDICAL WOMAN'S PRACTICE. Well-established, offering scope. Cash receipts £350 p.a. Panel 200. Commodious house. Rent £52 p.a. Premium—£400.—No. 1071.

DERBYSHIRE.—Increasing mixed Panel and Private PRACTICE in well-known Spa. Cash receipts last year £700. Panel 200. Much scope. Good ground floor flat. Rent £50 p.a. Premium, best offer.—No. 1057.

MANCHESTER.—Well-established middle-class PRACTICE in pleasant suburb. Cash receipts last year £1,225.—Panel 760. Scope. Nice detached house, 5 bedrooms, 3 reception rooms, garage and large garden. Premium—best offer.—No. 968.

YORKSHIRE (W.R.).—Old-established mixed PRACTICE, averaging £860 p.a. Panel 701. Scope for increase. Good house, with excellent garden, to rent at £30 p.a. Premium—£1,350 (to include drugs and fittings).—No. 1037.

MANCHESTER.—Old-established mixed-class PRACTICE. Cash receipts last year £1,222. Panel 800. Scope. Good house, 2 reception, 5 bedrooms. Premium—1½ years' purchase.—No. 1009.

LANCS TOWN.—Old-established mixed-class PRACTICE in large town. Cash receipts approximately £1,200 p.a. Panel 745. Scope. Good house, 2 reception, 5 bedrooms, 3 Professional rooms, garage and garden. Premium—£1,350.—No. 1010.

MANCHESTER.—MEDICAL WOMAN'S PRACTICE; in present hands 9 years. Cash receipts last year £1,021. Panel 370. Good detached house, 2 reception, 3 bedrooms, garage and garden. Price £1,050. Premium—1½ years' purchase.—No. 1072.

BEDFORDSHIRE.—Small Country PRACTICE, capable of great increase. Cash receipts £400/£500 p.a. Panel 120. Good house, with ample accommodation. Garage and garden. Rent £56 p.a., or would sell for £800. Premium—£300.—No. 1055.

MANCHESTER.—Very old-established middle-class PRACTICE in good suburb. Cash receipts over £1,200 p.a. Small panel of 470. Excellent detached house, 2 reception, 4 bedrooms and maid's rooms, 3 Professional rooms, garage and garden. Rent £80 p.a. Premium—1½ years' purchase.—No. 1049.

SHEFFIELD.—Well-established mixed Panel and Private PRACTICE. Average cash receipts about £1,100 p.a. Panel 1,323. Good house, 2 reception, 6 bedrooms and nice garden. To rent or purchase. Premium—best offer.—No. 1051.

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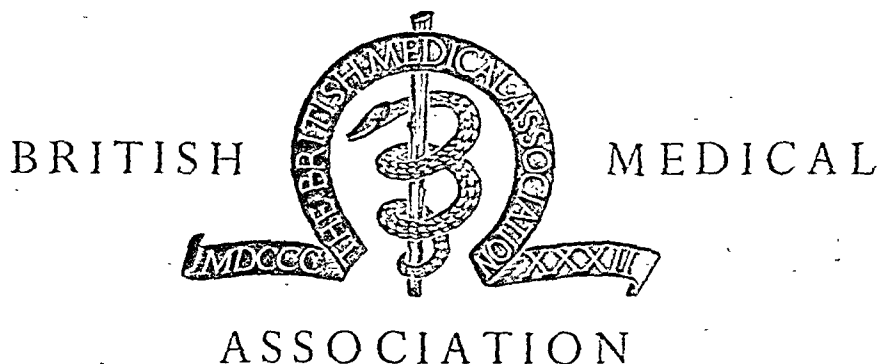
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SATURDAY FEBRUARY 26 1938

PRINCIPAL CONTENTS

Trauma of the Heart p. 433	Leading Articles p. 455
Liver Changes in Male Rats after Castration and Injection of Sex Hormones 438	Correspondence 480
Scapulo-Humeral Periarthritis 441	Surgery in General Practice:
A Study of Miners' Nystagmus 443	Innocent Tumours 461
Manipulative Treatment of Intestinal Spasm 445	Reports of Societies 470
Chronic Littritis 448	Epidemic Poliomyelitis:
Undulant Fever in Malta .. 454	Prof. Flexner's Lecture ... 468
	Reviews 451
	Table of Infectious Diseases .. 494
	Miners' Nystagmus and Workmen's Compensation .. 465

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BRITISH MEDICAL JOURNAL

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

Trauma of the Heart. HUGH BARBER, M.D., F.R.C.P.	433
Changes in the Liver of Male Rats After Castration and Injections of Sexual Hormones. KATHLEEN HALL, Ph.D., and VLADIMIR KORENCHESKY, M.D.	438
Scapulo-Humeral Periarthritis. A. H. DOUTHWAITE, M.D., F.R.C.P.	441
A Study of Miners' Nystagmus. RAYMOND S. BROCK, M.D.	443
Manipulative Treatment of Intestinal Spasm. J. H. CYRIAX, M.B.	445
Chronic Litteritis. R. C. WEBSTER, B.Sc., M.D.	448
Undulant Fever in Malta. J. E. H. GATT, M.D.	454

SURGICAL SERIES

Removal of Innocent Tumours. ERNEST FINCH, F.R.C.S.	461
---	-----

CLINICAL MEMORANDA

"Sympathetic Twins." CECIL W. KIDD, M.D.	449
After-effects of Modern Treatment of Carcinoma. PERCY FURNIVALL, F.R.C.S.	450

REVIEWS

Allergic Manifestations	451
Operative Dentistry	451
Chronaxia	451
Treatment of Pneumonia	452
Iron Metabolism	452
"Muir and Ritchie"	452
Notes on Books	453

GENERAL ARTICLES AND NEWS

Epidemic Poliomyelitis: Prof. S. Flexner's Lecture	468
Miners' Nystagmus and Workmen's Compensation	465
Nova et Vetera:	
James Yearsley and the Metropolitan Throat Hospital	464
Philip Syng Physic	465
THE NEW MATERNITY SERVICES	467
SOCIETY OF APOTHECARIES' DINNER	493
MEDICAL NOTES IN PARLIAMENT	492
PREPARATIONS AND APPLIANCES	453
UNIVERSITIES AND COLLEGES	491
MEDICAL NEWS	495

LEADING ARTICLES

Transport of Iron	455
Risks of Explosion in Anaesthesia	456

ANNOTATIONS

Trauma of the Heart	457
Mineral Content of the Brain	457
Industrial Eye-strain	458
Malaria in Malaya	458
Urinary Antisepsis	459
Whooping-Cough Prophylaxis	459
Factory Welfare	460
Epidemiology of Plague	460

SUPPLEMENT

PEP Report on Health Services

SALARIES OF DISPENSARY DOCTORS IN IRELAND
RULES OF CONSULTATION
INSURANCE MEDICAL SERVICE
EMERGENCY ROAD TREATMENT

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE:	
Decline of Population	470
Effects of Strain in Children	472
MEDICAL SOCIETY OF LONDON:	
Deep X-Ray Therapy	473
LIVERPOOL MEDICAL INSTITUTION:	
Diverticulitis of Caecum	475
MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY: Adler's Contribution to General Medicine	475
INDUSTRIAL MEDICAL OFFICERS:	
Health of the Coal Miner	475
PATHOLOGICAL SOCIETY OF MANCHESTER: Town-Dweller's Lung	476

LOCAL NEWS

SCOTLAND	476
IRELAND	477
ENGLAND AND WALES	477
INDIA	479

OBITUARY

Herbert Lund, M.B., F.R.C.S.	490
J. Courtenay MacWatters, M.R.C.S.	490
E. Charles Arnold, F.R.C.S.	490
Frank Patterson, F.A.C.S.	490
Henry Angus, M.D.	490
R. Marshal Going, F.R.C.S.	490

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS	494
EPIDEMIOLOGICAL NOTES	495

CORRESPONDENCE

Co-operation. HUGH PAUL, M.D.	480
An English Pneumonia Service. ARTHUR T. BLEASE, M.B.	481
Fracture of Neck of Femur. R. WATSON-JONES, F.R.C.S.; WILLIAM GISSANE, F.R.C.S.	481
Adult Serum in Measles. A. GEOFFREY SHERA, M.D.	482
Antityphoid Inoculation in Fiji. PHILIP HARPER, M.D.	482
Br. abortus Infection Treated by Sulphanilamide. NEWTON MATTHEWS, M.B.	483
Erysipelas and Cellulitis. DENNIS EMBLETON, M.B.	483
Treatment of Boils and Carbuncles. LAWRENCE WEIR BAIN, M.B.	484
Cauterization of the Cervix. AGNES SAVILL, M.D.	484
Temporary Sterilization by X Rays. WALTER M. LEVITT, M.D.	484
Contraceptives and Fertility. E. FISHER, M.D.; JOAN MALLESON, M.B.	484
Time for Midwifery. HORACE ROSE, M.R.C.S.; JOHN ELAM, M.R.C.S.	485
Asthma and Sensitivity to Aspirin. ALEXANDER FRANCIS, M.B.	485
Infantile Pyloric Stenosis. DAVID LEVI, F.R.C.S.	486
Trauma and Progressive Muscular Atrophy. FRANK BODMAN, M.D.	486
Correct Footwear. TOM HARE, M.D.	486
Why "Post-anaesthetic" Complications? J. G. BENNETT, M.D.	487
Blood Transfusion. W. R. THROWER, M.D.; N. L. FREUND, M.D.	487
Hysterical Dermatitis. O. LLOYD, M.B.	487
Referred Pains Arising from Muscle. STUART GOLDHURST, M.R.C.S.	488
Recovery in the Spinal Cord. F. A. PICKWORTH, M.B.	488
Dangers of Immune Globulin. GARETH A. EASON, M.B.	488
Coproliths and Appendicitis. MALCOLM BAILLIE, F.R.C.S.	488
Treatment of Bacillary Dysentery. FRANK MCCAY, M.D.	488
Appendicitis. H. STIVEN, M.D.	489
The Radiologist's Range of Service. JOHN HOSFORD, F.R.C.S.	489
The Final M.B.Lond. G. W. FLEMING, L.R.C.S.; B. S. KENT, M.B.	489

THE SERVICES

Army Medical Services	491
Deaths in the Services	491

LETTERS AND ANSWERS

Sulphanilamide and Sulphaemoglobinemia	496
The "Emergency Bag"	496
Primary Vaccination at Age 12	497
Income Tax	497

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(British Medical Journal, 16 Oct., 1937, p. 753)

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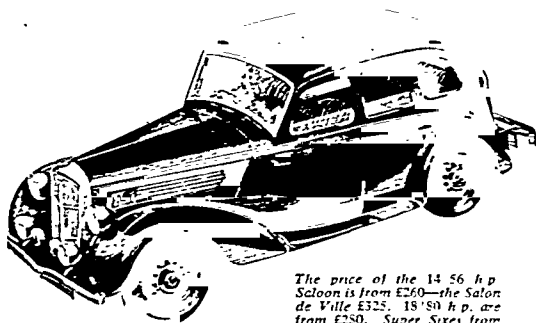
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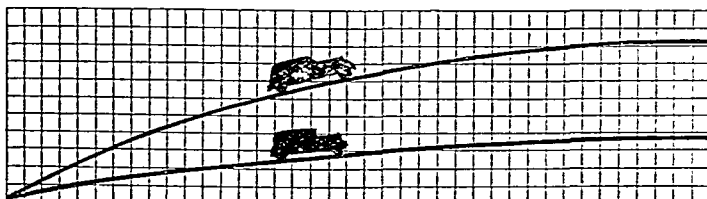
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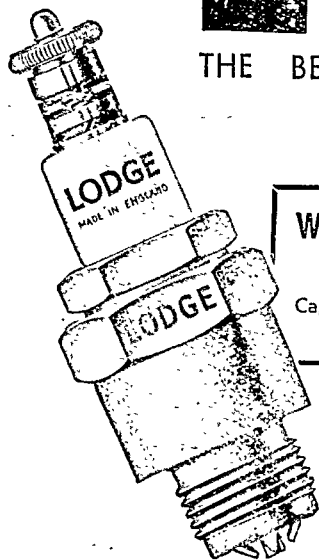
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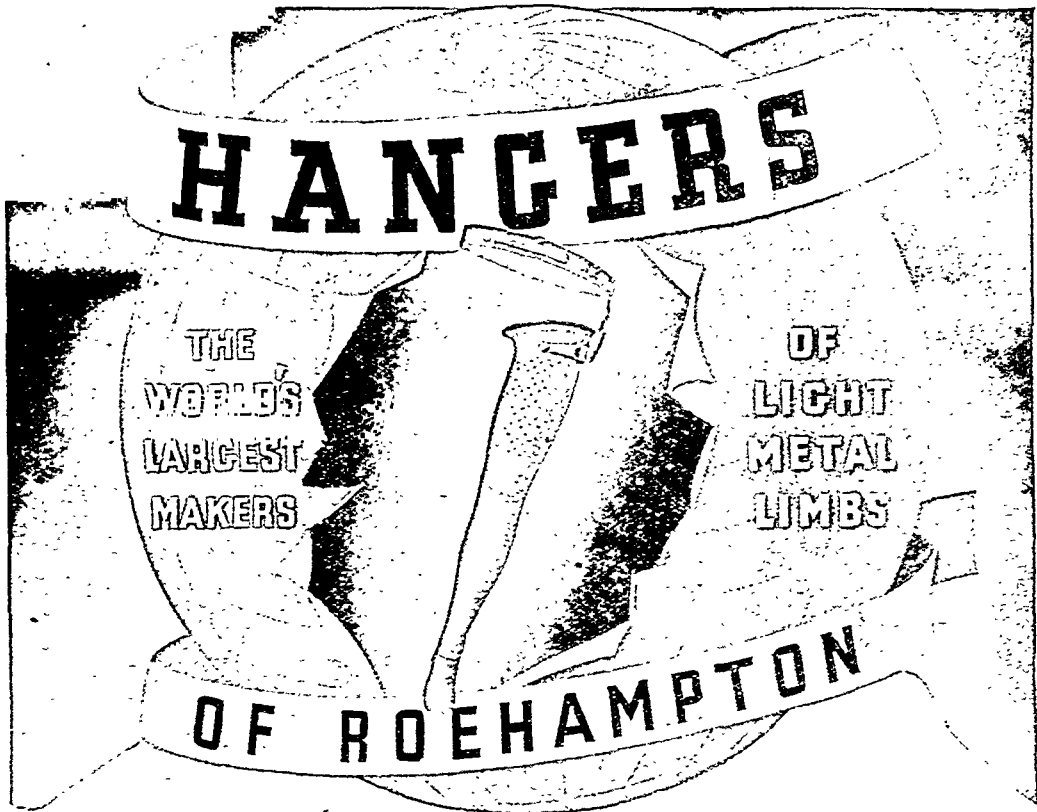
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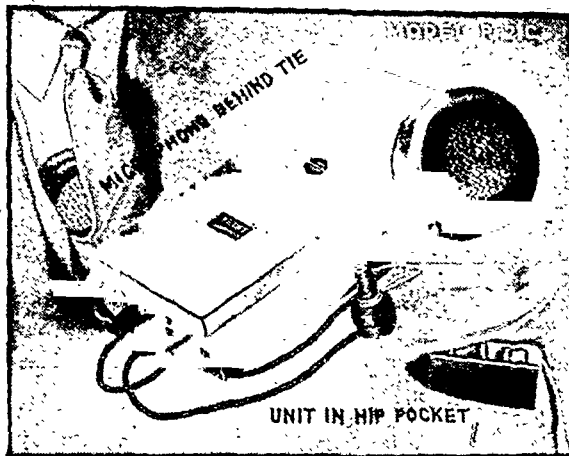
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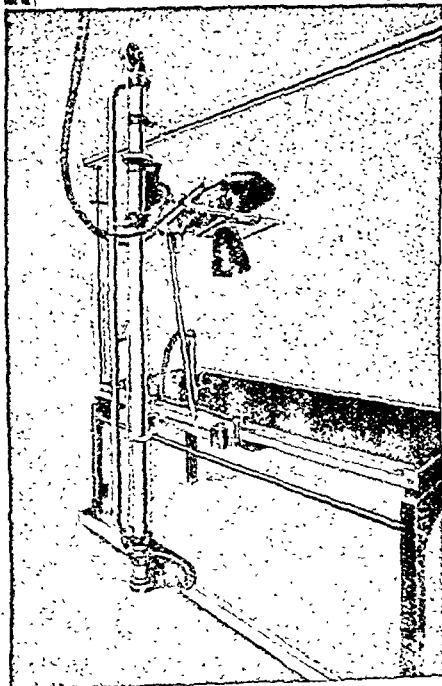
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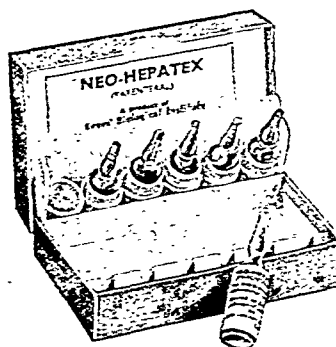
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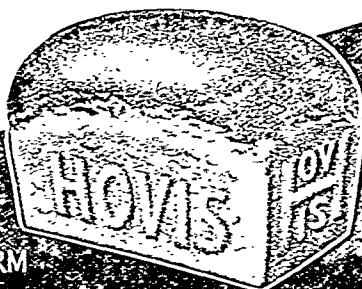


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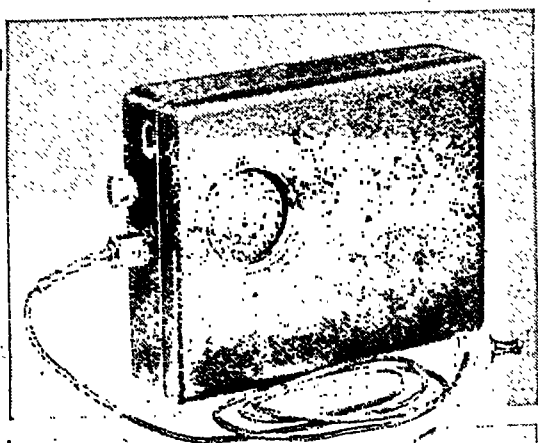
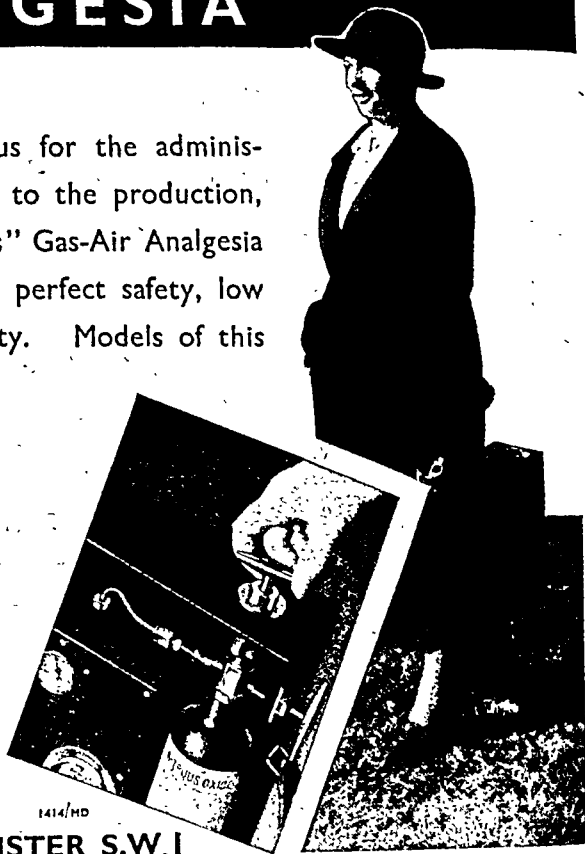


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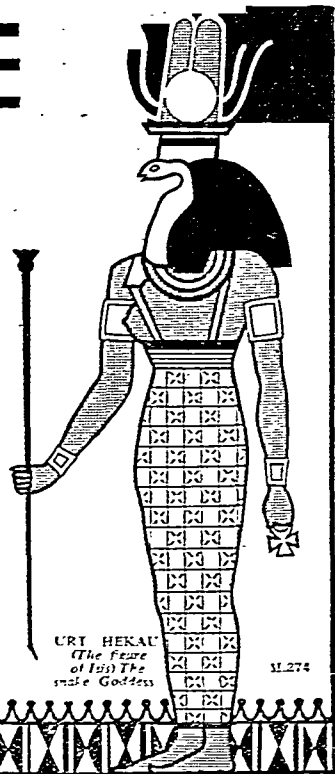
THE use of "Ovaltine" before a major operation is of great service in helping to build up the system against the strain involved by operative interference. In abdominal cases especially, where a light and unirritating diet is necessary, the use of "Ovaltine" alone for a few days before the operation will be found sufficient to maintain the patient's nutrition at a sufficiently high level.

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Tincture of marrubium	-	-	-	10.0	"
Glycerine extract of thyroid (1 equals 1 of fresh gland)	-	-	-	0.10	"
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Excipient q.s.	-	-	-	ad 1,000	c.c.

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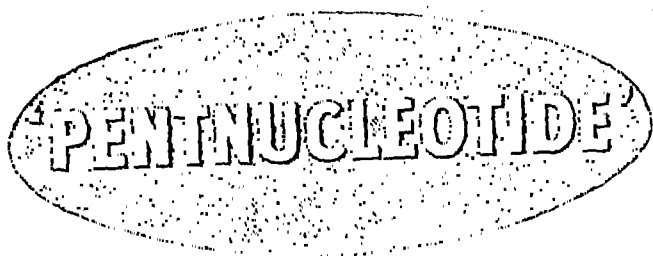
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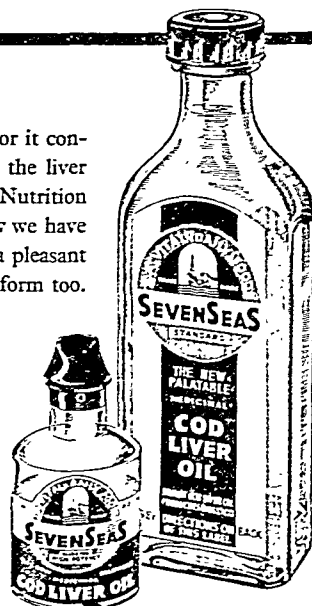
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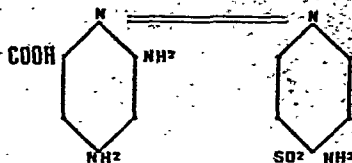
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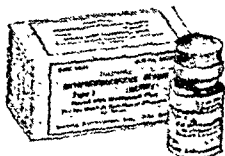
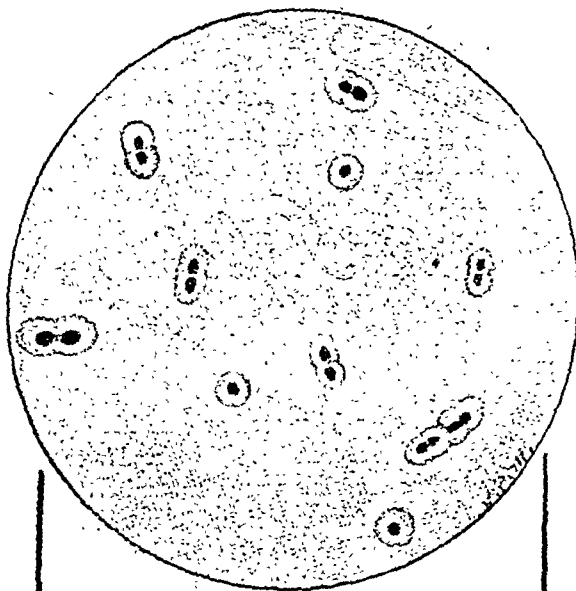
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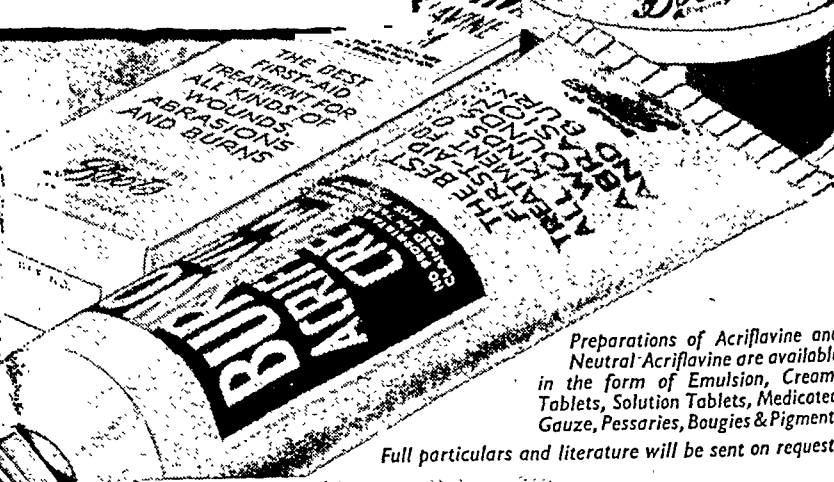
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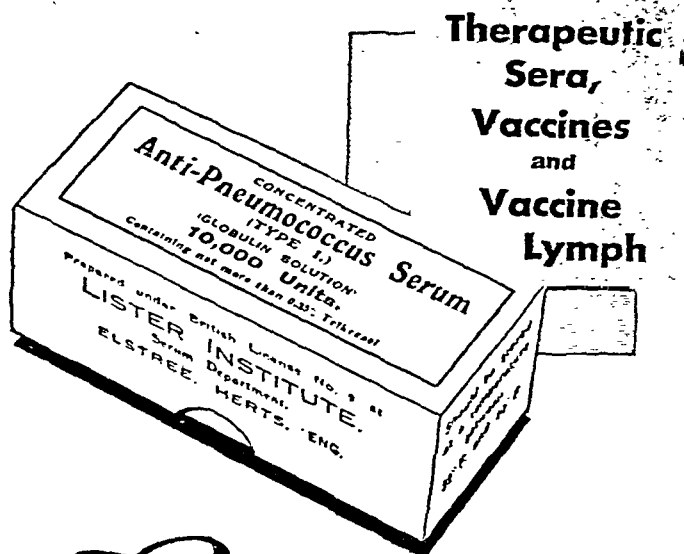
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TRAUMA OF THE HEART*

BY

HUGH BARBER, M.D., F.R.C.P.

Physician to the Derbyshire Royal Infirmary and to the Derby City Hospital

Trauma of the heart may result (1) from wounds and direct violence and (2) from strain of effort. Wounds of the heart are not common in this country, and will be excluded from this discussion. Direct violence to the chest wall may rupture the heart muscle, causing death, or may cause death without obvious heart injury; or it may give rise to the following clinical conditions: (1) pericarditis; (2) angina of effort; (3) a disorder of rhythm; (4) lesion of a valve; (5) contusion of the heart muscle. Strain may result in: (a) a disorder of rhythm; (b) lesion of a valve; (c) primary cardiac overstrain.

Spontaneous rupture of the heart muscle is, of course, the result of coronary disease. Goodall and Weir (1927) record eighteen cases, but in only four was there evidence of emotion or strain. Such an event can hardly be included in trauma of the heart.

Genuine cases of heart disease the result of injury or sudden strain are not very common. There is nothing distinctive about the physical signs. For a diagnosis we depend upon an accurate history and, if obtainable, previous personal medical knowledge of the patient. Many doctors can quote one or two cases in which they were convinced that trauma produced disease of the heart, or that it so aggravated the condition of a heart already diseased that the whole life-history was changed. A traumatic heart lesion shown at a clinical meeting will provoke criticism, because the physical signs will be similar to those met with in disease due to natural causes, and it must be demonstrated that the condition before, at the time of, and immediately after the trauma has been correctly assessed. Nevertheless, I believe that at the present time more cases of heart disability the result of trauma are overlooked than are diagnosed by mistake.

During the last thirty years I have made brief notes of twenty cases in which trauma of the heart must be considered seriously. Twelve have been the result of direct violence and eight the result of strain, although in three of them both forms of trauma may have been acting together. One man with a traumatic lesion of the mitral valve was under observation for seventeen years until he died, when the trauma was confirmed at necropsy. In the twelve cases of direct violence it is safe to presume that the heart was normal before the injury. In three of the eight cases due to strain it is presumed that the heart was already diseased, but the strain altered the whole life-history. A reasonable definition of a normal heart would be: one that is efficient for the age and usual activities of an individual, and which would show no

abnormality on examination with all the methods at our disposal.

Recorded cases in medical literature are difficult to collect, although there are examples typical of many well-recognized possibilities. It is reasonable that standard medical textbooks should be very guarded in relation to injuries of the heart. These play a small part in the natural history of disease. Books written as a guide in compensation cases are helpful in classification and make valuable reading, but they aim at a finality of statement that is not always in keeping with such an individual problem as injury. Allbutt (1870) wrote chiefly from the point of view of the part played by overstrain in artisans in producing degeneration. He made a point that he gained wide experience in the industrial area of Leeds. In mentioning certain cases in which a sudden strain appears to have caused structural damage he suggests that these may be extreme instances of an agency always at work, in some degree, in those who do heavy manual labour. He concludes: "But when we come to refine upon labour and endeavour to separate it into two categories of sudden and continuous efforts we find very often that the distinction is almost impossible." There are, however, a number of cases where the distinction can be drawn between sudden and continuous effort; and a number of cases of trauma or alleged trauma of the heart in those not engaged in heavy work—that is to say, the result of an exceptional event in one unsuited to the effort. And disease of the heart may result from the direct violence of a blow on the chest wall.

The study of traumatic heart disease resolves itself into two problems: (1) whether the heart be diseased at all—which is perhaps the more difficult; and (2) whether a cardiac disability is due to trauma or to natural causes. For this latter consideration the physical signs are almost negligible. A detailed and accurate history, in the widest sense, is all-important. The patient must be studied as a witness, and also his relatives. Not less important is a reliable family doctor who knows his artisan patients personally and makes a note when first called in. It is my association with a number of these who attend clinical meetings regularly which encourages me in the attempt to assess some of the evidence about trauma of the heart.

Some Post-mortem Records of Heart Trauma

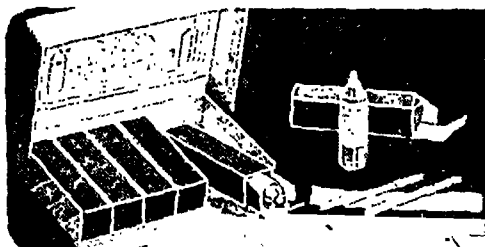
1. *Without External Bruising or Injury to the Chest Wall.*—Groom (1897) was called to a boy of 16 who had collapsed while walking, and found him dead. A month previously the shaft of a pony trap pressed him against some railings. He lay up for five days. There was no external bruising. Post

* From addresses to the Derbyshire Branch of the British Medical Association on October 27, 1937, and to the Derby Medical Society on November 9, 1937.

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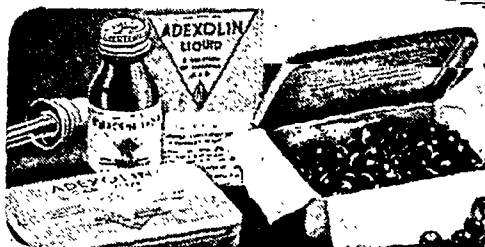


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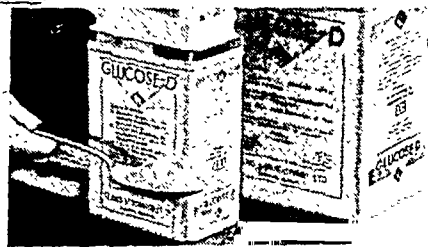


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condition. There was evidence of a hypertensive heart, but one cannot entirely ignore the injury as a possible exciting cause of the flutter.

C., aged 58, with good health, had not seen a doctor for ten years. A signboard fell on his head, and he was admitted to the Derbyshire Royal Infirmary with a fracture-dislocation of the cervical vertebrae. The pulse chart records the rate as between 80 and 90 until the tenth day, when it is 120, at which level it persisted. Seen in July, 1935, about three months after the accident, when he had returned home, he was getting about, but was short of breath on exertion. The pulse was regular, the rate being 120 to 130. The blood pressure was 160 mm. systolic and 100 mm. diastolic. The heart was enlarged. An electrocardiogram showed a tracing typical of auricular flutter, with a ventricular rate of 120 and an auricular rate of 240. One may conclude that there was a hypertensive heart before the accident, but that the auricular flutter developed about ten days later.

3. *Extrasystolic Arrhythmia*.—Kahn and Kahn (1928) record a case of extrasystolic arrhythmia the result of direct injury of the chest wall. But such irregularity is not a definite entity and is no disability in itself. One may only conclude that there is an irritable focus in the heart muscle. The case in question may have been a contusion of the heart, or it may be that the rhythm was disturbed from a neurosis. As an example of such arrhythmia following injury I have the following notes.

J. H., aged 46, was gored by a bull. He was unconscious for twenty-four hours and was detained in hospital three weeks. There was a large scalp wound. Three lower ribs were fractured on each side. It was noted that the pulse was irregular. Four months later the exercise tolerance was poor and the heart showed numerous ventricular extrasystoles. The irregularity persisted a year after the accident. Physical examination and an electrocardiogram showed no other changes. He was capable of taking a fair amount of exercise without discomfort, but had not regained his full capacity. This case is complicated by the fact that he had a primary syphilitic lesion during the war and the Wassermann reaction is still positive.

A heart which is irregular on account of extrasystoles may be the only abnormal finding after some sudden strain. It is an important problem. The prognosis and treatment depend upon the underlying cause of the premature beats. Some cases are probably due to a strained heart and others to a neurosis. We may discuss the question under the heading of "primary cardiac overstrain," although it is understood that not all cases of strain or alleged strain exhibit extrasystoles.

VALVULAR LESIONS

Rupture of a valve from strain or direct violence illustrates the importance of a correct history, because it is upon this that the diagnosis is based clinically; and even after death the history is required to make the diagnosis certain. There will be immediate and urgent distress, with pain which is obvious in lesions due to effort, and, unless masked by external injuries, equally obvious in direct violence.

Rupture of an aortic valve from strain was described by Peacock (1865a). It is an accident that is not very uncommon. The valve is almost certainly diseased before the effort, although functioning reasonably well. For an insurance company I obtained the following history from the late Dr. Bruce of Melbourne, Derbyshire:

A farmer, aged 56, pushed a cart out of a ditch. There was immediate substernal pain with distress and palpitation. He managed to walk very slowly to the doctor, and said he could hear a noise in his chest since the effort. There was a loud to-and-fro aortic bruit. He died of congestive failure a few weeks later.

Traumatic lesions of the mitral valve are rare. Allbutt (1870 and 1873) recorded three cases of rupture of a mitral valve from strain. Gordon (1922) described a case of lesion of the mitral valve from strain while running.

It was in a young woman of 24, who afterwards could hear a noise in her chest on exertion. He considered that the lesion was slight. He also describes a man in whom the aortic valves were ruptured from a blow, and who died soon afterwards.

Peacock (1865b) described the case of a girl of 19 with valvular heart disease in which the symptoms were not serious.

She had a severe attack of vomiting, followed by immediate distress and death in a few hours. At necropsy there was chronic rheumatic endocarditis of the mitral valve; the chordae tendineae were ruptured, so that one cusp of the valve was entirely loose. Horton-Smith (1902) described rupture of chordae tendineae in a workman aged 33, due to a strain. There was immediate pain with shortness of breath, followed by passive congestion. He died in three months: at the post-mortem examination the valves showed no evidence of previous disease.

I have recorded (with Osborn, 1937) full details of a case of mitral stenosis the result of trauma.

A man 32 years of age joined up at the beginning of the war in 1914 with a previous history of good health and athletic activity. He served a year in the front line. In 1915 he was blown up and buried in the debris. A day or two later he recovered consciousness to find his heart very distressed. There was no external injury. He was five years in one hospital and another. From 1919 till his death from pneumonia in 1937 he was under my own observation. It was obvious in 1919 that the mitral valve was diseased, there being a systolic bruit and a localized mid-diastolic sound. Five years after the injury he could sit out of bed, and gradually he improved. By 1930 (fifteen years after the injury) the signs were indistinguishable from those of mitral stenosis of rheumatic origin. There was a presystolic thrill and localized presystolic bruit. His condition remained stationary. When he died from pneumonia twenty-two years after the injury the stenosis was very obvious and there were features which confirmed beyond doubt the diagnosis of trauma.

The evidence is conclusive that the mitral valve was normal before the trauma. The same applies to Wilks's case of ruptured aortic valve from a fall. It is this feature which makes direct trauma of a valve particularly interesting, because a blow might produce a less serious lesion, whereby a slight tear or contusion of a valve would progress towards chronic valvular disease when healing. Allbutt (1873) described two cases of mitral stenosis in young men—in one case due to the kick of a horse and in the other to a blow with a cricket ball. The immediate distress at the time of the injury was alarming, but the heart's function was not distressed soon afterwards to a degree that would indicate rupture of a valve. Allbutt saw each patient about a year after the blow and found definite evidence of mitral stenosis, which he attributed to trauma. These cases were recorded a long time ago, but the diagnosis can only be based on observation and assessment of the history and clinical evidence. No modern facilities would help to prove or disprove the diagnosis of a traumatic valvular lesion.

Clinical Conditions which may Result from Direct Violence but not from Strain

1. *Pericarditis*.—Traumatic pericarditis is a well-recognized possibility as the result of a blow on the chest wall. In itself it is not serious; and it may not have been searched for sufficiently often in the surgical wards. A

mortem the left ventricle was seen to be ruptured posteriorly. It appeared to have developed from the endocardium outwards, with eventual haemorrhage into the pericardium. O'Neill (1914) described the case of a boy aged 9 who was "knocked down and jumped on." There were certain bodily injuries, so that he was kept quiet but not absolutely at rest. The heart was not specially examined. He died forty-seven days later, and a perforating slit was found at the auriculo-ventricular junction on the left side, with haemorrhage into the pericardium. Hamilton (1934) recorded the case of a child of 7 years brought in dead to hospital. The front wheel of a car had passed over the chest wall without causing external bruising or damage to the bones. Both ventricles were ruptured. Fraser (1929, quoting Vaguez-Laidlaw) describes a man who was struck by a carriage pole. He was admitted to hospital with dyspnoea and palpitation. There was an unusual sound at the base of the heart. The symptoms soon cleared up and he was discharged. He was readmitted several months later with congestive heart failure, from which he died. Post-mortem examination showed laceration of the heart muscle in the region of the conus arteriosus. Wilks (1865) recorded the case of a young man who fell from a height, striking his left side on a stone. He died two days later from peritonitis due to a ruptured bowel. Dyspnoea had been present, but a stethoscope was not used. No external bruising was seen at necropsy. The posterior cusp of the aortic valves was split transversely, but there was no sign of chronic disease of the valves. A small deposit of fibrin was found on the ragged edges of the valve. Gibson (1909) recorded a case, in the Edinburgh Royal Infirmary, of rupture of the mitral valve from the kick of a horse.

2. *Experimental*.—Kahn and Kahn (1928) state that it has proved possible in the dead subject to rupture a valve by striking the chest, without injuring the bones of the thorax. Allbutt (1909) gives the names of several distinguished pathologists who have succeeded in this.

3. *With a Fractured Sternum*.—At a coroner's post-mortem recently at the Derby City Hospital I was present when Dr. Osborn demonstrated disease of the aortic valves very suggestive of being the result of trauma. There was an old fracture of the sternum over the base of the heart. The man was wounded during the great war, when a front-line soldier, so that presumably his heart was normal. Whilst he was in a casualty clearing station the sternum was fractured by a fall of roof during an air raid, after which he was invalided out of the service. The history is so fragmentary that it is not possible to make a definite diagnosis of traumatic disease of the aortic valves, but it is the most probable explanation. The aorta itself was particularly healthy, as also was the mitral valve.

Clinical Conditions which may Result from either Direct Violence or Strain, or from Both Together

DISORDERS OF RHYTHM

1. *Auricular Fibrillation*.—Of this condition Price (1937) states: "Its onset can now and then be traced to bodily effort, especially in the middle-aged or elderly, perhaps to trauma." This is what we should expect from the natural history of the condition. The event is more probable if the disposing causes of age or mitral stenosis exist. White (1937) states that it may result from direct trauma, excitement, or exertion. In some accidents all these causes will be present, as in two of my cases recorded below. It is surprising to find the statement in a book on incapacity or disablement (Brockbank, 1926): "I have never met with a case in which auricular fibrillation could be attributed to sudden strain, and at present I should be very unwilling to believe that strain could cause it." Hay and Jones (1927) recorded five cases of auricular fibrillation, of which four were due to sudden physical exertion and one to electric shock. They state that four of the patients were apparently well before the exciting cause or accident. They claim that sudden strain frequently initiates auricular fibrillation in diseased hearts, and in addition that fibril-

lation may result from physical strain in hearts that are apparently normal, so far as can be determined by ordinary clinical methods. As a typical example of the result of strain on a diseased heart I have the following notes (1934).

W. H. P., aged 46, gave a history of rheumatic fever twenty years ago. He was refused for war service, but led an active life, in good health, working on an estate. His doctor knew that he had mitral stenosis. One day, while carrying a tree-trunk, his mate failed and W. H. P. had to bear the whole weight. Pain and discomfort developed in the chest, and he had difficulty in getting home on account of shortness of breath. He passed one or two restless nights, after which his doctor diagnosed auricular fibrillation. Seen four months later, the fibrillation was confirmed by electrocardiogram. The mitral stenosis was obvious. There was no congestive failure. The exercise tolerance was poor. A course of quinidine in hospital produced toxic symptoms, but failed to restore normal rhythm. The arrhythmia has persisted since.

Kahn and Kahn (1928) record cases of auricular fibrillation following direct trauma of the chest wall. I have seen two such cases; after a man had been knocked down by a motor car. There has been no evident bruise on the chest wall or actual history of a blow over the heart, so that both direct trauma and sudden strain may have acted together. Both were elderly, and possibly liable to the disability, but in good health for their years.

T. C., aged 61, acting as a night watchman, was knocked down by a car on January 21, 1932. He was taken to the casualty department at the Derbyshire Royal Infirmary; about this he remembers little. After being detained for a few hours he was sent home by car to rest in bed. He noticed he was short of breath, and his doctor recognized an irregular pulse. The shortness of breath persisted, and although his external injuries were trivial it was obvious that his capacity for exertion was entirely changed. Seen by me in December, 1932, the fibrillation was confirmed by electrocardiogram. There were no other abnormal signs, or other abnormalities in the tracing. There was no congestive failure. Five years later his condition was unchanged.

Mr. W., aged 63, was knocked down by a car on December 22, 1936. He was taken to the Derbyshire Royal Infirmary, where an irregular pulse was noted. He was kept in a surgical ward for fourteen days' rest on account of a scalp wound. On returning home he was dizzy and easily became short of breath. His doctor noted the irregular heart. Seen on February 3, 1937, he was of excellent physique for a man of his years, with the history of an active life. Physical examination revealed nothing abnormal except the arrhythmia, which was confirmed as auricular fibrillation by electrocardiogram. I understood he was making no claim, because he considered himself entirely to blame for the accident. But there was no question that a heart previously efficient for his life was now causing incapacity.

Both these cases illustrate the need for more accurate notes after an accident. This history of scalp wound is of interest because Bramwell (1934) has recorded the case of a coal-miner in whom auricular fibrillation was present after a blow on the head. He is rather guarded about attributing the fibrillation to the trauma, although the evidence strongly suggests it.

2. *Auricular Flutter*.—The disposing causes of this condition are similar to those producing fibrillation, but I have seen no reference to trauma as an exciting cause.

One case of auricular flutter came under my own observation in 1935 after a fracture-dislocation of the cervical vertebrae. From the hospital records it would seem that flutter developed several days after the accident whilst in bed. It is difficult to find a reasonable explanation, but the fact remains that when the patient had recovered from his surgical injuries he was totally incapacitated by reason of the heart

function." The condition has been more like the senile heart than any other condition due to natural causes. The following typical example may be cited:

H. B., aged 50, a collier. Five years ago a steel bar crushed his chest against the roof of a coal-mine, causing fracture of five ribs on the left side. He was three weeks in the Chesterfield Hospital and three months an out-patient. He returned to work, but gave up after three days because he was short of breath on exertion and dizzy, especially after stooping. He has worked for short periods since, but has always required extra help from his mates. He has remained short of breath on exertion, with some aching in the left side. His general condition and muscular tone were good. He was a steady and reliable man of the best type. The chest expansion was 2½ inches. X-ray examination showed a heart of normal size, with the lungs clear and the ribs united. The arteries were healthy. The blood pressure was: systolic 115 mm., diastolic 75 mm. The heart showed no abnormal signs, and an electrocardiogram was normal. The pulse rate was 96 on arrival; it was 84 after a short rest; after slowly climbing eighteen stairs it was 140, and he was short of breath. While walking slowly he was incapable of talking without exhibiting shortness of breath.

Primary Cardiac Overstrain

In studying this difficult problem the type of strain causing the disability, or alleged to cause it, may be of three possible varieties, which must overlap to some extent, but of which the typical examples are quite distinct. These are: (1) the strain of athletic event, (2) the effort syndrome, and (3) the intense unexpected effort for which a man is not trained and during which the chest is probably fixed, with the glottis closed.

1. Strain in athletic event is almost confined to those taking part when suffering from some infection. Occasionally the untrained man may disturb his heart with a rowing or climbing effort.

2. The effort syndrome, strictly speaking, has little relation to strain, except in the differential diagnosis from overstrain. In its most characteristic form it first shows itself during some effort which a man has carried out before. During the war the first impression may have been that the symptoms developed as the result of physical over-exertion and mental emotion, acting on those unsuitable for the strain. Probably to some extent this was the explanation. In civilian life it occurs in women as well as in men. The modern view is that effort does not cause the condition, but calls attention to it. At the same time it is admitted that it sometimes develops after a severe effort, and also that in spite of the best of treatment some of the subjects must be warned that they are unsuited for strenuous callings.

3. The intense unexpected effort usually comes about, with the chest fixed and the glottis closed, during a lifting effort which is unexpectedly strenuous or prolonged. Perhaps the effort cannot be relaxed without some disaster occurring. Anxiety on this account may directly affect the heart capacity at the time. It is this type of effort that is most likely to damage the heart. The following brief notes will illustrate a clinical example.

J. B., aged 30, was carrying a bag of cement weighing two hundredweight across a stream. His foot slipped, and he made a very considerable effort to save the bag from falling into the stream, which would have ruined the cement. He had acute distress in the left side of his chest and collapsed on the ground. This was in the middle of the morning. He went on doing light work all day, suffering from palpitation and shortness of breath. He walked home a mile or two very slowly with his father, for whom he worked. He went to bed and passed a restless night. His doctor kept him in bed three or four days, after which he got about a little. The

palpitation and shortness of breath continued to some extent for two years. Physical examination at this time showed a pulse rate of about 100 when out of bed, with occasional ventricular extrasystoles after resting from exertion, to which there was poor response. He was of good athletic physique. Before the event in question he was in excellent health. He served four years in the war, during which time he won a three-mile race without discomfort.

For myself I should diagnose primary cardiac overstrain chiefly on the history. If one has understood the theory as usually taught of the reaction of the heart to effort I suppose the original conception would have been that the heart had suffered from acute dilatation. Allbutt diagnosed the condition on himself, although it led to no permanent ill effects in his case. The teaching followed that the heart did not dilate during effort. Wilson (1930) recorded exceptional circumstances which enabled him to note what he regarded as dilatation of a heart after effort, with quick return to normal. In the correspondence columns Wilkinson (1930) suggested that the dilatation in Wilson's case was only apparent, and that the diffuse impulse was due to forcible beating, adding at the same time that he did not believe that either dilatation of the heart or the strained heart existed. Those of us who believed that strain had sometimes injured a normal heart were prepared to consider whether forcible beating might injure it. Lewis (1932) recorded examination of the heart under the x-ray screen, with inspiration held and the glottis closed. He states that it is seen to dilate very greatly. There was abundant evidence that healthy men could perform this test with impunity. S. A. Smith (1931) wrote of the "erroneous diagnosis of acute dilatation of the heart." But if enough clinical evidence based on the judicious assessment of case-histories is forthcoming it is interesting to speculate that we may come back to the simple conception, which was accepted a generation ago, of acute dilatation from strain. It seems a reasonable possibility in the untrained average man undergoing an exceptional strain with the glottis closed. There may have been some defect in the pericardium or heart muscle, but examination would not have detected it, and disability would not have resulted had there been no unusual event.

It is not a common occurrence. I think I have seen four examples of hearts diseased from strain that were apparently healthy before an exceptional effort. Two have never recovered fully. The diagnosis from the effort syndrome is very difficult. Shirley Smith (1932) summarized the symptoms which simulate heart disease. There is no absolute proof of strain in any of my cases. The diagnosis has been based on the probabilities in relation to the man, the history of effort, and the report from his doctor, although a consistent non-varying degree of disability is taken to be suggestive of genuine heart disease.

S. A. Smith (1931) explains all the cases of what he calls "the erroneous diagnosis of acute dilatation" as due to a cardioneurosis, usually supervening on a minor superficial injury. I have seen a typical example of pain of muscular origin at the lower end of the sternum on the left side, from a lifting effort, for which the heart came under observation. The man could walk quickly without discomfort, and merely required reassurance. The pain passed off in a week or two. He was not a manual worker, but it is reasonable to suppose that if he had been compelled to go back to work that aggravated the pain he might have developed a cardiac neurosis. Pain which persists, however, is not a feature of primary cardiac overstrain.

It may be difficult to decide whether a man has strained his heart or whether he is suffering from the effort

pericardial friction sound may have been overlooked in some patients with severe chest injuries, in whom the possibility of a contusion of the heart must be considered subsequently.

2. *Angina Pectoris*.—Fraser (1929) gives evidence of angina of effort resulting from direct injury to the chest wall. There are also references in the German literature.

I have recently attended a man 57 years of age. He was in charge of a cart when the horse bolted and the shaft struck him over the sternum. He was laid out on the ground for a few minutes, and then slowly, with distress, walked a short distance to a farm. He was sent to hospital next day, where fracture of sternum and ribs was excluded. He was short of breath on slight effort, with pain and aching in the chest. When he began to get about, in three weeks' time, the symptoms of angina of effort developed. The shortness of breath has continued; and his case may be included under the heading of a possible contusion of the heart.

White (1937) states that fatigue of nervous type may dispose towards angina. In the foregoing patient there is this type of nervous problem to consider. I believe that the angina of effort in his case is the result of trauma. Lewis (1937) writes: "Angina pectoris and cardiac failure never can find equivalents in the terms of structure."

As an example of angina of effort the result of direct injury to the chest wall the following case is of significance because there is no question of compensation. The diagnosis is based on what the man himself and his doctor can tell us.

W. H., aged 54, has always had good health. On June 14, 1937, he tried to jump on to the rear of a lorry, which moved; he fell on his left side rather heavily, sustaining a cut head and bruised elbow and hip, and "his ribs were sore." There was no immediate discomfort, apart from his bruising; but a fortnight later, when recovered from this, he noticed that when walking briskly for a bus he got a gripping pain in the chest, radiating down the left arm, and he had to stop. This discomfort became more frequent and occurred on very slight exertion, such as mounting stairs; so that after doing a fortnight's work he had to give up. The heart was recorded as irregular and the rate unduly increased on exertion. In August the attacks were less severe, but they persisted. The pulse was regular. He has improved, but in December would still get angina with moderate exertion. On December 7, seen by myself, the heart showed no abnormal signs and an electrocardiogram was normal. The exercise tolerance was rather poor, but he was proposing to go back to his duties, which are clerical. He did not feel capable of working in his garden.

3. *Heart-block*.—This form of arrhythmia indicates a lesion deep-seated in the myocardium. It may possibly arise from direct violence; that it may result from effort is very improbable. Walker (1933) states that heart-block has been recorded after a blow on the chest wall. I have no personal knowledge of such a case, but some of the post-mortem lesions described above, which have been the effects of direct violence without any external injuries, will illustrate the fact that such an exceptional event as injury to the auriculo-ventricular bundle, with survival of the patient, is possible. White (1937) states that it may result from direct trauma. Coffin (1930) described complete heart-block, persisting seven years, after a child 3 years of age had fallen four or five feet on to his chest. There was no external bruising. "Just before the accident he scored 98 per cent. in a baby clinic examination." The slow pulse, which persisted, was recognized within a few hours of the accident.

4. *Contusion of the Heart*.—It is of course well known that a severe blow on the chest may cause death without anything definite being found in the heart post mortem. Some such examples have been the result of diving.

Certain of the ruptured hearts described above in which the accident was survived for a time may be regarded as severe contusions which have eventually ruptured into the pericardium. To diagnose a contusion of the heart muscle is a difficult problem. White (1937) states that contusion or even partial rupture of the heart wall is probably much more common than has been thought in the past, because of the usual recovery. He suggests that an electrocardiogram taken early might show changes in the T waves, which would be transient. It might be of interest to search in the surgical wards for examples of contusion of the heart.

I was asked to see a case of "bronchitis" in a surgical ward on September 16, 1937. A man aged 58 was admitted three days previously after a severe blow over the sternum from some timber. There was pain and dyspnoea. An x-ray examination excluded fracture, and the heart shadow and lungs were normal. The pulse rate was 80, and regular. The heart showed no abnormal signs, and an electrocardiogram was normal except for inversion or biphasic P wave in Lead III. There was no evidence of bronchitis and the temperature was normal, but the patient was expectorating moderate quantities of frothy serum. It was exactly comparable to the fluid coming up in acute pulmonary oedema but in much less amount. The physical signs in the lungs were quite normal, except for slightly deficient vesicular murmur, equal at both bases. I should conclude that the circulation through the lungs was inefficient on account of a contusion of the heart muscle. He was discharged after four weeks, having been about the ward for a few days. When he returned home he was short of breath on exertion. He began light work about two months after the accident, but could not carry anything up stairs or climb a ladder without distress. Examined on November 30 there were no abnormalities, except a poor exercise tolerance. The pulse rate was 84 at rest, was 100 after dressing, and rose to 144 after slowly climbing some stairs; he was short of breath. The electrocardiogram showed no change.

I have seen six other men in whom the heart appears to have been inefficient after a severe blow on the chest. There has been no record of the heart condition soon after the accident; it has only been considered weeks or months later, on account of shortness of breath on slight exertion. My first example (Barber, 1912) was lost sight of during the war, and the other five are alive. In two cases the sternum was fractured, and in two several ribs; the fifth and sixth cases are recorded above, with angina of effort. The others were aged 27, 46, 50, and 53 years, and they have never recovered fully. The symptoms have been shortness of breath on slight exertion, with dizziness. There has been left mammary pain to some degree, but true angina in only two cases. The heart showed no abnormal signs on examination, and the electrocardiogram was normal: in no case was it taken until several months after the injury. The only evidence of myocardial weakness has been inadequate response to effort. Under these circumstances it is easier to convince oneself than to produce evidence which can be recorded. White (1937) draws attention to the fact that neuro-circulatory asthenia and muscular flabbiness are more easily exposed by exercise tests than is true heart disease. Two of my patients have been colliers, whose muscles have been in reasonable training, and none of them has had the "irritable heart," unsteady under observation, which one tends to meet with in the effort syndrome. An exercise test which is reliable, even if it cannot be standardized, is to lead a patient along the hospital corridors to another department and set him talking by the way. If the proof of an inefficient heart be accepted, it is following the teachings of Lewis (1937) "not to make the attempt to diagnose in the terms of anatomy but in the more certain terms of

was found as compared with the controls. Oestrone (Korenchevsky and Dennison (1934b, 1934c) gave more uniform results when injected into normal than into castrated rats. In most cases oestrone caused a slight decrease in the actual weight of the liver, but no change, or sometimes even a slight increase, in that per unit of body weight. The fall in actual weight of the liver was due to the decreased appetite of oestrone-injected rats, with resulting decrease of body weight and of most of the organs, and not to any specific action of the hormone on the organ. Histologically no changes were found, except some increase in vacuolation of the liver cells (Korenchevsky and Dennison, 1935).

Ito and Kon (1935a and 1935b) injected purified extract of sexual hormones from male urine into infantile and adult male rats, and obtained hypertrophy of the liver in the immature rats up to 100 per cent. Bates, Riddle, and Lahr (1937) observed an increase of about 60 per cent. in weight of liver after androsterone injections, and a decrease of about 26 per cent. after oestrone injections, into adult pigeons. It is also important to note that the sexual hormones are accumulated in the liver and excreted in the bile (Gsell-Busse, 1929; Frank and Goldberger, 1930).

Present Experiments

The present paper is a description of the histology of the liver of those male rats in which the effect of injections of pure crystalline sexual hormones on the weights of this organ has already been described previously (see below). At the same time the uninjected normal and castrated control animals used in these experiments gave an opportunity for further study of the effects of castration. The hormones investigated were:

1. Androsterone, androstanediol, and their water-soluble esters (Korenchevsky, Dennison, and Levy Simpson, 1935).
2. Transdehydroandrosterone (Korenchevsky and Dennison, 1936).
3. Δ^4 -androstenedione and Δ^3 -androstenediol (Korenchevsky, Dennison, and Eldridge (1937a).
4. Testosterone (Korenchevsky, Dennison, and Brovsin, 1936; Korenchevsky, Dennison, and Hall, 1937).
5. Testosterone propionate (Korenchevsky, Dennison, and Eldridge, 1937b; Korenchevsky, Dennison, and Hall, 1937).

Technique

One hundred and eighty-one rats (fifty-one normal and 130 castrated) were investigated. Castration was usually performed at the age of 21 to 24 days, never later than 28 days—that is, always before sexual maturity. In this series of experiments, on the special mixed diet used, the changes in the liver produced by castration and injections became noticeable earlier than in the previous experiments—that is, at the age of about 70 days, about forty-five days after castration. Therefore in Table II the data for rats 70 to 150 days old only are summarized. The doses injected are shown in the same table. The hormones were dissolved in sesame oil and were injected daily, except the oestrogens, which were injected three times a week. Androsterone and androstanediol were injected in some experiments for periods up to fifty-three days, oestrone and oestradiol up to 120 days, and all the other hormones for twenty-one to twenty-three days.

Diet has a considerable influence upon the liver. In the previous experiments (Korenchevsky and Dennison, 1934a) the diet used was chiefly synthetic, while in the present

experiment the following diet of natural food products mixed into a paste was given:

Steamed herring, with bones (four times weekly)	1,020 grammes
White bread	1,350 "
Milk	1,700 c.cm.
Wheat	230 grammes
Oats (rolled)	230 "
Hemp	240 "
Wheat germ	75 "
Dried yeast	90 "
Salt mixture (McCullum's 185)	30 "

In addition each rat received twice a week 5 drops of cod-liver oil, 2 grammes of freshly minced liver, and 5 grammes of fresh carrot.

For histological investigation the liver was fixed in Bouin's solution, embedded in paraffin, and stained with haematoxylin and eosin. For fat and lipoids frozen sections were cut and stained with scharlach red. In order to compare the size of the cells, outlines of about seventy-five cells from one lobule of each liver were drawn with the aid of a camera lucida (magnification $\times 530$) from the central vein towards the periphery. The size of these outlines was compared directly, but because of their variability the number of the cells contained in a square measuring 7×7 cm. was also calculated, the

TABLE I.—Average Weights of Liver, actual and per 200 grammes of Body Weight, and Average Comparative Numbers of Lobules and of Cells of Normal ("N") and Castrated ("Ca") Rats.

Group	Age in Days	Number of Rats in Groups		Weight of Liver (grammes)				Number of Lobules		Number of Cells	
		N	Ca	Actual		Per 200 gm. of Body Weight		N	Ca	N	Ca
				N	Ca	N	Ca				
1	40-49	6	—	8.3	—	10.1	—	6	—	53	—
2	60-69	5	6	10.5	10.9	8.6	8.5	6.6	6.4	52	60
3	70-79	4	10	12.3	9.5	8.7	6.6	6.1	7.1	58	62
4	80-89	7	9	12.6	10.1	7.8	6.9	5.7	7.1	60	61
5	90-99	12	11	13.1	10.5	7.4	6.5	5.1	6.4	54	57
6	100-150	3	4	13.1	10.4	6.9	6.8	5.2	6.3	57	52

TABLE II.—Average Weights of Liver and Comparative Average Numbers of Lobules and of Cells of Rats aged 70 to 150 Days.

Group	Hormones Injected and Daily Dose (mg.)	No. of Rats	Liver			
			Weight in grammes		No. of Lobules	No. of Cells
			Actual	Per 200 gm. of Body Weight		
1	(A) Normal Rats: Control, uninjected	26	12.8	7.7	5.5	57
2	Testosterone 0.5-1.5	5	13.0	7.5	5.1	56
3	Testosterone propionate 0.5-1.5	9	13.1	7.9	5.4	56
4	(B) Castrated Rats: Control, uninjected	34	10.1	6.7	6.7	53
5	Androsterone 0.45, androstanediol 0.3	15	10.2	7.4	6.3	57
6	Androsterone 0.9-3.6, androstanediol 0.175-0.7, transdehydroandrosterone 1-4, testosterone 0.167-1.4, testosterone propionate 0.167-1.4	51	12.3	7.3	5.9	55
7	Oestrone 0.005-0.018, oestradiol 0.02	12	8.2	7.6	6.8	62
8	Oestrone 0.005-0.018 in combination with the hormones of group 6	12	9.5	7.2	6.9	62

Note.—The greater the number of lobules or cells in the measured area (columns IV and V) the smaller they are, and vice versa.

syndrome or, to use the transatlantic term, from neuro-circulatory asthenia. But from the all-important point of view of treatment the problems are not so essentially different. A short rest will be suitable for both; reassurance will help both, as also will suitable exercise and retraining. When it is admitted, as most people will, that in the effort syndrome group a man must sometimes be warned that he is not suited for intense or prolonged effort the practical considerations are identical. The divergence arises on account of compensation litigation on the one hand and of theoretical prejudgment as to whether the normal heart can be strained on the other.

The American teaching (White, 1937) seems to be that heart symptoms or signs that follow industrial strain or accidents are usually of the neuro-circulatory asthenia type, or are due to aggravation of heart trouble already existing. But Donahue (1927), in an article entitled "Accidents and Heart Disease from the Court's Point of View," writes: "We do have a great many cases of dilatation of the heart occurring at work while the employee is under some particular strain. He is lifting some unusually heavy load, or is in a rather awkward position doing heavy lifting, when he has dilatation and becomes sick, sometimes collapsing immediately." If we leave out the word "dilatation" the events are as described. Probably some are due to rupture of pectoral muscle fibres, with a cardiac neurosis superimposed. Probably some are due to the effort syndrome, to which the event has called attention. But the probability still remains that some are due to strain of the heart muscle or of the pulmonary or aortic ring. It would be in the best interests of medical science if such cases came before a medical board. We could study them with a mind more open. In those industries where there is a medical adviser to the firm he should include judicious management of the case in his decision.

We can remember that a generation ago sometimes the strained heart was diagnosed, quite mistakenly, on the evidence of a negligible systolic bruit in a growing boy. Invalidism on this account is a thing of the past. The profession has learned that the effort syndrome requires guidance and retraining, lest a selfconscious heart become permanent. Much semi-invalidism has been prevented by the accepted teaching that the heart is the part least likely to break down from exhaustion in some athletic event.

Our knowledge of physical signs and of their interpretation has advanced. There remain, however, some problems which cannot be solved by these means, and the last word must come from reliable clinical histories. By such histories, from doctors who have made notes, I believe enough evidence may be collected to prove that the healthy heart can be strained.

Summary

The forms of heart disease which have been recorded as the result of direct violence to the chest wall or as the result of strain are discussed. The conclusion is drawn that the physical signs on examination are of little assistance in assessing the diagnosis of trauma. Reliable clinical histories, in the widest sense of those terms, must be assessed with judicious care. This includes such evidence as the patient's own doctor can supply.

The clinical diagnosis of a contusion of the heart is discussed.

It is claimed that there is clinical evidence that the normal heart may become diseased as the direct result of overstrain from effort.

With regard to these two conditions, contusion of the heart and primary cardiac overstrain, it is difficult to obtain the proof that the symptoms in question are due to a genuine heart disability, but the probabilities in some cases are sufficient to justify the diagnosis.

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CHANGES IN THE LIVER OF MALE RATS AFTER CASTRATION AND INJECTIONS OF SEXUAL HORMONES

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Normal life of the organism is dependent to such a large extent upon the various functions of the liver that any changes observed in this organ need to be very carefully investigated. The manifold effects of castration on the different organs, including the liver, of male rats have been described in a previous paper (Korenchevsky and Dennison, 1934a). In most cases about seventy days or more after castration the actual weight of the liver was on the average 18 to 22 per cent. less than that of the control normal litter mates. When the weights were calculated per unit of body weight this decrease was not so great—namely, 11 to 18 per cent.—owing to the fact that castration also caused a decrease in the body weight of the rats. Histological investigation of paraffin sections did not show any considerable changes, although in some cases the cells of the "castration" liver were more vacuolated than those of the normal control (Korenchevsky and Dennison, 1935).

The injections of purified extracts of sexual hormones from male urine (Korenchevsky, Dennison, and Kohn-Speyer, 1933) into castrated rats were followed by an increase in the weight of the liver up to 32 per cent. (actual) and 25 per cent. (per unit of body weight). Histologically (Korenchevsky and Dennison, 1935) no difference

histologically the only definite change is a slight decrease in the size of the lobules.

3. Injections of androsterone, androstanediol, trans-dehydroandrosterone, testosterone, and testosterone propionate returned the liver of most castrated rats towards or to normal weight and structure, while testosterone and testosterone propionate had no appreciable effect upon the liver of normal rats.

4. The absence of pathological changes in the small "castrated" liver and in this organ enlarged after injections of the above sexual hormones, as well as the nature of, the changes observed, suggests a natural stimulating action of these hormones on the liver.

5. This might have a practical significance in therapy of the liver and some metabolic disturbances if the same effect of these hormones be found in the case of human liver.

6. Injections of oestrone or oestradiol into castrated rats in the doses used caused a decrease in weight of the liver to below that of the control rats but no definite histological changes. The changes in weight observed are probably due chiefly to the depressing effect of oestrogens on the appetite, with resulting decrease in gain of body weight and weight of different organs, including the liver.

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The Royal Prince Alfred Hospital, Sydney, N.S.W., derives its name from H.R.H. Prince Alfred, Duke of Edinburgh, who, when visiting Sydney as Captain of H.M.S. *Galatea* in 1868, was shot and severely wounded while attending a charitable function. As a mark of their gratitude for his recovery the people of New South Wales raised a fund, which was applied to the establishment of the hospital. The fifty-third annual report covers the year ended June 30, 1937. During this period the number of beds was increased from 568 to 762 by the opening of Gloucester House, an additional building which makes available to all classes of the community, at reasonable rates, the resources of a large university hospital. In the same year of expansion the nurses' home has been doubled, a complete psychiatry pavilion with its own operating theatre, x-ray room, and special investigation facilities, including a neurosurgical unit of 15 beds, has been constructed, and a new x-ray department with the most modern equipment has been completed. In the course of the year under review 10,352 in-patients and 222,272 out-patients were treated in the public hospital, in addition to 1,724 in-patients at Gloucester House.

SCAPULO-HUMERAL PERIARTHRITIS (DUPLAY'S DISEASE)

BY

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During the last three years I have seen thirty-seven patients (twenty-nine in private, eight in hospital practice) suffering from unilateral painful and stiff shoulder-joint associated with normal x-ray appearances. Although, as will be seen later, the antecedent factors leading to this state of affairs differ to some extent, yet the clinical picture is so constant and the treatment so well defined as to justify its description as a morbid entity. In searching the literature for evidence of earlier recognition of the disease, the first and most complete account was found to have been written by Duplay (1872), who recognized, however, only the post-traumatic forms. Mention of the rheumatic types has been made by Chaumet (1934), Douthwaite (1936), Tiegel (1936), and Sievers (1926).

Aetiology

Sex and Age.—There were fifteen males and twenty-two females. The average age was 60 years, and with the exception of two patients aged 33 and 34 they all fell into the fifth, sixth, and seventh decades.

Injury.—Trauma appeared to be the causative factor in twelve patients. In nearly every case it was the effect of a fall either upon the outstretched hands or upon the point of the shoulder. In one person a backward fall from a step-ladder resulted in bilateral disease. The lapse of time between the injury and the onset of typical symptoms—that is, those not simply due to bruising—varied from five days to three weeks.

Rheumatism.—Fibrositis either as simple stiff neck or more often in a widespread involvement of the shoulder-girdle preceded, or merged into, the symptoms of peri-arthritis in fourteen cases. Apart from the history it is quite impossible to distinguish between the two classes. Two patients had had recurrent gout, but whether this was aetiological related to the peri-arthritis is doubtful. In an elderly 'hemiplegic' the disease developed in the shoulder of the paralysed side three months after the cerebral haemorrhage. In eight persons stiff, painful shoulder developed without any apparent cause.

Associated Diseases.—Two patients had diabetes mellitus, and two were subject to gout.

Symptoms and Signs

The outstanding symptom is pain, which with one exception was strictly unilateral. It is often spread diffusely over the shoulder-joint, but sometimes it is referred to the anterior aspect over the long head of the biceps or lower down over the belly of this muscle. In long-standing cases the pain may be much more widespread, even extending to the forearm and fingers. It is of the nature of a dull ache if the arm is kept still, but passes into acute agony in attempted shoulder movement. Often it is of neuritic type, shooting down the limb and partaking of a boring and burning character, and made worse by getting hot in bed at night. Limitation of movement as a symptom is of secondary importance owing to the mobility of the scapula masking the actual fixation. In women, however, it is often a source of complaint that

greater the number of the cells obtained the smaller being the size of the cells. These figures, being more reliable, are given in columns IX and X of Table I and column V of Table II. Actual measurements of the size of the lobules were practically impossible owing to their irregular shape and indistinct boundaries. Therefore the number of central veins of the lobules seen in six to eight microscopical fields at $\times 90$ was calculated, the average figure obtained being given in columns VII and VIII of Table I, and column IV of Table II; the greater the number the smaller the size of the lobules, and vice versa.

Liver of Normal Rats

The data are summarized in columns I, III, V, VII, and IX of Table I. Group 6 contains only a few rats, but the data are similar to those of our previous experiments (Korenchevsky and Dennison, 1934a). Because of the difference in the diet, and because of the different method of killing the rats at the end of the experiment (gas in the previous and bleeding in the present experiments), the liver weight was greater in the former case (Korenchevsky and Dennison, 1934a, p. 239).

Effect of Age.—As was found previously and confirmed in the present experiments, the liver belongs to that group of organs of which the actual weight (column III, Table I) slowly increases with age, while the weight per unit of body weight (column V) gradually decreases after sexual maturity. This seems to indicate a particularly active role of the organ in the young animal. The decline in weight of liver per unit of body weight after sexual maturity might be explained only partly by the accumulation of inactive tissue such as fat, and probably chiefly by the lowering of the metabolism. While the size and the histological structure of the cells show no definite changes with age (column IX), the lobules appear to become slightly larger (column VII), which may partly explain the mechanism of increase in the actual weight of the liver.

Liver After Castration

The data are summarized in columns II, IV, VI, VIII, and X of Table I, and should be compared with the corresponding data for normal animals in the other columns of the same table.

Effect of Age.—In agreement with our previous results (Korenchevsky and Dennison, 1934a) the actual weight of the liver (column IV) about four weeks after castration, in contrast with the normal animals (column III), ceases to increase with age. Moreover, the weight per unit of body weight considerably decreases at the age of about 70 days (column VI) and then remains more or less stationary (Groups 3 to 6). This, as in the case of the liver of normal animals, probably indicates a more active role also of the "castration" liver in the young animal. Histologically no definite alteration was found in the liver at different ages.

Effect of Castration.—Up to the age of 70 days no definite changes were noticed in the livers of the castrated rats, but in most rats older than 70 days the weight of the liver was less than that of normal rats (columns III and IV; V and VI), the difference being on the average 21 per cent. in actual weight and 13 per cent. in relative weight. This difference in weight could in most animals be at least partly explained histologically by the smaller size (22 per cent. on the average) of the lobules in the livers of most castrated animals (columns VII and VIII). The cells themselves, however, were not smaller (columns IX and X), which suggests their hypoplasia rather than

atrophy. No mitoses, however, were found in either normal or castrated livers, and the number of binucleated cells was about the same in both groups. No degenerative or any other considerable changes were found in the cells. In about 50 per cent. of the castrated rats the protoplasm of the liver cells in paraffin sections showed an increase of vacuolation (usually only slight) as compared with the normal animals (see also Korenchevsky and Dennison, 1934a, p. 333), but staining with scharlach red showed a definite increase in lipoid granules in only a few cases. The absence of definite pathological changes in the "castration" liver, considered together with the decreased weight of the organ, suggests more a physiological than a pathological decrease in function of the liver after castration.

Effect of the Injections

The data are given in Table II—all were averaged after dividing them into eight groups. The figures in Group 1 (normal) and Group 4 (castrated rats) are the averages for the control uninjected rats aged 70 to 150 days.

Normal Rats.—Testosterone and testosterone propionate injected into normal rats (Groups 2 and 3) did not change appreciably either the weight of the liver or its histological structure (including content of lipoid granules).

Castrated Rats.—Small doses of androsterone produced no definite effect, and Δ^4 -androstenedione, in the doses used, only a slight effect (Group 5). Larger doses, of androsterone and all the doses indicated of androstanediol, transdehydroandrosterone, testosterone, and testosterone propionate (Group 6) caused in most cases a return towards or actually to normal of the weight (columns II and III) and histological structure (columns IV and V) of the liver. Since the increase was not only in the actual weight of the liver but also in that per unit of body weight, it is unlikely that this change was due to increased appetite and body weight, which usually occur in rats after these injections. Moreover, it is typical that in normal untreated animals greater appetite leads to increased gain in body weight with increased fat deposition. In the rats injected with the above hormones this was usually not the case, since an enlarged liver was present in rats with a decreased fat deposition and sometimes even with decreased gain in body weight (Korenchevsky and co-workers, 1935-7). It is probable, therefore, that these hormones exercise a special stimulating effect on the liver. Oestrogens, on the contrary, whether alone (Group 7) or in combination with the other hormones (Group 8), caused a decrease in the actual weight of the liver, while that per unit of body weight was slightly increased. As already described, this change may be explained by the loss in appetite caused by injections of the oestrogens. In "oestrogen" rats the gain in body weight and in some organs and fat deposition were usually decreased. The histological structure was similar to that of castrated uninjected rats. After injections of any of the sexual hormones used the liver cells, in some cases only, appeared to contain more lipoid granules.

Summary

1. In normal uninjected rats the weight of the liver per unit of body weight decreases with age, which probably indicates an especially active condition of the liver in the young animal.

2. In rats castrated before sexual maturity the weight of the liver (actual and per unit of body weight) at the age of 70 days or more is less than in normal rats, although

A STUDY OF MINERS' NYSTAGMUS

BY

RAYMOND S. BROCK, M.D.

This paper is based upon a study of nystagmus in fifteen pits of North Wales over a period of ten years. The nature of the eye movements is examined and the various theories as to their cause are discussed. The importance of psychological factors is considered and suggestions are offered, first, as to the prevention of disability, and, secondly, regarding a more secure basis upon which disability may be assessed.

The Eye Movements

These are strikingly different from other forms of nystagmus. The "nystagmic" eye movements of colliers are more persistent in duration, are severer in degree, and more varied in type. They may be vertical, horizontal, oblique, or circumductory, but typically are more truly rotatory in direction. They may be of different magnitude in each eye, and the severity may vary in either eye. They are increased by darkness, by elevation of visual regard, and by sudden movements. They may be set up by emotional shock, such as sudden noise. They are lessened by lowered visual regard, by convergence, and by alcohol taken by mouth. They may be recorded on a moving sensitive plate by the "photostigmagraph," which has been widely used on the Continent, or may be conveniently cinematographed by means of a simple apparatus such as one that I have constructed. By the latter means it is possible to study "stills" of the movements at intervals of one-sixteenth of a second, and these show that the actual excursion is not nearly so great as it appears to be when observed in the ordinary way.

Many theories have been put forward to account for the movements, but one point would appear to receive general acceptance—namely, the chronicity of the condition. An apparently abrupt onset is occasionally met with, but in eighty-three of my cases the average time of onset was 23.3 months, and some men noticed the condition coming on gradually over many years. This accords with the findings of other observers. Contrasted with the frequency of disability from accident at different ages, I have found that whereas this disability reaches its maximum among the younger and less experienced men, and tails off as the age groups rise, nystagmus, on the other hand, shows a relatively high incidence among the older workmen.

Theories of Causation

These may be classified as: (a) those suggesting some toxic agency; and (b) those which postulate some form of fatigue. An "unknown hydrocarbon" suggested by Pechdo (1893) still remains undemonstrated as a cause. Robson (1923) has suggested carbon monoxide as responsible, but the disorder is sometimes rife in pits where that gas is absent. More recently German observers (Zeiss, 1932; Wiedersheim, 1934) have postulated two cerebral centres—one "position-keeping" and upset by dim light, etc., and the other "co-ordinating" and upset by chronic gas poisoning. The late Professor Haldane (1922a) spent several hours in an atmosphere of 80 per cent. CH₄ and experienced no inconvenience whatsoever. On the other hand, it may be that in certain cases CO plays some part in promoting fatigue. Haldane (1931) demonstrated that this gas was formed in small quantities by the action of air on freshly cut coal, and Graham's analyses (1934) of mine air indicate in some pits enough CO to produce

maximal blood concentrations of from 9.7 to 20 per cent. In America it has been reported that prolonged blood concentrations considerably lower than this (5 to 10 per cent.) may give rise to headache, dyspnoea, easy fatigue, tremor of the hands, etc. All these are characteristic in miners' nystagmus. Tachycardia is also common, and the question arises whether nystagmic miners may display any toxic myocardial changes. I have found on electrocardiography that in a series of twenty-four nystagmus cases showing tachycardia there was no indication of a relation between the pulse frequencies and any myocardial toxæmia. On the other hand, the cases all gave typical clinical indications of function disturbance consistent with the tachycardia noted. This may be of importance in assessing disability relative to this physical sign, since the general consensus of opinion appears to be that the myocardium is not in any way affected by tachycardia of a functional character.

A bacterial origin, though suggested, has never been demonstrated (Robson and Freeland Fergus). It has also been thought that infection might be sucked up the Eustachian tubes as a result of varying atmospheric pressure in journeying up and down in the cage, and giving rise to labyrinthine upset (Alabaster, 1933), but this brings us to the various "fatigue" theories, for one of the earliest suggestions was that of labyrinthine upset, arising from the maintenance of difficult working postures, and cases were described in six compositors, a paperhanger, and some other occupations involving a strained upward regard (Snell, 1907). The objections are that the disorder is only characteristic among colliers, and that the movements are entirely different in type, magnitude, and degree from those associated with labyrinthine upset. Moreover, the introduction of "machine mining," which has largely eliminated the old difficult posture, has not allowed any great reduction in the incidence of the disorder.

Ohm (1916) produced nystagmus resembling that of miners in puppies and kittens by keeping them in the dark, and the darkness of the mine is now generally regarded as the most important factor concerned. The condition is commoner in the poorer-lit pits, and is practically unknown in "open-light" pits. The incidence has been reduced in certain observed pits by improvement of lighting, and the late Professor Haldane's words remain true, that "it is only when coal is mined under conditions of excessive darkness that nystagmus results" (Haldane, 1922b).

As to why this should cause the characteristic movements no final answer has yet been found. Some think there may be an acquired pigmentary defect, but others may prefer the suggestion of Dr. T. Gwynne Maitland (1936) of Liverpool, that in conditions of low illumination two ocular reflexes normally occur: one which fixes the visual regard on an object appearing within the visual field, and the other by which the visual regard pursues the object if moving—a primitive protective mechanism. Gwynne Maitland has demonstrated experimental nystagmus set up by prolonged activation of these reflexes, and has pointed out how closely linked is the response with the subject's emotional state. At all events the condition of the mine, with the impending falls of coal which account for approximately half the total accidents, must certainly awaken the workers' emotional state, and it might be expected that the low illumination and the constant sense of danger should bring about cases of physiological and psychological breakdown after operating for any number of years. This is my view of the disorder known as miners' nystagmus: that it is a breakdown of the man's ability to withstand the stresses of the mine.

they cannot reach the back of the head to dress the hair, and both sexes have great difficulty in washing the back. The duration of symptoms before seeking advice was on the average 5.3 months; the minimum was 1 month and the maximum $1\frac{1}{2}$ years. This is to be explained by the fact that the symptoms and signs develop insidiously, and it needs several weeks at the least for the initial discomfort to reach the level of distressing pain.

Limitation of movement is the outstanding sign. The right side was involved in twenty-one persons, the left in fifteen, and both sides in one. Fixation of the joint is best observed from behind. If the patient be instructed to extend the arms the scapula on the affected side will be seen immediately to follow the humeral movement. In abduction this is also well seen, and if the scapula be held firmly to the chest wall and an attempt made to carry this out, acute pain will be experienced. Voluntary abduction is not very painful until the arm has passed through about 30 degrees; but rotation is very painful because the scapula cannot by its movement assist in this to any appreciable extent. A slight degree of muscular wasting is evident in the majority, and affects in particular the deltoid and supraspinatus and infraspinatus. In old-standing cases it is much more extensive, and involves the arm, forearm, and even the hand. In such patients skin atrophy of the fingers, tingling, and loss of peripheral sensation may be noted. The arm is held closely to the side, and the forearm may be flexed and give rise to pain if an attempt is made to straighten it. Tender points are usually to be found, especially over the acromion, deltoid insertion, and long head of the biceps. There is no swelling of the joint, neither is there crepitus.

RADIOGRAPHIC SIGNS

Both Chaumet and Tiegel refer to x-ray appearances suggestive of linear calcification in the capsule. When seen the opacity usually extends between the acromion process and the humeral neck. I am quite convinced, however, that such a finding is a rarity and represents a late effect of chronic inflammation. In this series it was seen in only one patient. Actually the characteristic feature of scapulo-humeral periarthritis is a completely normal radiograph, in spite of stiffness of the joint. In two further cases trivial osteo-arthritis of the humeral head was seen, and in two long-standing cases considerable decalcification of the bone was present.

Appearances at Necropsy

The only recorded case of post-mortem examination of the condition is given by Duplay. He treated with manipulation and massage a male aged 53 who developed periarthritis following injury to one shoulder-joint. The result was good and the man left hospital. Two months later he returned with pneumonia and died. On the affected side the deltoid was paler than normal; the subdeltoid tissue was fibrous, exhibiting dense bands running to the upper end of the humerus. The subacromial bursa was obliterated. The tendons of the supraspinati and infraspinati had lost their polish, as had also the inferior surface of the acromion. It was evident that *subacromial bursitis was the chief lesion, with extension to neighbouring structures*. There could be seen ruptured adhesions on the inferior surface of the deltoid. The articular capsule was somewhat thickened, but the articular surfaces were quite normal. Duplay concluded that the pain caused by straightening the elbow was due to tension on the biceps caught up in the subdeltoid alveolar inflammation.

Treatment

Chaumet advises treatment by means of radiant heat, diathermy, and gentle manipulations. In obstinate cases he claims to secure good results by the application of x rays thrice weekly. He states that even the linear calcification may disappear. Tiegel advises rest in abduction and the application of heat for acute cases. The chronic he treats with fruit juice, raw fruit and vegetables, baths, and exercises. He concludes by referring to the cure of one case. It should, however, be quite obvious from what has been written that only mechanical means can be effective in producing cure. Except in the earliest cases, where rest in abduction and heat followed later by massage may be sufficient; scapulo-humeral periarthritis should be treated by manipulation under anaesthesia. This has been my practice throughout, and has resulted in every case in complete restoration of movement. In all except two patients all the symptoms and signs have disappeared in a few weeks. In the two exceptions pain has persisted to some extent. Evipan or pentothal gives sufficient time for the work. The scapula should be immobilized so far as possible by a band passing around the chest and held on the opposite side by the assistant. Forced shoulder movements must be brisk, and should be carried out in all the normal planes of movement. At certain points resistance will be encountered, and with further effort loud snaps will be heard. If there are a great number of resistant points it is unwise to break down all the adhesions at one sitting.

After-treatment

Post-manipulative pain is usually severe for one to two days. Dilaudid, 1/12 grain thrice daily, should be given for this. The arm must be abducted from the start, but the use of a splint is seldom necessary. If hard pillows are well packed into the axilla the position will be held well enough. Massage to the shoulder muscles and passive movements must be given within six hours of manipulation even though they are painful. Twice daily this physical treatment should be continued, and within three days active exercises should be begun. The ultimate success depends entirely upon the work of the masseuse and the co-operation of the patient. The total duration of treatment varies from two to twelve weeks according to the chronicity of the lesion. Treatment with x rays, baths, and dieting is futile and wastes time.

Summary

1. Scapulo-humeral periarthritis probably arises as a subacromial bursitis, with extension of inflammation to subdeltoid tissue.
2. It is caused by trauma or by rheumatism (fibrositis).
3. It is characterized by a stiff painful joint and a normal x-ray picture.
4. It should be treated by manipulation.
5. It has no tendency to spontaneous recovery.
6. The prognosis is extremely good (95 per cent. complete recovery; 5 per cent. partial recovery) provided that treatment and after-treatment are properly carried out.

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MANIPULATIVE TREATMENT OF INTESTINAL SPASM

BY

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Spasm of the unstriated muscle of the alimentary tract is usually disregarded or considered impossible of treatment; not all patients with a mild or transient spasm of the intestine are troubled by it, but most of them have symptoms of some sort. Two types of spasm occur: sympatheticotonic, affecting the sphincters of the alimentary tract; and vagotonic, affecting the bowel itself. The resulting discomfort is due as much to an overstretching of that part of the intestine immediately proximal to the area of spasm as to increased tension in the individual spastic muscle fibres.

Sympatheticotonic Spasm

Sympatheticotonic spasm of the pylorus and the accompanying loss of tone in the gastric musculature cause dilatation and consequently slow emptying of the stomach. The stomach also contains too much air, so that pressure is exerted upwards on the heart and the base of the left lung, and downwards on the pelvic viscera. The analogy is clear regarding spasm of the cardia with dilatation of the oesophagus and spasm of the recto-colic sphincter with megacolon, both of which conditions are relieved by section of their sympathetic supply and aggravated by division of the vagal supply—that is, their sympatheticotonic nature is well established. As the masseur's finger cannot reach these sphincters, however, they are outside the scope of this article.

The symptoms of the syndrome of pyloric spasm vary widely in intensity; patients may be bedridden or only slightly inconvenienced. They complain of tenseness and protrusion of the abdomen, much gastric flatulence, inability to eat much or breathe deeply, nausea, heartburn (caused, in my opinion, by a normal, or even subnormal, strength of acid being retained in the stomach too long), epigastric discomfort after food, palpitation, giddiness, breathlessness on exertion, insomnia, sweating hands, and often constipation. Though the appetite, which is a function of the blood-sugar level, may be good, patients feel too full to eat more after only a few mouthfuls.

Gastritis and gastric ulcer are often associated with pyloric spasm; this, I think, is primary, and the retention of acid the first step towards gastritis and its sequels. Flatulence is the result of gastric contractions against a closed pylorus; as liquid does not leave at the pylorus, gas is forced past the cardiac sphincter. If the cardia is as spastic as the pylorus, however, the patient, try as he may, cannot bring up wind, though he knows the relief that would follow. Breathlessness, giddiness, and palpitation after meals or on exertion result, and are due to upward pressure embarrassing the action of the heart.

The signs of sympatheticotonic spasm are often slight in comparison with the disability present. The patient is usually pale and thin, and looks anxious. The epigastrium and left lower ribs are prominent; there is epigastric tenderness, and the spastic pylorus can be rolled under the fingers against the spine. Gastric splashing may be detected, and there is a tympanic note on percussion over a large area; the bowel sounds are infrequent and the pulse fast. Radiological examination shows delayed emptying and poor tone of the stomach, often with visceroptosis, but nothing else.

Vagotonic Spasm

Vagotonic spasm may occur at any point from the duodenum to the rectum, where it is manifested by tenesmus. The common site is the colon ("colitis"), but the whole intestine, large and small, may be involved, or the spasm may be limited to only a few inches of bowel. The symptoms depend on the site and degree of the spasm, and the patients often feel surprisingly ill. Spasm of the distal part of the duodenum reproduces exactly the symptoms of duodenal ulcer, owing to the tension set up in the proximal segment. Spasm of the colon, if mild, causes colic and diarrhoea; if severe, colic and constipation, together with a feeling of tension within the abdomen. Spasm of the ascending colon is usually associated with dilatation of the caecum, and there is stiffness on full extension of the right thigh. Purges, by stimulating the colon to further contraction, make the constipation worse. If the rectum is involved there is difficulty and pain on defaecation. During menstruation, which is painful, vagal tone is generally increased and the abdominal symptoms are at their worst. Owing to its tight contraction a mechanical irritation of the mucous membrane of the colon is set up; mucus is secreted and voided, but apart from worrying the patient this fact is unimportant. Spasm of the jejunum and ileum is uncommon except as an extension of duodenal or colonic spasm, the symptoms of which predominate.

When the whole colon is involved the signs are obvious. The ascending and descending colon is palpable in each iliac fossa as a tender tube, the size of a thick pencil. The transverse colon lies high, and can be felt above the umbilicus on either side of the rectus muscle. The bowel sounds are frequent, the pulse usually slow. When the duodenum is spastic palpation may be difficult, but a skiagram will show the spasm and/or duodenal ileus—that is, dilatation and poor tone of that part of the duodenum proximal to the spastic area. Colonic spasm can be seen very clearly radiographically, and often a mild symptomless diverticulosis as well; this is the result of the high intracolonic pressure. Vagal tone is unaffected, but sympathetic tone is abolished, by spinal anaesthesia; at laparotomy the spastic coils that result are regularly observed. Spasm of the intestine, on the other hand, is relaxed by deep anaesthesia with ether or chloroform, so that surgeons are often sceptical of the frequency of its occurrence.

The cause of spasm of either type may be difficult to determine; in some cases no cause whatever is to be discovered. The two brief lists which follow include the more common causes, but are not exhaustive.

Causes of Sympatheticotonic Spasm

Toxaemia.—In the course of many diseases, particularly phthisis and febrile conditions, sympatheticotonic spasm is common, but its treatment is naturally that of the causative illness.

Reflex Spasm.—Cholelithiasis and chronic appendicitis—the latter often diagnosed but seldom present—both set up reflex pyloric spasm and its attendant symptoms, but are suitable for surgical rather than manipulative treatment. There is much discussion as to the true nature of "catarrhal" jaundice, but whether the abdominal symptoms are reflex, due to a duodenitis, due to spasm of the sphincter of Oddi, or part of an infective hepatitis, the fact remains that they are very amenable to manipulative treatment, which ensures proper relaxation of the pylorus and duodenum.

Pregnancy.—Early in pregnancy vomiting due to pyloric spasticity is common and responds well to manual treatment.

The condition is typically associated with psychoneurosis, and many of the symptoms are characteristic. For example, diarrhoea and precipitate micturition occasioned by excitement; insomnia; bad dreams; nausea and even vomiting—usually noticed first thing in the morning, just like the nausea of pregnancy. Phobias of various kinds are often described. Of my cases, a consecutive series of 118 showed the following analysis:

Headache	116	Nausea and sickness ..	71
Giddiness	115	Diarrhoea	6
Disturbed sight	106	Precipitate micturition ..	6
Insomnia	87	Dreams	6

The physical signs are also characteristic—the tachycardia; sweating, marked tremor, twitching of facial muscles, and the general mental state. Men often show an appearance of “crystallized panic.”

Functional and Economic Factors

Numerous references to the functional element in the disorder have been made from 1887 to the present time (Dickson, 1933), and it has become recognized that “the state known as miners’ nystagmus may be a psychoneurosis arising independently of any disorder of the eye movements or of vision, while in other cases psychoneurotic symptoms arise from the disturbance of vision connected with nystagmus itself, just as in the psychoneuroses of warfare some old injury or organic affection often determines the locality of a hysterical paralysis or anaesthesia . . . psychological conflicts of various kinds, sexual disturbances, or domestic worries all (may) contribute to the final breakdown” (Nystagmus Committee Report).

My experience in North Wales endorses this view. It has been found extremely rare for a man to give up work on account of eye movements alone. A close scrutiny of the case almost invariably discloses some other aetiological factor, which has finally determined cessation of work. The condition appears to depend upon the equation of two factors: the degree of strain, and the man’s ability to withstand such strain; and McCoull (1932) also has shown that the condition is much more likely to arise in men of impoverished mental equipment.

Strain of an economic nature frequently decides the balance of the equation. North Wales is a striking example of this. During the last decade the highest annual incidence in the whole coalfield was nearly four times more than the corresponding figures for the whole of Great Britain during the past twenty-six years. This high incidence in North Wales corresponded with a marked fall in the number of men employed, for trade was bad and many pits had to close.

While investigating the fifteen pits of North Wales I found that whenever large numbers of men were discharged there was at once a rush to be certified. In one case the average annual incidence for eight years was 0.37 per cent. of the men employed below ground, and never above 0.86 per cent., but during the year the pit closed the incidence jumped up to 2.59 per cent. In another pit the average rate for six years was 1.09 and never above 1.61 per cent., but during the last two years that the pit remained open, and while large numbers of men were being discharged, the rate jumped up to 6.72 per cent. Many of these men declared quite frankly that they *could* work if only they had the chance to do so, but, as they often added, “a man must live.” Yet, having once been certified—the die having been cast—many of them proceeded to develop chronic neuroses with tremor, tachycardia, sweating, etc., and a depressed and melancholy state of mind.

Here, then, we see how an additional economic factor may operate and may create the appearance of an epidemic. The claiming of compensation became widely known and customary. It became “the thing to do.” It was this which I believe accounted for that large prevalence in North Wales mentioned earlier.

Suggested Lines of Attack

With all these facts in mind I see the following lines of attack in the prevention of disability from the malady:

1. *Concerning the Panel Doctor.*—Treatment of concurrent ill-health, such as anaemia, cardiac disease, focal infection, etc.
2. *Concerning the Workman.*—Avoidance of alcoholism and excesses of all kinds.
3. *Concerning the “Compensation” Doctor.*—Discovery of any particular stress, such as distance from pit bottom, defective light, sense of danger, prevalence of noise, etc., any one of which may predominate in taxing the man’s tolerance. An appropriate change of job, if recommended to and accepted by the employer, may prevent a man’s failure.
4. *Concerning the Colliery Companies.*—Diminution of stress by improvement of illumination and ventilation; white-washing and stone-dusting. Setting up of experimental zones in which speed of work is slowed down. Provision of light work for affected men. Re-employment of men suitably recovered. Recognition of the nature of the condition and sympathetic co-operation in re-educating men to tolerate the full stresses once more. Possibly some form of pension scheme devised to remove the incentive to retire “on compensation.”
5. *Concerning the Medical Officers who have to Examine Applicants for Work at the Mines.*—Namely, refusal of those showing impoverished mentality, deafness, or any defect calculated to render the stresses of the mine more acutely felt.
6. *Concerning the Medical Referee.*—Stricter assessment of disability on the basis that the disorder is not of an organic character, that eye movement is not proof of disablement, and that tachycardia is not a bar to employment. The writer suggests that an attempt should be made to decide whether the determining stress arises from the mine work itself or from independent sources.

Summary

1. Prolonged work below ground may bring about oscillation of the eyes which does not necessarily cause disablement.
2. When disability does arise it is usually due to an associated psychoneurosis.
3. The prevention of this depends upon: (a) recognition of the foregoing facts; (b) the treatment of contributory disorders; (c) diminished stress in the mine; (d) the barring of unsuitable applicants; (e) improved economic conditions; (f) stricter assessment of disablement.

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should in theory be useful for sympatheticonia, I have not tried. Because of the patient's insistence that his present food disagrees with him, various diets will usually have been tried, and it is well to outline one consisting of foods that provide much nourishment in little bulk. Lying on the right side after meals and belts to raise the abdominal contents are not much use because it is not the position of the hollow viscera that matters but their tone.

Manipulative Treatment

Manipulative treatment is not the treatment of choice, as it requires daily attendance for perhaps some weeks, but it is the only treatment left untried by most of my patients. The fact that the patient has already had massage to the abdomen without relief is no bar to the method described below, which differs fundamentally from that used by masseurs. They are taught to massage the anterior abdominal wall and to try to push onwards the contents of the bowel, whereas the aim of the treatment outlined here is to relax the intestinal spasm so that no obstacle remains to hinder passage along the bowel. Before treatment begins all medicines must be stopped. If the patient has taken a purge regularly this may—but surprisingly often does not—result in the bowels not being opened for three or four days, but, after this, evacuation gradually becomes regular. The patient can be told that constipation is perfectly harmless so long as no attempt is made to treat it. In any case he is encouraged not to give in by the fact that the expected results of constipation—for example, headache and malaise—seldom appear under daily treatment.

The basic principle of all deep massage is not to allow movement between the patient's skin and the masseur's finger. Nowhere is this principle better illustrated than in massage of the intestine through the whole thickness of the anterior abdominal wall. The masseur's finger and the abdominal parietes must move as one, so that the intestine is directly affected. The patient adopts a half-lying position, relaxes his abdominal wall as best he can, and the spastic parts are identified. To begin with, the utmost gentleness may be necessary, since as soon as pain is evoked the muscles tense and treatment becomes impossible. With the hand and forearm horizontal, vibrations are transmitted to the intestine with the pads of the fingers. In patients who do well quickly the spasm may be felt and heard to relax after, say, fifteen minutes' vibratory treatment; in obstinate cases this desirable result may be achieved only after several weeks. From day to day the spastic point becomes less easy to palpate. Towards the end of the half-hour treatment, when the pylorus is relaxing, the stomach must be squeezed, so as to encourage its overstretched musculature to contract and expel some of its contents. The masseur stands facing the patient's feet, and bends forwards with the left hand on the patient's left lower ribs and the right indenting the mid-abdomen. The stomach is compressed between the masseur's two hands moving synchronously, the left hand medially, the right hand upwards. (In gastric ulcer, of course, this part of the treatment is omitted.) In spasm of the colon the same attempt is made in the right iliac fossa to diminish the size of the caecum. Finally, spinal nerve frictions are given; in sympatheticonic spasm, only to the sacrum where they cause reflex excitation of the sacral parasympathetic nerves; in vagotonic spasm in the mid-thoracic to mid-lumbar region, to stimulate the sympathetic.

If the perineum is lax active exercise of the levator ani muscle can restore its tone, even years after childbirth.

In "catarrhal" jaundice the treatment is the same as for a spastic pylorus, except that the duodenum must also receive treatment: the abdominal symptoms are usually fully relieved and the duration of pale stools reduced to a few days. The resting pulse rate gives a good indication of the patient's progress in cases of dilatation of the stomach; the rate falls from over 80 to under 70 when taken under standard conditions. A small increase in weight is common on improvement from sympatheticonia. The patients are treated daily until they are much better, whereupon the interval between treatments is increased. When the patient remains well on a weekly treatment he can be discharged. Relapses are rare, and one or two prompt visits suffice to stop them. Dysmenorrhoea is often greatly benefited for no very obvious reason. Patients whom years of ill-health have dispirited must be encouraged to take up curtailed activities again, so that they are leading approximately normal lives by the time that treatment ceases. Of the last fifty patients treated by me forty-three have remained well for a year or more after discharge.

Conclusion

Great improvement, even cure, of long-standing abdominal trouble can be achieved by manual treatment to the gastro-intestinal tract: vibrations to relax the spasm, manipulation to contract the proximal viscus, and the appropriate spinal nerve frictions. Fortunately, gut that has been educated to ignore the impulses that are upsetting its function stays unresponsive; hence relief is usually permanent. The treatment, as outlined here, is expressed in its simplest terms, and experience suggests many variations in technique, but the fundamental fact that manual vibrations relax intestinal spasm does not alter. Daily practice for months is necessary for proficiency, but even when given imperfectly the treatment achieves its effect, albeit more slowly. There must be a large group of patients who would benefit from manipulative treatment of their gastro-intestinal tract, but whose medical advisers are but dimly aware of this method's possibilities, even existence. Nevertheless, there is nothing unreasonable about it, and now that surgical manipulation is so well established it is to be hoped that the profession will not arbitrarily reject the idea of medical manipulation.

G. B. Costa-Starico and M. Miglietta (*Arch. ital. Chir.*, 1937, 47, 3, 281) state that the beneficial effect of maggots on suppurating wounds was observed by Ambroise Paré during the war in Flanders in the sixteenth century, and later by Larrey in the Napoleonic campaign in Syria. The American surgeon W. S. Baer, however, (*J. Bone Jt. Surg.*, July, 1931) was the first to make scientific use of the method of applying blowfly larvae in chronic osteomyelitis, having noticed in the great war that neglected wounds swarming with larvae healed with surprising rapidity. He therefore applied the larvae in eighty-nine cases of chronic osteomyelitis with gratifying results, which were confirmed by subsequent observers, including the present writers, who record six illustrative cases in patients aged from 4 to 29, and come to the following conclusions. The larvae of flies constitute a valuable addition to the surgical treatment of chronic osteomyelitis. In dissolving the necrotic tissue by their ferments and absorbing it the larvae facilitate the discharge of small sequestra embedded in unhealthy granulation tissue. The method moreover cleans up the wound and accelerates the process of recovery, this action probably being due to mechanical irritation. Lastly, it favours the production of a good smooth and solid cicatrix which does not contract or interfere with proper functioning of the limb.

After Anaesthesia.—Particularly after laparotomy under a general anaesthetic pyloric spasm and gross dilatation of the stomach may result and cause persistent vomiting and pain due to tension on the wound. If a patient already the subject of spasm of the pylorus is subjected to an abdominal operation it is important that he should receive manipulative treatment from the first, especially if a spinal anaesthetic is not given.

Psychogenic Spasm.—It is essential to realize that in this large group of patients the symptoms are by no means imaginary. Their sensations correspond to definite visceral disturbances caused by impulses carried in the sympathetic system as the result of emotional stress, usually anxiety, prolonged dissatisfaction, or over-tiredness. That this sympathetic mechanism will be called into play is particularly likely in sensitive and intelligent people who feel deeply but are too controlled to give their emotions free play; hence these are repressed into seeking a visceral outlet. Emotion in mammals other than man leads to combat or flight, the preparation for which is brought about by a high sympathetic tone that results in, among other things, cessation of gastro-intestinal activity. In man, unfortunately, this preparation for violent action is seldom useful, as the emotion is more often intellectual and lasting than physical and momentary. Even an improvement in the patient's circumstances does not necessarily result in the cure of spasm of psychogenic origin, because the derangement of visceral movement may have become a deeply ingrained habit. The good results claimed for such apparently different methods of treatment as psychotherapy and sympathectomy in, for example, achalasia of the cardia are seen to involve no contradiction; both result in an inhibition of sympathetic impulses to the sphincter. The method of re-education of the intestine described below offers a third approach to the problem; if the spastic point can be reached by the masseur's finger, relaxation can be obtained in spite of the continuance of an excessive sympathetic tone.

Causes of Vagotonic Spasm

Mechanical Irritation.—A high-roughage diet or the liquids used in colonic irrigation may set up colonic spasm. Purges irritate the intestine, and since constipation is common are often persevered with, in spite of their failure to help. Occasionally diseases of the colon, such as dysentery, may after cure leave a colon liable to spasm.

Pregnancy.—Especially during the second half of pregnancy spasm of the colon is apt to occur. Many cases of hyperemesis gravidarum fall under this heading. In one patient a spastic loop had even forced its way between the uterus and the anterior abdominal wall, whence repeated reposition was necessary.

Allergy.—Attacks of violent diarrhoea followed by colic and constipation, with even prostration and syncope, occur in those sensitive to certain foods. The treatment is, of course, identification of the food responsible and its avoidance.

Hypocalcaemia.—This promotes a high vagal tone as well as increasing the excitability of the intestinal muscle. I have come across the condition only twice. The patients had blood calcium levels of 7.0 and 8.9 mg. per 100 c.cm. of blood respectively, with inorganic phosphorus blood levels of 5.3 and 3.2 mg. Injections of vitamin D raised the calcium figure to 12.3 and 12.2 mg., while that for phosphorus fell to 2.7 and 2.9 mg. In spite of this satisfactory change there was only improvement and no cure of the intestinal condition in each patient. Manipulative treatment afforded one of them great relief, but it has to be continued at fortnightly intervals; the other patient obtained full relief that has now lasted for six months.

Psychogenic Spasm.—Whereas anxiety tends to increase sympathetic tone, prolonged mild excitement stimulates the vagus. A large group of patients whose vagotonic spasm originates in this way includes those in executive positions with important decisions to make, engaged couples, and creative artists, all of whose preoccupations are to some extent pleasurable. Obviously, some problems will cause excitement in one person and anxiety in another.

Differential Diagnosis

By the time patients are prepared to try manipulative abdominal treatment they have usually been exhaustively investigated already. The length of history as a rule excludes a diagnosis of growth or early phthisis. There may be persistent discomfort and tenderness in the right hypochondrium, with flatulent indigestion suggesting cholelithiasis, and yet a normal radiological filling and emptying of the gall-bladder. In these cases spasm of the duodenum or of the colon near the hepatic flexure may be responsible. Spasm of the ascending colon is so often diagnosed as inflammation of the appendix that this has usually been removed. Appendicectomy, followed by a return of symptoms, possibly attributed to adhesions, suggests that the condition was ascending colonic spasm from the first. As appendicitis is accompanied by diminution of bowel movement in its neighbourhood, and spasm by excessive movement, auscultation for bowel sounds often points towards the correct diagnosis. There is, of course, no rise of temperature or pulse rate in spasm of the colon, but there may be constipation, and tenderness in the right—and often also the left—iliac fossa. Peptic ulcer is excluded by radiography in cases of pyloric or duodenal spasm, but, as an adjuvant measure, manipulative methods are not necessarily contraindicated in gastric ulcer, which can only benefit from relaxation of the pylorus. Achlorhydric diarrhoea and lead poisoning must be kept in mind. Heart disease is often suspected in the syndrome of pyloric spasm, and some cases of "effort syndrome" fall into this category. In constipation due to otherwise symptomless hypothyroidism, the lack of spasm, the slow pulse, and the silence on auscultation for bowel sounds give the clue to the correct diagnosis.

General Treatment

Whatever treatment is adopted it is essential to explain to the patient the way in which his symptoms arise. The idea that some part of the intestine, palpable by the physician and identified to the patient by the tenderness elicited, suffers a persistent contraction is well within the patient's grasp. Mistaken ideas to which the patient adheres firmly must be disposed of. They are: first, that his troubles are due to some unidentified foodstuff disagreeing with him; second, that for good health the bowels must be made to open at least once a day. A brief review of the ups and downs reported in the history quickly corrects the first fallacy, and the patient can be told that within reason it does not matter how seldom his bowels open so long as he does not take a purge. Manipulative treatment usually does result in a daily motion, but patients with severe colonic spasm often feel at their best when the bowels open only every other day.

The patients I see are those whom medicines and diets have failed to benefit, so that my opinions on the following points may be biased. Patients with a resting pulse rate of under 60, excessive salivation, and intestinal spasm are often helped by atropine, but colonic spasm alone appears not to benefit. To give atropine for pyloric spasm is illogical and useless; for this the correct drug theoretically is ergotoxine (not ergometrine), but I have not found any good effect follow its administration. My experience of papaverine has been disappointing; alkalis and bromides have, of course, already been given to most of these patients. For vaccines I can see no justification, and I have never tried Irish moss or bran. Calcium, by diminishing cellular excitability and increasing sympathetic tone, is a useful drug in vagotonia; its opposite, potassium, which

structural, and that in a large majority of the cases there is no evidence of an actual persistence of gonococci. The use of strong antiseptics is irrational, and serves only to increase the mischief by further injuring the mucous membrane. The use of local heating by means of hollow bougies heated by a stream of warm water or by diathermy is unlikely to be of great value. In very resistant cases cautious dilatation with the straight Kollmann dilator may be tried occasionally, but no very striking results are obtained, and in careless or unskilled hands the instrument is a dangerous one. Vaccines or non-specific protein therapy may be given. The action of the vaccines is probably non-specific also, since serological and bacteriological findings suggest that actual gonococcal infection is usually no longer present.

The most satisfactory results are obtained by patient urethral massage over a prolonged period. Massage should not be applied if the urine is hazy. This shows that there is a subacute urethritis or a cystitis present; these may be differentiated by the usual methods. Daily irrigation for a week or two with the solutions already mentioned and the administration of an alkaline diuretic mixture, which may contain 7½ minims of tincture of belladonna or one-half drachm of tincture of hyoscyamus to the dose, will usually clear up this difficulty. In a resistant case the mandelic acid treatment may be tried.

Tests of Cure

A common early effect of treatment is to increase the amount of discharge and the amount of pus contained in it. This need cause no alarm; it indicates that the follicles are being emptied and shows that the mucous membrane is reacting to treatment. Large palpable follicles become smaller, as may be observed with the urethroscope. If not already negative the complement-fixation test becomes weaker and ultimately negative. A case may be considered cured when an absence of the objective signs has been maintained for several months after the treatment has been suspended. Attempts should be made to provoke a return of symptoms by the intracutaneous injection of provocative agents—for example, 200 millions of a mixed vaccine of gonococci, staphylococci, *B. coli*, and streptococci, or of 1 c.cm. of aolan. It is not always possible in severe and long-standing cases to restore a completely normal urethroscopic picture, and in such cases relapses are to be expected, as the resistance of the mucous membrane is presumably lowered. It must also be remembered that some of these patients also suffer from a chronic "gonophobia," and may continue to complain of vague subjective discomfort. They return again and again to ask if they are "all right," they ask to have their cerebrospinal fluid tested, and ascribe herpes genitalis and many other things to their former indiscretions. Once one is reasonably satisfied that the organic basis of their symptoms is removed they are to be firmly reassured and if necessary referred for psychotherapy.

The complement-fixation test is not, as has been already stated, of much help in the diagnosis of this condition: it has complicated the question of cure in this as in other chronic sequelae of acute gonorrhoea. One sometimes finds that although all the other signs have cleared up in a certain case there still remains a greater or less degree of complement fixation. It is difficult to know what to do in such cases. Sometimes a negative test can be obtained after the patient has been given prostatic massage twice weekly in addition to his urethral massage for six or eight weeks, but whether this is *post hoc* or

propter hoc is another question. One feels uneasy at telling a patient who still does not give a clear negative test that he is cured, and, on the other hand, one hesitates to prolong treatment unnecessarily, particularly as this may have serious effects on the patient's mental state and may also lead to marital discord. The problem appears to have no completely satisfactory solution in the present state of our knowledge.

I wish to express my thanks to Dr. A. O. Ross, senior venereal diseases officer at Liverpool, who first drew my attention to this condition and to the part played by the hard syringe in its production; and also to Dr. Mannikowitch, venereal diseases officer for Salford, for his encouragement and for permission to publish this paper.

Clinical Memoranda

"Sympathetic Twins"

The element of pure coincidence or obscure aetiological association makes these cases worthy of record. The history involves X. and Y., male twins aged 41, both unmarried, and living together in one household.

On December 10, 1937, Y., a stout man of robust appearance, was sent into the Royal Victoria Hospital, Belfast, by me with a diagnosis of gastric or duodenal ulcer perforation. Laparotomy revealed a perforation of an apparently chronic ulcer situated at the junction of the first and second parts of the duodenum.

On the following day X., a thin under-developed man of haggard appearance, complained of epigastric pain and had a small haematemesis and melaena. Forty-eight hours later he presented signs of an acute abdomen. He was admitted to the same hospital, and laparotomy revealed a perforation of an apparently chronic ulcer at the junction of the first and second parts of the duodenum.

Both these men have been known to me for several years, and although they consulted me on occasions with vague dyspepsia neither had at any time signs or symptoms suggestive of duodenal ulcer. The existence of a duodenal diathesis is commonly seen in practice, and the tendency in this family is heightened by the brothers living together and being presumably subjected to similar gastronomic indiscretions.

I am assuming that my patients are dizygotic (dissimilar, fraternal) twins. I base this on the fact of their entirely dissimilar appearance and general build, the verified history that they never resembled each other at any period of their lives, and, finally, their complete dispositional and temperamental dissimilarity. Newman (1917) points out the difficulty of differentiating the type of twins in adult life and discusses Wilder's method of comparing friction—skin, palm, and sole patterns. In monozygous or identical twins these show a pronounced similarity which does not exist in dizygotics. This is an elaboration of the methods used in criminology.

The coincidental occurrence of diseases in twins is but seldom reported in our literature, though it must be relatively frequent. Watson (1932), reporting the occurrence of diabetes mellitus in twins, refers to the fact that in recent literature the total number of recorded incidences of this association is twenty cases. He points out that practically all diabetic twins are of the monozygotic variety, and he discusses hereditary predisposition as an aetiological factor. Meltzer (1935) reports gastric

CHRONIC LITTRITIS

BY

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Chronic inflammation of the glands of Littre is one of the common sequelae of acute gonorrhoea. It is of considerable importance not only to the individual affected but also to the community, since it may cause the infective state to persist or may provoke a non-specific leucorrhoea in the patient's sexual partner. It is largely, if not indeed entirely, due to improper treatment and is therefore preventable.

Signs and Symptoms

Urethral discharge, which is commonly slight in amount but may be profuse for longer or shorter periods, especially in neurotic patients, is usually most marked in the morning before micturating; its appearance is often intermittent. Microscopical examination shows tangled threads of mucus, epithelial cells, a few pus cells, and some bacteria; the urinary threads show similar appearances. Pus cells of polymorphonuclear type are not numerous, but may be more abundant during exacerbations. The bacteria are scanty as a rule; various types of cocci are seen, a few bacilli, and occasionally some coarsely spiral organisms; gonococci are not often found, but may be seen after certain provocative stimuli, such as coitus, the taking of alcohol, or the intracutaneous injection of aolan and similar products, or of gonococcal vaccine.

In a two-glass test urinary threads may be most numerous in, or even entirely confined to, the first glass. The most characteristic type is a very fine comma-shaped or "exclamation mark" thread. Ill-defined sensations of "burning" or "tingling" are reported by many patients; the sensations are localized in the penis, and are of course most marked in neurotic types. The complement-fixation test may confirm the diagnosis, but cannot exclude it. Enlarged follicles may be felt on palpation of the urethra over a straight sound, or seen with the urethroscope. They appear as small purplish-red points, which may be slightly raised or depressed. Sometimes a rather larger pit with thickened margins is seen at the site of an old follicular abscess. The most characteristic appearance, which is seen in well-marked cases, is that of a double row of enlarged follicles opening into the crypts in the roof of the urethra. Hyperaemic areas, with superficial erosion of the mucosa, may be seen in some cases.

Aetiology

The essential factor in causation appears to be improper treatment—that is, treatment in which the urethra is exposed to fluids at high pressure. Urethral irrigations may be given by means of a douche acting by hydrostatic pressure or by means of a hand syringe. The hand syringe was formerly widely used in the treatment of gonorrhoea, and although it has now been largely superseded by douches its use still survives, in particular with those patients who attempt self-treatment, but also with those practitioners who are only occasionally called upon to treat gonorrhoea, and who lack the more cumbersome apparatus—and have not a proper understanding of the very real dangers of the syringe.

The patient using a hand syringe can readily produce very high intra-urethral pressure; since the pressure depends on muscular action it is variable within wide

limits, and no objective measurement is possible. The pressure in the canal varies with that in the syringe inversely as the cross-section of the canal and of the piston of the syringe, and is of course a high multiple of that applied. The capacity of the ordinary syringe is relatively small, so that the urethra is washed with small quantities of fluid at a time. The use of the syringe is so often associated with attempts at self-treatment, or with treatment by those who are unfamiliar with venereal diseases, that it is not surprising that such patients often have not had routine blood tests for occult syphilis, or satisfactory, or indeed any, tests for cure of gonorrhoea. Although clinical and serological findings show that syphilis is not a factor in the causation of chronic littritis, the two conditions are of course not mutually exclusive. Patients frequently maintain their misguided efforts with a hand syringe for extravagantly long periods; a history of daily syringing for over a year is not unusual. In many cases from six weeks' to three months' use of the hand syringe is sufficient to produce chronic littritis. The same may be said of the use of strong or unusual solutions—for example, strong permanganate solutions, hair lotions, mouth-washes, olive oil—but the lesion can be produced by the syringe alone without these additional errors.

Comparison of Cases

In a large series of urethroscopies, such as are performed at the Salford Clinic in the tests for cure in all cases of urethritis, there is a striking contrast between those patients who have irrigated correctly and those who have used a hand syringe; on the one hand a monotonous series of normal urethrae, on the other a large number of cases of chronic littritis. The patient may complain of vague discomfort referred to the urethra, he may have a slight discharge occasionally on rising in the morning, and the urine may show small threads. He often stoutly denies that he has ever had urethritis or used a hand syringe for the prophylaxis of venereal diseases. When one has seen with the urethroscope that he certainly has a chronic littritis, the confident assertion that he has used a syringe or a sudden question which takes him off his guard will usually cause him to admit the correctness of the deduction. It must again be emphasized that these patients are liable to exacerbations following coitus even with a healthy female; the damaged mucosa also seems readily to acquire non-specific urethritis. Thus when first seen the patient may have a subacute urethritis which masks the underlying condition. The question of acute gonorrhoea is investigated in the usual manner, and he is then treated for his subacute urethritis; when this subsides the true state of affairs is discovered. The influence of excessive pressure in producing chronic littritis is also shown by the fact that one occasionally meets with it in those patients who have used an irrigator of the hydrostatic type but with the reservoir excessively elevated.

Treatment

The patient must abstain from alcohol, highly seasoned dishes, sexual relations, and sexual excitement. The urethra is gently irrigated with weak solutions; the words "gently" and "weak" must be emphasized. A solution of 1 in 10,000 mercury oxycyanide or 1 in 10,000 chloramine-T may be used. The anterior urethra is then massaged, at first lightly, later with increasing firmness though never roughly, over a straight sound. Treatment twice in each week is directed not at forcible eradication of the disease but rather at gentle stimulation of the mucosa. It is to be remembered that the lesion is

Reviews

ALLERGIC MANIFESTATIONS

Clinical Allergy due to Foods, Inhalants, Contactants, Fungi Bacteria, and Other Causes. By Albert H. Rowe, M.S., M.D. (Pp. 812, 37s. 6d.) London: Baillière, Tindall and Cox, 1937.

In his book on clinical allergy Dr. A. H. Rowe emphasizes the importance of allergic manifestations in the patient's system, and points out that any tissue may become sensitized. As instanced, the gastro-intestinal, neurological, ophthalmological, and dermatological systems may be severally affected. Dr. Rowe is especially interested in food allergy, but recognizes other causes. He suggests that allergy is in the nature of a defensive mechanism and discusses the antigen-antibody reaction. The theory of this reaction is examined in full and the hereditary factor is adequately dealt with. He stresses the point that positive skin reactions are not necessarily obtained by the food to which the patient is sensitive, but that the causes of the condition may be ascertained by elimination diets, and gives a very useful table to show how this may be done. He emphasizes the importance of a carefully recorded history. The technique of skin testing is adequately discussed, including the Prausnitz-Küstner reaction.

Elimination diets are described in much detail, and will be found very useful when investigating a specific case of suspected allergy. It is, of course, difficult to draw up a diet sheet, and in this respect the tables will be helpful. Desensitization by giving gradually increasing quantities of the food to which the patient may be sensitive is discussed, as well as hypodermic desensitization. Dr. Rowe is of the opinion that the theory of achlorhydria as a cause of allergy is not founded on a firm basis.

A special section is devoted to pollen allergy and its treatment. There are also chapters on general treatment and a full description of the allergic dermatoses. Nasal, urogenital, and joint allergy are well described.

Perhaps the most interesting section is that on the subject with which the author is particularly concerned—namely, food and drug allergies—and the book will be found most useful in helping the practitioner to deal with a case of food allergy. There is an appendix containing illustrated case histories and many hints on the management and treatment of allergic patients.

The book is well written and well printed, and will be valued by those interested in the subject.

OPERATIVE DENTISTRY

A Text Book of Operative Dentistry. By William Harper Owen McGehee, D.D.S., M.D., F.A.C.D. (Pp. 922; 1,040 figures. 42s.) Second edition, revised. London: J. and A. Churchill Ltd., 1937.

McGehee thinks the scope of operative dentistry should be limited to those affections of the oral cavity resulting from dental caries, erosion or abrasion, exposure or infection of the dental pulp and its sequelae, and to manifestations of pathological disturbances of the periodontal membrane resulting from pulp diseases. He excludes pyorrhea, exodontia, anaesthesia, planting of teeth, the technique of radiology, orthodontia, minor oral surgery, dental anatomy, histology, and pathology as fields for the several specialists. He yet finds matter for a volume of 900 pages with over 1,000 illustrations. The chapters on prevention of oral diseases afford much inter-

esting reading (especially we note the discussion of the value of dentifrices) and at the same time food for criticism. What value is there, for instance, in such a statement (p. 137) as, "The condition is due . . . in rickets, gout, diabetes to the fact that not only is the vital resistance of the teeth lowered, but that also in these conditions there is supposedly [our italics] an excess of ammonium chloride found in the blood which, reaching the vessels of the pulp, produces a dissolution or softening of the hard tissues of the teeth"? And how are we to reconcile the statement (p. 183) that monocalcium phosphate predominates in the saliva in caries susceptibility while tricalcium phosphate predominates in immunity with that on page 188 that the resting saliva is hyper-acid in all cases of immunity and hypo-acid in susceptibility? The chapters on gold amalgam and cement fillings and on gold and porcelain inlays and porcelain jacket-crowns are most practical, and include a new form of interstitial cavity preparation: while the discussion on root-filling is marked by sound common sense, though we have to confess that at the end we are left wondering whether any—but the straightest and simplest root-canal can be successfully filled.

Perhaps it is a fault on the right side, but we think Dr. McGehee's book is overillustrated, and in some cases (for example, Fig. 12) the illustration does not show all the legend claims. The book is another evidence of the high ideals of American dentists.

CHRONAXIA

Interprétation du Fonctionnement du Système Nerveux par la Motion de Subordination: Subordination et Posture. By Pierre Mollaret. (Pp. 442. 60 fr.) Paris: Masson et Cie, 1937.

The French school of neurology has a great tradition to maintain, and recently its brilliant work on chronaxia has been entirely worthy of this tradition. Dr. Pierre Mollaret has undertaken a survey of this work and thereby advanced an interpretation of the function of the nervous system based on the concept of subordination.

The foundations of three great recent advances in the understanding of the function of the nervous system have been Cajal's demonstration that the nervous system presents a histological discontinuity; Sherrington's proof that in this discontinuity the transmission of the nervous impulse displays a choice at each synapse; and Lapicque's concept that the explanation of this "choice" lies not in spatial but in chronological data. The study of chronaxia has established certain laws. The chronaxia of any given muscle is fixed. Certain muscle groups show similar chronaxias, and these correspond to definite segments of the limbs. The chronaxias of the distal groups are longer than those of the proximal groups. The chronaxial classification of muscles thus obtained is not anatomical but functional. The chronaxias of agonist muscles are in a 2 to 1 or 1 to 2 proportion to those of the antagonists.

Testing chronaxia in the central nervous system it is found that it is the same throughout the neuronic chain from cortex to muscle provided this is healthy, but in illness this isochronaxia may be seriously upset. Similarly, on the sensory side there would seem to be a constancy of the chronaxia throughout the transmission path of a given sensation and simple relations between the chronaxia of different sensations. In reflex paths there would seem to be isochronaxia on both sensory and motor sides of the arc. Chronaxia in the vegetative system is being studied, but no definite conclusions have yet emerged.

The concept of subordination has been proved by many experiments on all sorts of animals, and is that the

carcinomata occurring simultaneously and symmetrically in monozygotic twins, and states his inability to find a similar case recorded.

SUMMARY

Similar, symmetrical, and simultaneous duodenal ulcers occurring in dizygotic male twins are reported.

The ulcers in each case were apparently of some chronicity and clinically of the silent type.

These chronic ulcers perforated in each case within a matter of hours.

These cases tend to support the theory of a diathesis and a close hereditary association in the aetiology of duodenal ulceration.

The coincidental perforations could be attributed in some measure to the sympathetic and psychic affinities said to exist in twins.

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A Personal Account of the After-effects of the Modern Treatment of Carcinoma

I doubt if the results of the modern treatment of malignant disease by the combined methods of x rays, radium, and the surgeon's knife are as well known as they should be. The history of my own case, told partly as a patient and partly as a surgeon, may be of interest. In February, 1937, I found that I had an epithelioma, about the size of the nail of my little finger, on the left tonsillar lingual fold. It was freely movable on the deep tissues and there were no enlarged lymphatic glands. I was wintering in Jamaica. I left for New York at once, and placed myself under the care of a surgeon who has certainly had as much experience with this class of case as anyone in the world. More kindly, skilful, and generous treatment no one could possibly have received. The diagnosis was confirmed by a microscopical examination of the edge of the ulcer.

RADIOLOGICAL REPORT

Treatment began the day I arrived—that is, on February 22. From that date until March 12 I received x-ray treatment, amounting to a total of 3,540 r units, given during fourteen exposures. This was supplemented by radium therapy, ten radon seeds being inserted in the left anterior tonsillar pillar on March 8 and fifteen seeds in the left neck on April 1.

March 8.—First lot of ten radon seeds inserted around ulcer from inside of mouth.

April 1.—Under novocain. The left intercarotid lymphatic gland and the next gland to it were excised and the second lot of fifteen radon seeds inserted through the wound deep to the ulcer. The pathologist's report: "No growth; inflammatory only."

April 6.—Stitches removed, wound healed by first intention.

April 21.—Sailed for England.

THE PATIENT'S POINT OF VIEW

February 22.—I am 6 ft. 1 in., weight 10½ st. without clothes, aged 70. Could play a daily round of eighteen holes at golf or drive a car all day without being tired.

February 26.—After the fourth exposure to x rays, for the first time did not feel quite so well.

March 1.—After the sixth exposure to x rays I felt very slack; no appetite; coppery taste in mouth.

March 8.—Insertion of radon seeds hurt a bit. The last one very painful—as bad as extraction of a molar tooth. Felt sick and faint; pain, numbness, and a tingling in front part of left side of tongue. Could not open my mouth wider than to just admit a finger.

March 12.—Last exposure to x rays. My skin over the left side of neck and jaw bronzed, hot, and sore. Throat at site of growth slight superficial ulceration, no hard edges.

All this time my throat and nose were daily sprayed thoroughly with mild antiseptics. This has continued until the present time.

March 19.—Everything seemed worse, and I felt rotten.

April 1.—No pain from operation or afterwards.

April 6.—All stitches out. Wound had absolutely healed by first intention. No pain about scar.

April 21.—Sailed for England. Not feeling too good. Weight 9 st.

I improved in general health, but was never free from marked discomfort in the left side of my throat and tongue. Weight 9 st. 3 lb. on July 22.

About this date severe pain started in all three divisions of the fifth nerve on the left side and pain and spasm in the left masseter and pterygoid muscles. Eating, drinking, smoking, and speaking all increased the pain, and became almost impossible. There was an ulcer with a wash-leather slough on it about the size of a penny piece where the original growth had been. Cachets of aspirin and codeine relieved the pain a bit. I could only sleep on my right side, and pressure on the right posterior thoracic nerve caused paralysis of the right serratus magnus and "wing" scapula—I still have it. I went steadily downhill. Life was most certainly not worth living. On November 7 my weight was 8 st. About the middle of November things got a little better; there was less severe pain and more appetite, and since then, to February 4, 1938, my weight has increased to 8 st. 8 lb.

It is interesting but not amusing to watch one's heavily irradiated tissues, practically unchanging month after month, wondering whether they will recover or die, knowing that the only thing one can do is to keep the mouth clean and the general health and nutrition as good as possible. I have not been dressed or out of my house and garden for the last six months. I can only walk about two hundred yards, and am a bent and feeble old man. I suppose I shall ultimately get better; but one asks oneself, "Is it good enough?" For me, definitely not. The surgical part of my case was trivial and painless. I would not wish my worst enemy the prolonged hell I have been through with radium neuritis and myalgia for over six months. La Rochefoucauld was right when he said: "It is a grievous illness to preserve one's health by a regimen too strict."

This account of my own case is a plea for a very careful consideration of all the factors before deciding which is the most suitable method of treatment. For an old man with an early growth to have an adequate surgical operation only would be well worth the possible extra risk of recurrence. On the other hand, though a young man might withstand radium better, if he is unfit for work for a year afterwards how does he earn his daily bread? The resistance of tissues to radium emanations is still a doubtful quantity, and the intensive research on this subject which is being carried out should be generously supported. This to my mind is even more important than buying more radium and using it in cases for which it may not be the most suitable form of treatment.

PERCY FURNIVALL, F.R.C.S.,

Consulting Surgeon to the London Hospital.

not been sacrificed in spite of the extra space needed to bring the book up to date.

Recent advances in the field of bacteriology have called for extensive revision and rearrangement in many of the chapters, and much new material has been added, including descriptions of such organisms as those of bovine pleuro-pneumonia and agalactia, *Bacterium monocytogenes* and *Bacillus necrophorus*. The inclusion of pseudo-rabies, lymphocytic chorio-meningitis, rift valley fever, poradenitis, the common cold, and influenza has led to a considerable enlargement of the section dealing with filterable viruses. This opens with an introductory chapter in which the characteristics of viruses in general are discussed and the technique of virus work is described. The methods available for the staining of elementary bodies are so numerous that one would neither expect nor hope to find them all included in a book of this nature: the authors have confined themselves to a few methods which they know to be satisfactory and reliable. The directions for the cultivation of viruses are not always as clear as they might be; particularly is this so in the description of the method utilizing the chorio-allantoic membrane of the developing hen's egg. The chapters on the pathogenic protozoa and the pathogenic fungi have been retained, and a short appendix on the bacterial flora of the normal skin and mucous membranes has been added.

The extensive revision and additions throughout the text have inevitably led to an increase in size, and although it may appear to be rather large for the undergraduate medical student in view of the relatively short time allocated to the subject in the medical curriculum, the book in its new form can be recommended as a concise and up-to-date work on the subject.

Notes on Books

Die Operation in der Sprechstunde, by Dr. RICHARD GOLDHARN (Leipzig: Georg Thieme, R.M. 6.80), is an attractive little volume dealing with the type of surgery which a practitioner may be called upon to perform in his consulting room. It consists of some 180 pages of text, an index, and sixty-eight illustrations, which are very clearly drawn and demonstrate well the points made in the text. The treatment of wounds, tracheotomy, lumbar and cisternal puncture, teeth extraction, and tonsillectomy may be cited as examples of the surgical procedures, all of which are described concisely and clearly. Descriptions and illustrations of some useful devices not often referred to in students' textbooks are included, such as a method of extracting a pin from the urethra so as to produce minimal damage and the use of Michel clips for controlling bleeding from a scalp wound, while the accounts of the treatment of urinary obstruction, finger and hand infections, and of peri-anal abscesses add to the value of the book. The convenient size of this volume, its large and clear print on glossy paper and particularly graphic illustrations make it attractive, and it should have a wide appeal to practitioners and even also to hospital residents. It might profitably be translated into English.

The object of the *Municipal Year Book* is to give succinct information about the various developments of local government administration, first as a permanent record of events, and secondly in order to facilitate reference for everyday use by all who are concerned directly or indirectly with the civic services. The issue for 1938, the fortieth year of publication, is a large and well-produced volume of 1,650 pages, divided into fifty sections, with full general indexes and a handy thumb index to the twelve main divisions. The whole material has been

thoroughly revised, and the editor says that fully 80 per cent. has been rewritten. The past year was a fruitful one in the matter of law cases affecting local government, and all the important cases and decisions are reviewed. The Minister of Health contributes a glowing preface to the latest edition of this invaluable encyclopaedia of local government facts and figures. It is published at 30s. by the Municipal Journal, Ltd., 3 and 4, Clement's Inn, Strand, London, W.C.2.

The third edition of *The Sanitary Inspector's Handbook*, by H. H. CLAY, has been enlarged by nearly 100 pages owing to the rewriting of most of the references to law throughout the book rendered necessary by the coming into operation of the Public Health Act of 1936, the provisions of which are specifically considered in certain chapters. Additional new technical information has also been incorporated, and the book deals effectively with the great diversity of duties now laid on the sanitary inspector. A summary of the law in Great Britain so far as it concerns the sanitary inspector is inserted at the beginning of each chapter, facilitating quick reference and ensuring lucidity. Nearly 100 illustrations in the form of diagrams add to the value of the book, and a glossary of building terms, memoranda, and an adequate index are supplied. The present edition is a worthy successor to its popular predecessors. It is published by H. K. Lewis and Co. at 16s. 6d.

An important addition has been made in the tenth edition of BOLLES LEE'S well-known handbook *The Microtome's Vade-Mecum*. Dr. D. G. Catcheside having contributed a new section on plant technique. There are also new chapters on frozen section technique and vital staining. All the sections have been carefully revised and brought up to date. The original author, Arthur Bolles Lee, was at one time a medical student in London, but he did not complete the course, going out to Neuchâtel, where he devoted himself to the methods of microscopical anatomy. In the first editions of his *Vade-Mecum* no procedure was included which he had not personally employed, but the scope of the subject extended so widely that later on this selection became impossible: several chapters in this edition—for example, those on invertebrate embryology and nerve-endings—still stand as the original author left them at his death in 1928 when the ninth edition was just going to press. The present authors are J. Bronté Gatenby of Trinity College, Dublin, and Theophilus Painter of Texas University. The publishers are J. and A. Churchill and the price is 30s.

Préparations and Appliances

FERRAEMIA TABLETS

Ferraemia brand tablets (Messrs. Wilcox, Jozeau and Co., North Circular Road, N.W.2) are chocolate-coated tablets each of which contains $2\frac{1}{2}$ grains of excised ferrous sulphate together with small quantities of copper and manganese salts and 2 grains of dried yeast. The preparation is recommended for hypochromic, nutritional, and secondary anaemias, and as an adjuvant to liver therapy in pernicious anaemia.

MAGNESIUM TRISILICATE PREPARATION

"Trisomin" (Eli Lilly and Co.) is a preparation of magnesium trisilicate. Dr. Mutch drew attention in these columns to the useful antacid properties of this salt, which adsorbs and inactivates hydrochloric acid. The adsorbent action of the hydrated silicate gel formed in the gut by magnesium trisilicate indicates that it should be valuable in the treatment of diarrhoeas due either to food poisoning or to infection with dysenteric organisms.

chronaxia of the peripheral elements of the nervous system is controlled by, and therefore is subordinate to, that of the central elements in health, and that in disease this subordination is disturbed. A study of the chronaxia of the various parts will thus help to localize the lesion. Similarly, such studies throw light on the action of certain drugs, especially of anaesthetics, and on the effects of the toxins of various bacteria and viruses.

Much work has been done on the variations of chronaxias and their subordination at various levels of the nervous system under normal and pathological conditions, and on influences brought to bear by interaction of the central and the vegetative nervous system and by various circulatory nutritive and endocrine changes. Though many of these observations are confusing and contradictory, they seem to point to a physicochemical explanation of the phenomena and to throw light on the recent theories of chemical transmission of nervous impulses.

In the last section of the book Dr. Mollaret describes his own studies on chronaxia and subordination in relation to posture. As Dr. Lapique says in the preface, this work is an invaluable survey of all that has been done in the field of chronaxia up to the present time.

TREATMENT OF PNEUMONIA

The Management of the Pneumonias. By Jesse G. M. Bullowa, B.A., M.D. (Pp. 508; 142 figures; appendix. 27s. 6d. net.) London, New York, Toronto: Oxford University Press. 1937.

Professor Bullowa's book, based largely on the studies carried on in the Littauer Pneumonia Research Laboratory and the wards of Harlem Hospital, New York, is a very detailed exposition of the subject. It is copiously illustrated by graphs, curves, and charts in the American manner. Unless it is borne in mind that this book is the result of a planned research the reader may feel overwhelmed with the mass of statistics and mathematical calculations, and he may despair of ever being able to treat a case of pneumonia again. But once the nature of the book is realized he will find much shrewd observation and helpful guidance. He may, however, feel that if we in this country tend to undertreat our cases, there may be a tendency to overtreatment on the other side of the Atlantic, and may demur from the statement (p. 38) that the pneumonia patient is never too ill to be examined.

From the wealth of material we may pick out some of the points that interested us. The author finds that women, though more lightly clad than men, are less liable to pneumonia, which emphasizes the protective value of a quickly reacting vasomotor system in the skin. He stresses the dangers of dehydration, and regards euphoria as a very bad sign. Horsfall and Goodner are quoted (p. 75) on the importance of certain lipoids in assisting and in interfering with the protective effect of serum treatment; lecithin assisting and cholesterol interfering with it. We are rather surprised to learn (p. 169) that the metabolic requirements of a pneumonia patient may be 3,500-4,500 calories daily, and that 7.2 per cent. should be added to this for every rise of a degree in temperature. For a fever of short duration we should not have thought inanition a real danger, nor should we have anticipated that such a patient could assimilate so much nourishment. The author is strongly opposed to morphine in pneumonia, mentioning (p. 180) that out of fourteen delirious patients given morphine thirteen died. He disbelieves in the value of quinine derivatives such as optochin, and mentions the risk of their causing amblyopia. As to prontosil, he

does not think that its value for bacteraemic cases of pneumonia is as yet proven.

There is an interesting section on acute pulmonary oedema (p. 188). Professor Bullowa considers that treatment should be directed to overcoming the increased capillary pressure by (1) reduction of the circulatory fluid by limiting fluid intake and by venous tourniquets; (2) abstraction of fluid from the tissue spaces by the intravenous injection of 100 c.cm. of 50 per cent. sucrose solution, which, though acting more slowly than glucose, has a more prolonged effect; (3) treatment of anoxia by oxygen administration and increasing the depth of respiration by giving it under pressure, which also breaks up the foam bubbles in the atria of the alveoli; (4) counter-irritation.

Good radiographs of the chest illustrate the section on radiological diagnosis; and methods of oxygen administration and of serum treatment are dealt with comprehensively. But enough has been said to show what a full study of the subject has been made by the author.

IRON METABOLISM

Das Serumeisen und die Eisenmangelkrankheit (Pathogenese. Symptomatologie und Therapie). By Ludwig Heilmeyer and Kurt Plötner. (Pp. 92; 22 figures. RM. 6.) Jena: G. Fischer. 1937.

In this monograph on serum iron and iron deficiency Drs. Heilmeyer and Plötner give a useful review of an important subject. The iron content of serum is only about 1 mg. per litre and hence the total body content is less than 4 mg. This tiny quantity is, however, important, because it represents material in transport, and after secondary anaemia due to haemorrhage it may fall to 20 per cent. of the normal. The authors calculate that in such conditions the serum iron is restored more slowly than the haemoglobin, and only returns to normal when the iron depots of the body are refilled. The monograph closes with an interesting discussion on the value of various forms of iron therapy. Measurement of changes in serum iron permit the demonstration within a few hours of the fact that ferrous salts of iron are absorbed, whilst ferric compounds are not. The authors draw attention to the great value of intravenous injections of the combination of iron and ascorbic acid. Injections of 0.2-0.3 gramme of this compound produce better effects on the haemoglobin content than does administration of 6-10 grammes of ferrum reductum by mouth.

The monograph gives a very clear account of an interesting new method in chemical pathology which should do much to clarify our knowledge of the difficult subject of iron metabolism.

"MUIR AND RITCHIE"

Muir and Ritchie's Manual of Bacteriology. Revised by Carl H. Browning, M.D., LL.D., D.P.H., F.R.S., and Thomas J. Mackie, M.D., D.P.H. Tenth edition. (Pp. 996; 212 figures, 6 coloured plates. 20s. net.) London: Humphrey Milford, Oxford University Press. 1937.

In spite of the appearance of new textbooks of bacteriology the manual of Muir and Ritchie continues to hold its position as one of the standard works in this field. The tenth edition, which has been revised by Professors Browning and Mackie, retains those features which have been distinctive in previous editions. The new illustrations conform to the high standard one expects from this textbook, and the treatment of the pathological aspect of the naturally occurring or experimentally produced infections, which has always been an attractive feature, has

BRITISH MEDICAL JOURNAL

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SATURDAY FEBRUARY 26 1938

THE TRANSPORT OF IRON

In a recent leading article in these columns¹ we discussed the problem of the storage of iron, and attention may now profitably be turned to the transport of iron, a subject on which important work has been carried out during the past year. Heilmeyer and Plötner² have studied the level of iron in the serum by a photometric method, using as indicator *o*-phenanthroline, which has the advantages over dipyriddy that it gives a sharper reading, is cheaper, and keeps better. The values, which are very constant in health, are: for men 122–130 γ per cent. and for women 85–93 γ per cent.* Thus the serum iron in men and women differs by 30 per cent. and the difference is statistically significant. It cannot be explained on the ground that women are not so full-blooded as men, for their haemoglobin and red cells differ by only 10 to 15 per cent., and in general there is no very close correlation between serum iron and blood haemoglobin in healthy people. The difference is attributed to the effects of menstruation (all the women examined appear to have been in the reproductive epoch), for loss of blood usually depresses the level of iron in the serum. In pregnancy the serum iron varies over a very wide range, and no general statement can be made about it. The serum iron is low in idiopathic hypochromic anaemia and in chronic haemorrhagic anaemia. It may rise above the normal level for a short time after a small haemorrhage, but it falls after a large haemorrhage, even below 20 γ per cent. Such a fall is not seen when bleeding occurs in aplastic anaemia, and reasons are given for ascribing it to increased consumption of iron by the blood-forming organs, which manifest increased activity after acute loss of blood. The iron absorbed from the food or released from previous stores is insufficient to meet the needs of haemopoiesis, and the sharp fall in the level of the serum iron is the expression of a transient relative iron deficiency and an indication for prescribing it. The serum iron rises during iron therapy but does not regain the normal level until anaemia is repaired; it is normal or high normal in pernicious anaemia, it falls during liver treatment, and only returns to normal again when the anaemia is cured. Very high values are found

in haemolytic anaemia. The serum iron is much decreased in infections, and this decrease persists so long as the infection is active. A parallel is drawn between this finding and the diminution of vitamin C in the body fluids in infections, and it is suggested that both are due to the heightened metabolism of fever and the greater need for the oxidizing-reducing properties of iron and vitamin C.

These observations have been confirmed in detail by Moore and co-workers.³ They believe that the amount of iron present in the peripheral blood is influenced by the amount of iron being absorbed from the gastro-intestinal tract, the extent and adequacy of the iron reserves of the body, and the ability of the bone marrow to utilize iron in the manufacture of haemoglobin. It is also influenced by the rate of haemoglobin synthesis, the extent of haemolysis taking place in the spleen and other tissues, and the equilibrium which exists between these two processes. It would be a mistake, however, to assume that iron is carried only in the plasma, and such a conclusion is negated by the studies of Josephs and Winocur.⁴ They have been working with little children and have had to confine their studies to whole blood. The iron of whole blood (approximately 50 mg. per cent.) can be regarded as the same as the corpuscular iron, as the upper limit of the serum iron is only about 0.5 mg. per cent. Normally the total iron of the blood corresponds with that calculated from haemoglobin within a limit of ± 6 mg. per cent. If whole blood or a solution of haemoglobin is treated with hydrochloric acid about 5 per cent. of the total iron present becomes ionized, so that it will pass through a semipermeable membrane. The proportion of "easily split-off" blood iron is relatively constant; it does, however, undergo variations, and these have no obvious relation to either the amount of iron in the plasma or the concentration of haemoglobin. It is suggested that haemoglobin may not be a uniform substance but may consist of two different haemochromogens which differ in respect of the firmness of their combination with iron, but the exact meaning of the easily split-off iron and its functions remain to be defined. All three groups of workers appear to agree on these two points: that normally the amount of iron in the corpuscles can be completely accounted for by their haemoglobin content; and that all samples of human haemoglobin probably contain the same percentage of iron, even though the amount of iron which can be easily split off by acid may vary under different physiological and pathological conditions. Josephs and Winocur compared the amount of iron in the blood of sick children with the amount

* The symbol gamma (γ) signifies 1/1,000 milligramme.

¹ *British Medical Journal*, 1937, 2, 970.

² *Das Serum-eisen und die Eisenmangelkrankheit*, 1937, Jena.

³ *J. clin. Invest.*, 1937, 16, 613 and 627.

⁴ *Johns Hopk. Hosp. Bull.*, 1937, 61, 75.

UNDULANT FEVER IN MALTA

BY

J. E. H. GATT, M.D., D.P.H., D.T.M.

As a result of the report of a Royal Commission which investigated undulant fever in Malta in 1904 to 1906, both naval and military authorities forbade the use of fresh milk of any sort by the marine troops and their families. In a few months a morbidity from this cause as high as 37.6 per cent. among soldiers and 28.55 per cent. among sailors and their families disappeared altogether with the compulsory substitution of tinned for fresh milk. The occasional sporadic cases were invariably traced to the consumption of fresh milk in unauthorized inns or restaurants. Among the civil population the incidence of the disease increased till in 1934 as many as 7.25 per 1,000 of the population were infected. The public health department periodically advised that milk should be boiled, but owing to a prejudice against cooked milk, and the fear of adulteration unless the goat (the principal and often the only source) was milked on the doorstep of the householder, only a very small proportion of the inhabitants paid heed to the warning. Tinned milk, however, rose rapidly in favour among the lower classes as an infant food. Many cheap sweetened brands flooded the market, to the obvious detriment of child welfare and with a consequent increase in the infant mortality. Cases of undulant fever among the military and naval population dropped from 245 in 1905 to 12 in 1907. The figures for the civil population for the same years were 798 and 457 respectively. For the last decade, 1926 to 1935 inclusive, the returns for the civil population have been as follows:

Year	Cases Notified	Deaths
1926	586	27
1927	702	28
1928	971	42
1929	1,288	61
1930	1,471	85
1931	1,345	72
1932	1,465	82
1933	1,713	67
1934	1,909	88
1935	1,310	80
1936	873	52
1937 (January to October)	677	—

The highest incidence invariably occurred during the dry months of the year—that is, from May to September or October. Thus for 1937:

Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Notified cases..	36	48	66	70	93	109	146	133	114	98

Epidemiology

Undulant fever is endemic throughout the Mediterranean basin and all the countries adjoining it. Since the identification of *Brucella abortus* in 1921 and the discovery of its close relationship to *Brucella melitensis*, it may well be described as a world-wide disease. In Great Britain the infection was first reported by Sir Weldon Dalrymple-Champneys in 1929. Other reports followed from Scotland, Wales, and Ireland; recently reports have come from Russia, the infection there being traced to dung briquettes imported as fuel. In France at least fifteen Departments, chiefly in the south and south-east, are seriously affected. In the United States of America thirty-two out of the forty-eight States are infected, and the infection is progressing. Infection has been invariably traced to raw milk or to direct contact with the discharges of infected animals.

Clinical Points

Undulant fever due to *Brucella melitensis* infection is characterized by waves of fever of varying duration with intervening periods of apyrexia, often of very long dura-

tion, the total course varying from an average of six months to three years or longer. There is profuse diaphoresis, progressive anaemia, and later excruciating pains in bones, joints, and along the course of nerves, due to chronic inflammation of aponeuroses, ligaments, and nerve sheaths. The spleen is always enlarged but not usually tender. Secondary infections, especially tuberculous and staphylococcal, are common. The most usual blood picture is a leucocytosis, as many as 50 per cent. of the white cells being mononuclears. A moderate eosinophilia may also be met with. In protracted cases the haemoglobin is considerably reduced, and a profound anaemia results which is the cause of a protracted convalescence. Blood culture is positive in as many as 98 per cent. of cases, and the *Brucella melitensis* may be isolated even during apyretic intervals. The not infrequent presence of organisms in the urine of patients at once raises the problem of human carriers.

Treatment and Prophylaxis

Vaccines appear to offer the only hope of successful treatment at present, but largely owing to the profound anaemia and allergic states great care and patience have to be exercised in the selection of cases suitable for vaccine therapy. Prontosil has been tried in America without success.

As to prophylaxis, the scheme in Malta for pasteurizing goats' milk and for the simultaneous control of the whole milk industry of the islands, which will result in the early disappearance of all goats and sheep from the public thoroughfares, is now well in hand, and it is hoped that the system will begin to operate early in 1938. But unless all the herds are systematically examined with a view to eliminating all infected beasts, which certainly exceed 15 per cent., the improvement must be slow. Undulant fever has been successfully stamped out in Port Said by destroying all infected goats; the same method of attack is being advocated and carried out in Sweden to deal with contagious abortion in cattle. If the destruction of a considerable proportion of the existing herds in the Maltese Islands is not feasible, at least immediate segregation should be insisted upon, and the goats so segregated on Government farms may supply the material for further study at the newly opened research station, where it is hoped to evolve a suitable goat vaccine. An emulsion of *Br. abortus* in normal saline (100,000,000 organisms per c.cm.) is used intradermally in France for the detection of infected animals, 0.7 c.cm. for cattle and 0.3 c.cm. for sheep and goats being injected into the folds of the skin around the anus. A positive reaction is indicated in from two to three days by a tense oedema which lasts for five to six days. A preventive vaccine with live, non-virulent organisms is also used for infected animals. This prevents abortion, and thus reduces the chances of human infection from this source.

While compulsory pasteurization is not at present contemplated in Malta, reliance is being placed more on the effect of healthy propaganda, with a view to educating the public to the value of a clean and safe milk. Distribution in properly sealed bottles and cartons will be from suitable centres, so that the supply will be within easy reach of the consumers all over the island.

A new edition of the pamphlet *Careers for Secondary School Girls* is now published in a more compact form as one of the series prepared by arrangement between the Incorporated Association of Headmasters and Headmistresses and the Ministry of Labour. Most of the usual careers for girls are listed, including some still in the pioneer stage. In each section there is a brief note of the qualifications required (with particular reference to the need for the school leaving certificate); the nature, length, and cost of training and the prospects, including starting salaries. The pamphlet is on sale at H.M. Stationery Office or through any bookseller, price 6d. (7d. post free).

blown off when starting a fresh cylinder. Mechanical ignition may occur in reducing valves, and is avoided by turning on the cylinder valve very slowly.

An electrically conducting rubber has recently been developed by the Dunlop Rubber Company, and the use of such a material promises to provide an effective method of reducing dangerous electrification in anaesthetic and other equipment. It can be made with varying degrees of resistivity, while retaining the ordinary properties of rubber. It is important that the resistance should not be too low, not under 100,000 ohms, otherwise there would be danger should the rubber come into contact with a source of electrical supply. In this case the power absorbed might be enough to cause ignition in a short time, without the current being large enough to melt an ordinary circuit fuse. A corrugated breathing tube of this rubber, about 1 m. long, 30 mm. diameter, and 1 mm. thick, had a resistance between the ends of about 1 megohm. Its properties were not impaired by such tests as prolonged exposure to the vapours of ether and chloroform, soaking in lysol, and boiling. A breathing bag of the usual type showed a resistance between the ends of about 0.5 megohm. Besides the above-mentioned frictional electricity there are many possibilities of danger from ordinary articles of electrical equipment. These can only be avoided by the strictest care in design, construction, and use.

TRAUMA OF THE HEART

The effects of trauma on the heart, leaving aside penetrating wounds, is one of the most controversial of subjects and one that has been relatively neglected, though it is of great importance, especially from the medico-legal point of view. Elsewhere in this issue (p. 433) Dr. Hugh Barber expresses the view that violence to the chest wall and the strain of great muscular effort are responsible for a variety of cardiac lesions, though perhaps many will not be able to accept his belief that "more cases of heart disability following trauma are overlooked than are diagnosed by mistake." Direct violence to the chest wall may be followed by arrhythmias, but perhaps the sequence is too infrequent to be of great significance; or by angina pectoris, and it is not difficult to believe that angina could first appear in a subject predisposed by coronary disease after an event which altered both the excitability of the nervous system and the general physical condition. The possibility of contusion of the myocardium as a result of trauma without external wound seems very real, and, as has been suggested, might be revealed by the electrocardiogram. Dr. Barber's second category, the indirect, traumatic effects on the heart of strain, is the more interesting and even more difficult of proof. There is no question at all that the aortic valve can be ruptured by great muscular effort and many cases have been

reported, but rupture of the normal valve or of the normal aortic wall by strain is considered impossible by some, since experimentally enormous pressures are required to break these structures. The problem is difficult, first, because absence of disease cannot be presumed from an absence of symptoms or signs prior to the rupture,¹ and, secondly, in cases where post-mortem examination is possible the interpretation of the pathological changes is difficult because vegetations are likely to form rapidly at the site of the tear. In a series of cases of rupture of the aorta Klotz and Simpson² found microscopical lesions in the media, though little or no defect was visible on superficial examination. Functional impairment of the myocardium through a sudden strain, or the more prolonged effort of athletics, the heart being previously healthy, is likewise hard to prove. The orthodox view to-day is that this does not occur, though Dr. Barber is inclined to believe that it may. Complaint of dyspnoea, palpitation, and precordial pain and the finding of tachycardia in a working man after an accident is extremely common; these, however, are usually the expression of an anxiety state (often associated with the question of compensation) and not at all indicative of cardiac disease. The forcible and rapid apex beat may lead to a diagnosis of acute dilatation; but fluoroscopy will probably show a heart of normal size. Such symptoms may abruptly disappear with the settlement of a claim. On the other hand, strain may very seriously and irreparably damage a myocardium which is the seat of chronic disease or one affected by an acute infection, and the best evidence for presence or absence of these conditions can, as Dr. Barber points out, usually be obtained from an accurate and detailed history.

MINERAL CONTENT OF THE BRAIN

Quantitative estimations of the inorganic mineral constituents of the brain, such as that of Tingey,³ though of value for determining the relative amounts of these substances in different areas of the brain and in various abnormal conditions, do not give precise information regarding the localization of mineral salts within the brain tissues. The method of micro-incineration, modified by Scott, enabled Alexander and Myerson⁴ to undertake an elaborate investigation into the distribution of mineral salts in the cellular architecture of the brain. Briefly, the method consists in exposing very thin paraffin sections of brain tissue to temperatures gradually rising to 650° C., whereby the organic constituents are completely consumed, leaving the mineral constituents only on the slide. These slides are studied at low power by oblique transillumination and at high power by dark-ground illumination, and by comparison with contiguous sections which have been stained with ordinary tissue stains the mineral constituents can be accurately localized. The particular minerals which can be identified with certainty

¹ See the case reported by Howard, C. P., *Canad. med. Ass. J.*, 1928, 19, 12.

² *Amer. J. med. Sci.*, October, 1932, p. 455.

³ *J. ment. Sci.*, 1937, 83, 452.

⁴ *Amer. J. Path.*, 1937, 13, 405.

of haemoglobin determined by oxygen capacity and colorimetry, and they found that at certain times the corpuscles contain more iron than can be accounted for by their haemoglobin content. These times are the first two months of life; during iron therapy; and during infections. The extra iron in these conditions exists in a so-called organic form, and its significance is not clear. It may represent a more primitive form of haemoglobin having a higher content of iron than is normally present, or it may be an iron-containing organic compound which does not carry oxygen but is an intermediate product in the formation and breakdown of haemoglobin.

If the results of Josephs and Winocur are confirmed—and it is obviously desirable that they should be repeated on adults—we must conclude that iron is transported in a relatively simple form in the plasma and in organic form in the corpuscles. The two systems do not run parallel, for in infections the serum iron is low and the non-haemoglobin iron of the corpuscles is high. Further analysis may provide data which will lead to a better understanding of the closely linked processes of breakdown of blood and formation of blood, which maintain the concentration of haemoglobin in the blood with such constancy in health and which restore it to the normal level with such surety when it has been reduced by haemorrhage, malnutrition, or disease.

RISKS OF EXPLOSION IN ANAESTHESIA

A paper read on Thursday by Mr. E. H. Rayner, Sc.D., before the Institution of Electrical Engineers, on risks of explosion in anaesthesia, describes the results of the investigations carried out at the National Physical Laboratory on behalf of the Joint Anaesthetics Committee of the Medical Research Council and the Royal Society of Medicine, which were referred to in these columns last year.¹ Twenty hospitals in this country were visited and one abroad; the matter was discussed with administrative, medical, and nursing staffs; conferences were held with hospital authorities; and inquiries were made in America, where climatic and other differences have given a greater experience than has been obtainable here. Dr. Rayner describes only the "bubble-bottle" variety of apparatus, and does not mention the now widely used M'Kesson and dry flow-meter types, which might conceivably be more prone to the development of internal static electrification. He appears disinclined to accept the American view that charges developed in the anaesthetic apparatus

itself are often responsible for explosions, but points out that much experimental work on a variety of equipments and under various conditions would be required to estimate the importance of this source of electrification. It has been recognized for some time that electrical charges can readily be produced by the movement of warm dry blankets or sheets on trolleys or similar articles mounted on rubber-tired and therefore insulating wheels, and particularly if they have rubber sheets or mattresses. Dr. Rayner was often able to produce in this way sparks of 0.5 mm. upwards; the longest being 15 mm. He considers that a discharge capable of being felt with the finger indicates a dangerous condition, and draws particular attention to the danger of ether-oxygen mixtures, owing to their wide range of explosibility and ease of ignition at low temperatures, perhaps as low as 200° C. In several hospitals the electrical resistance of the ordinary granolithic type of floor was measured, and this was demonstrated to be low enough to justify the use of the trailing chain as a safety measure, though the latter is of no value upon floors of rubber or cork carpet, both of which may act as good insulators. Practical tests on both a granolithic and a tile floor have demonstrated that no electrification could be produced when the chain was in use, though without it a spark and shock were readily obtained. The chain need only be a light one, with links of 1/2 to 1/4 inch, and about 3 inches should trail on the floor.

Electrification by friction is much facilitated by a dry atmosphere, and experimental evidence from America shows that there is very little danger if the relative humidity, which may need to be artificially maintained, is not allowed to fall below 65 per cent. Very cold, dry weather produces the worst conditions, for the outside air contains little moisture, and when it is heated the relative humidity becomes low. Air-conditioning may produce the same effect, for if the washing water is colder than the air it may withdraw moisture from it, thus causing a low relative humidity on reheating. A point worthy of note, though it may be only coincidence, is that air-conditioning plant is installed in two hospitals in this country which have had trouble with electrification and anaesthetic ignition. Although experimentally electrification may be readily caused by particles of fluid or dust in a stream of gas at high velocity, Dr. Rayner does not think that this is likely to happen under the conditions in which anaesthetic apparatus is employed, but he does recommend that oxygen cylinders should be stored and used valve uppermost in order to avoid trouble from possible internal condensation, and that a little should be

¹ *British Medical Journal*, 1937, 2, 383.

treated with intramuscular injections of atebirin musonate (three injections of 0.3 gramme) the immediate curative effects were satisfactory, febrile symptoms and parasites in the peripheral blood disappearing more rapidly than in controls treated with quinine or atebirin. Two cases, however, showed alarming though transitory nervous symptoms: as pointed out, the usually recommended dose was exceeded. Experiments on estates in relation to medicinal prophylaxis were carried out by the Institute of Medical Research in collaboration with the Malaria Commission of the League of Nations. In three groups receiving respectively 0.2 gramme atebirin on two consecutive days each week, 0.4 gramme quinine, and no prophylactic drug, both atebirin and quinine after a few months were equally effective, but quinine took longer to control the malaria. With atebirin, attacks of malaria ceased almost entirely within a fortnight of the beginning of treatment. In the control group the incidence remained high. When prophylactic issue was stopped numerous attacks of malaria occurred, three-quarters of which were in the two hitherto protected groups. Among other work carried out there has been investigation of the cost of oiling and drainage, anopheline survey of the Selangor coast area where *Anopheles sundanicus* (Iudlowi) is prevalent, and measures against malaria in this area: also experiments on the deterioration of open cement drains and experiments with larvicides. In the latter connexion two new proprietary preparations were found less effective than the usual (M.D.B.) mixture employed. Experiments on the use of shade in larval control (*A. maculatus*) were also initiated. *Crotalaria*, *Tephrosia*, and *Lantana* grew satisfactorily but did not give a dense enough foliage. The majority of the *Cassia* died, growth of *Duranta* was poor, and that of *Bamboo* variable. At the suggestion of the Agricultural Department a thickly growing creeper, *Mikania scandens*, has been planted to cover the *Lantana*, and results to date are promising.

URINARY ANTISEPSIS

It is now becoming recognized that sulphanilamide, in addition to its other remarkable actions, is the most dependable of all urinary antiseptics. Its advantages over mandelic acid are that it acts even more rapidly, is regularly excreted, does not demand an acidification of the urine which in some patients is difficult to attain, and is less unpalatable and cheaper. In commenting recently on a study of its action published in this country¹ which contained the statement that the effective pH range in urine of sulphanilamide is from 5.2 to 6.8, we drew attention to a recent paper by Helmholz, who asserted that the drug is more bactericidal in an alkaline urine. This observation is now amplified by Helmholz and Osterberg,² who have carried out a more elaborate series of experiments on the bactericidal action of different concentrations of sulphanilamide in urine of different reactions, employing several different bacteria. Their results may be summarized in the statement that,

whereas concentrations of sulphanilamide of 40 mg. per 100 c.cm. or more are necessary for effective action in acid urine (pH 6.2), only half this amount need be excreted to exert the same effect in urine of pH 7.3 to 7.8. From this it would appear that to secure maximum effect, perhaps with only a moderate dose, steps should be taken also to maintain an alkaline urinary reaction. A supreme merit of this form of treatment is that it succeeds in *B. proteus* infections, against which hexamine and mandelic acid are powerless, owing to the urea-splitting action of this organism and the consequent impossibility of rendering the urine acid enough for these two drugs to act. Apparently only one organism commonly found in the urinary tract, *Streptococcus faecalis*, is completely resistant to sulphanilamide. These authors also describe new experiments on the bactericidal action of different previous conclusion, only the free form of sulphanilamide, and not the conjugated, acts bactericidally in the urine. There is therefore as yet no explanation of their observation that the naturally excreted drug is more active *in vitro* than the same quantity added artificially to urine.

PROPHYLAXIS AGAINST WHOOPING-COUGH

Few who have followed the literature on whooping-cough* will be convinced that any vaccine at present available modifies with certainty the course of pertussis after the cough has developed. The prospect of prophylaxis is less discouraging, and confident claims are still being made. Kendrick and Eldering¹ reported a 6 per cent. incidence among the vaccinated and 75 per cent. in the unvaccinated, the groups containing 700 to 800 children. Sauer² has reviewed a number of clinical observations showing a high degree of protection following the injection into children of the large volume of 10 c.cm. of vaccine in divided doses. On the other hand Shaw,³ in the same journal, states that the results of field tests recording the effectiveness of vaccines are at present conflicting, and that though there is evidence that some protection is conferred other evidence denies this: there is consequently little justification at present for the advocacy of universal immunization. According to Brooks and Miller⁴ it still remains to be proved that it is possible to immunize actively against whooping-cough. Because of the equivocal results of prophylactic vaccination, and because of the existing differences of opinion, the Department of Health in the City of New York⁵ has now decided to restrict the issue of vaccine to two centres for carefully controlled experiments. Paediatricians will still feel, with Topley and Wilson, that the ultimate court of reference must be the results in vaccinated persons when exposed to natural infection. In their efforts to produce better vaccine which will not require a tedious series of doses immunologists have used agglutination, complement deviation, and the "opsonocytaphagic" tests. The relation between these various tests is not clear.

* See also *British Medical Journal*, 1936, 1, 316; *ibid.*, 2, 154.

¹ *Amer. J. publ. Hlth.*, 1936, 26, 8.

² *Amer. J. Dis. Child.*, 1937, 54, 979.

³ *ibid.*, 977.

⁴ *J. clin. Invest.*, 1937, 16, 749.

⁵ *Quart. Bull. City N. Y.*, 1937, 5, 69.

¹ *British Medical Journal*, 1937, 2, 539.

² *Proc. Mayo Clin.*, 1937, 12, 661.

by this method are iron, calcium, and silica, and it is claimed that in addition to its value for the localization of mineral salts in the nervous system this method surpasses in accuracy all known staining reactions for the demonstration of iron. The normal adult brain when studied in this way is seen to contain mineral salts in the pyramidal cells of the cerebral cortex, the Purkinje cells of the cerebellum, and the anterior horn cells of the spinal cord. These salts consist of calcium, a little iron oxide, and certain other water-soluble minerals, and are confined to the cytoplasm and the nucleolus. The nuclei contain practically no minerals, nor do the neurofibrils, the axone hillock or the axone itself. In the new-born infant the distribution of mineral salts is reversed; most of the minerals are concentrated in the nuclei of the ganglion cells and the cytoplasm contains very little. The ependyma of the ventricles contains much mineral ash, and in granular ependymitis there is a large increase in its mineral content. The cerebral blood vessels are rich in minerals, which are found chiefly in the fibrous coat; the muscle, the intima, and the elastic tissue giving no mineral residue. Many diseases of the brain were studied by the micro-incineration method, and among other interesting results were those relating to the mineral content of cerebral tumours. In these there is a great increase in the amount of mineral ash, the minerals being found in the nuclei rather than in the cytoplasm of the tumour cells. A similar increase in mineral content of the nuclei is seen in inflammatory conditions of the nervous system, particularly in meningitis and in syphilitic meningo-encephalitis. In disseminated sclerosis and in areas of softening or necrosis, on the other hand, there is a loss of mineral salts in the affected areas, only the blood vessels, infiltrating cells (especially the "scavenger" cells), and astrocytes giving a mineral residue. Two results of special interest were discovered in Alzheimer's disease. The senile plaques which form such a characteristic feature of the histology of this condition were found to contain no mineral salts at all, while the neurofibrillar "tangles" in the nerve cells differed from normal neurofibrils in that the "tangles" were rich in mineral residue, while normal neurofibrils yielded no mineral ash.

INDUSTRIAL EYE-STRAIN

There has been issued from the Factory Department of the Home Office a short but distinctly important paper entitled "Industrial Eye-strain: Special Measures Needed where Fine Work is Done."¹ Work which cannot be seen clearly in good daylight unless brought within ten inches of the eyes is fine work. There are many modern occupations that require sight at this short distance and for many hours during the day: looming in weaving, linking in hosiery, the mounting of electric lamp filaments, examining steel balls for minute defects, invisible mending, and so forth. Who has not seen girls sitting in shop windows where invisible mending is done and has not wondered at the shortness of the

focus at which the work is performed? This work demands adequate light and the correction of any inherent defects of the eyes of the workers; and in such types of occupation as have been cited great advantage can be gained by the additional provision of spherical and prismatic correcting glasses, so as to relieve the strain put upon the accommodation and convergence powers of the workers. There is a common prejudice against magnifying glasses. Perhaps resort to them is taken to be a confession of weakness. But there is no harm in the use of such glasses; indeed there are many advantages. Every ophthalmic surgeon uses powerful combinations of lenses and prisms for the better examination of the eyes of his patients. They enable him to do work that he could not otherwise do and to do it without strain. The Factory Department's paper gives examples of combinations of spheres and prisms useful for the several types of work, and which experience has shown to be suitable. Warning is given as to the need for expert examination of the eyes. "If eye-strain is experienced when the illumination of the work is good an ophthalmologist should be consulted." Slight errors of refraction are more common than is generally realized; these increase the strain of fine work. "Eye-strain may, however, be caused by wearing unsuitable glasses, so that it is important not only to obtain competent advice in the first place but also to ascertain from time to time whether any change in the prescription of the glasses is desirable. Similarly, persons who already wear glasses but experience eye-strain should make sure their glasses are suitable." This short paper should be in the hands of every doctor and every welfare worker attached to shops or factories where fine work is done.

MALARIA IN MALAYA

In the annual report of the Malaria Advisory Board for 1936,¹ Dr. A. Neive Kingsbury briefly reviews the work carried out on research and control of malaria in the Federated Malay States. Though the report is a small pamphlet of some 20 pages only, it is well worth close study. The organization for malaria control in the F.M.S. is vested in the Malaria Advisory Board. This is a strongly constituted body which in addition to research and public health representation includes the general manager, F.M.S. Railways, and the adviser for drainage and irrigation, Malay States. The carrying out of measures advised by the Board is thereby much facilitated. During the year 27,000 cases of malaria were admitted for treatment in the F.M.S.—15,880 in Government hospitals and 11,354 in estate hospitals. The total deaths among these numbered 598, or a case mortality of 2.2 per cent. The peak of highest incidence in all the States was in May, except in Pahang, where it was in June. Following the peak there is a gradual falling off in the number of cases, reaching a minimum in February and March. Special attention was given to experiments designed to test the efficacy of atebirin in treatment and prophylaxis. In a series of 200 cases

¹ Form No. 1983, Factory Department, Home Office. H.M. Stationery Office. (Id.)

¹ Kuala Lumpur: Printed at the Federated Malay States Government Press by H. T. Ross, Acting Government Printer. 1937. 5s or 2s. 4d.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE REMOVAL OF INNOCENT TUMOURS

BY

ERNEST FINCH, F.R.C.S.

The word "tumour" simply means "swelling," and includes those swellings due to inflammation, cystic formation, and neoplastic disease. The innocent tumour which the general practitioner is tempted to try to remove is usually one that is obvious and superficial, such as those occurring in the skin, and diagnosed as warts, moles, papillomata, sebaceous cysts, naevi, etc. The tumour may be beneath the skin—for example, a lipoma—or more occasionally it may be connected with some definite organ, such as the breast, thyroid gland, lymphatic glands, or a bone.

General Principles

For any method of treatment to be correct the first necessity is to make an accurate diagnosis, and it is in just such tumours as these that this may be so difficult. In many cases it is impossible to be certain of the diagnosis unless this has been confirmed by a skilled pathologist. Hence it is imperative that any apparently innocent tumour should on removal be submitted for microscopical examination and preferably the whole of the tissue excised, and not merely that portion of the tumour which does not look "quite normal."

"A man aged 46 presented himself at the dermatological clinic with what was diagnosed as an angioma just above the right eyebrow. He was sent to the radium department for treatment, which was carried out by a surface applicator, a portion of the growing edge being first removed for biopsy. The treatment was eminently successful, but the pathologist's report on the tissue removed was that it was a hypernephroma. The position of affairs was explained to the patient, who had never had any symptoms referable to the urinary system. He submitted to a direct pyelography, which showed a filling defect in the pelvis of the right kidney. The kidney was removed and contained a hypernephroma having the same structure as the skin tumour."

This case exemplifies another difficulty confronting the surgeon. The question is not merely whether the tumour is innocent or malignant, but whether, if malignant, the obvious tumour is the primary or a secondary growth. Every practitioner is familiar with cases of melanoma in which the secondary growths have been obvious long before the primary. The presence of pigment in a tumour, however innocent the latter may appear to be, should usually be a warning to the practitioner to leave that tumour alone and pass the responsibility for its removal on to others. It has been said that bones are full of base black ingratitude, and that when they are broken it oozes out of them; the same may be said of pigmented tumours. They must be removed entire and with as wide a margin as possible of apparently healthy normal tissue round them.

"A man aged 52 went for a walk and chafed the skin over the right heel. He tried various remedies with no avail, and then consulted his doctor during an epidemic. The doctor told him he was far too busy to attend to it, and advised different shoes and socks. The next doctor he consulted

injected some local anaesthetic and scraped the surface to promote healing. This treatment was unsuccessful. The man next consulted a chiroprapist, who tried strapping and ointment equally unsuccessfully. Nine months later the local growth was obviously a melanotic sarcoma, and the growth had already metastasized in the inguinal and femoral glands."

This case illustrates the fact that positive harm may result by not completely removing a tumour. A portion of a tumour left behind will, if it is innocent, continue to grow, perhaps with a malignant character superadded; and if malignant the rate of growth will be accelerated and the formation of metastases encouraged. This must always be remembered when a portion of the growing edge of a tumour is removed for a pathological report. How often does the patient complain that "it has got much larger since a small piece was cut out for examination"! He usually wishes the tumour to be removed for cosmetic reasons and only occasionally for pain, unless the position of the tumour is such that it is exposed to pressure or itself presses on sensory nerves. The subtlety of neoplastic disease is its painlessness until fixity occurs, and this often implies inoperability.

The doctor usually urges removal of an innocent tumour because if left it may become malignant. The only rational tumour is the lipoma; it will never disgrace its innocence, however old and big it may be. No other neoplasm can be trusted to remain benign. The very fact that the patient asks for treatment for cosmetic reasons should make the operator consider the possibilities of an unsightly scar from the operation. The resulting scar after removal of a tumour may cause much more psychical disturbance than the original tumour, and the patient, as in so many other cases, considers that the cure is worse than the disease. This is so in the removal of all tumours on the face, especially when the scar from the operation wound will be in the neighbourhood of the eyelids. The deformity resulting from a bad scar in this position can often only be rectified by an extensive plastic operation. The success of all surgical procedures, whether of the so-called "minor" or "major" type, depends upon the rigid adherence to the three fundamental principles of surgery—namely, the abolition of infection (sepsis), the control of haemorrhage, and the relief of pain.

It is precisely in the surgical removal of sebaceous cysts, ganglia, warts, papillomata, etc., that it is apt to be thought unnecessary to be too particular: these are such slight operations that a makeshift procedure may be thought sufficient. The operations must, of necessity perhaps, often be carried out under conditions and in places far from ideal; but this is no excuse for not rigidly adhering to fundamental surgical principles. It is the sepsis following the prick of a pin or needle that so often leads to a fatal septicaemia or pyaemia. No margin for error can be allowed in the preparation of the site of operation, the surgeon's hands, and the instruments, bowls, towels, swabs, and solutions used.

If the tumour is on the scalp the hair must be removed from a surrounding area wide enough for the surgeon to see exactly what he is doing, and the towels must be placed so that the ligature material and instruments are not resting on the "unprepared" surface of the face or scalp during the operation. The eyes must be protected from the

Attempts have been made to test protection in animals. Powell and Jamieson⁶ employed cultures the virulence of which was enhanced with starch, and Burnet and Timmins⁷ made use of nasal application; both groups of workers obtained a fair degree of protection. Evans and Maitland⁸ by extracting, freezing, thawing, and grinding the bacilli obtained a toxin and a "bacterial antigen" but did not achieve satisfactory protective immunity. Cruickshank and Freeman⁹ have recently re-examined the possibility of immunizing animals with intact bacilli or with extracts made by the highly promising Raistrick-Topley methods. By some half-dozen injections of either acetone-extracted culture of *H. pertussis* or an alcohol precipitate of tryptic digest these authors have secured a survival rate of approximately 90 per cent. in groups of thirty mice injected intraperitoneally with six to nine thousand million bacilli—a dose that kills the whole of the thirty non-vaccinated controls. The alcohol fraction contains no intact protein and can be stored. This method bids fair to ensure the production of vaccine that will give as high a degree of protection to mice as properly prepared typhoid vaccine will against the subsequent injection of a lethal dose of typhoid bacilli. There is ground for hoping that similar favourable results may be obtained in man.

FACTORY WELFARE

The February number of *The Times Trade and Engineering*, in addition to its usual articles, contains a lengthy supplement devoted to Factory Welfare. This supplement should prove of great value to everyone interested in factory management, and especially so if it could be re-issued in a convenient book form in place of the present newspaper pages. It for the most part relates to the new Factory Act, which comes into force on July 1, and the various provisions are explained in non-technical language by a number of past and present factory inspectors. The introductory history of factory legislation, by Mr. H. W. Younger, enables us to realize how far we have progressed since 1802, when Parliament passed an Act "for the preservation of the health and the morals of apprentices and others." Not till 1819 were children (aged 9 to 15) prohibited from night employment in the cotton mills and from working more than 72 hours a week. The regulations were gradually strengthened in subsequent years, especially in 1833, when factory inspectors were first appointed and children aged 9 to 12 were forbidden to work more than 48 hours a week. In 1850 a Ten-Hours Act was passed which limited the hours of work of women and young persons to 60 a week, but the provisions concerned only the textile trades, and it was seventeen years later before they were extended to other industries. It seems astonishing to us with our present-day outlook that the first medical inspector was not appointed by the Home Office until 1898, and the modern welfare movement in industry, as we now know it, did not begin

until the war. Its origin was largely due to Mr. Lloyd George, who as Minister of Munitions set up a department to deal with the health of munition workers. In 1918 the Industrial Welfare Society was founded, with the King (then Prince Albert) as President. The main details of the new Act are explained at some length by Sir Gerald Bellhouse, formerly Chief Inspector of Factories, while other articles deal with such topics as lighting, heating, ventilation, canteens, sanitation, the fencing of machinery, first aid, and the application of psychology to industrial problems.

EPIDEMIOLOGY OF PLAGUE

The report of the Haffkine Institute for 1936 includes some interesting and important observations on the epidemiology of plague. It has been believed that, even when plague among human beings has come to an end in a particular locality, the disease continues to smoulder among the rats, which thus acquire a high degree of resistance. This theory is refuted by the results of the daily examination of large numbers of rats in Bombay during the two years preceding the report. In no case was any sign of infection found. An alternative hypothesis maintained that, during an epidemic in a locality, rats acquired immunity and transmitted it to their young. Investigations with white mice by Sokhey demonstrated that the young born of parents fully protected against plague showed no immunity whatsoever. In the course of these observations rats had been obtained from Dharamsala, a hill station in the Himalayas where plague had not recently occurred. Some of these rats nevertheless showed high resistance to plague, indicating that there exist in nature strains of rats which are naturally immune. It would thus appear that the cause of cessation of an epidemic in a locality is the death of the susceptible and the survival of the naturally resistant strains. How then do fresh pandemics or epidemics begin? A further observation throws light on this problem. While it was found that the house rat (*Rattus rattus*) was chiefly responsible for the spread of plague to human beings in Bombay, another animal, the small field rat (*Gunomys varius*), was incriminated in certain districts. Examination showed the small field rat to be highly susceptible and the house rat highly resistant. These observations indicate that an increase in numbers of this small field rat, or its replacement of the house rat in human habitations, sets the stage for the outbreak of a fresh epidemic. The report stresses the importance of concentrating on further studies of plague during periods of quiescence following a pandemic with a view to devising intelligent means of preventing fresh visitations. "Unless deliberately prevented, pandemics are likely to come again as they have come in the past."

The Secretary of State for the Colonies has appointed Dr. A. J. R. O'Brien, C.M.G., M.C., M.R.C.P., D.P.H., Assistant Medical Adviser in the Colonial Office, to be his Chief Medical Adviser in succession to the late Sir Thomas Stanton.

⁶ *J. Immunol.*, 1937, 32, 153.

⁷ *Brit. J. exp. Path.*, 1937, 18, 83.

⁸ *J. Path. Bact.*, 1937, 45, 715.

⁹ *Lancet*, 1937, 2, 567.

These tumours are sometimes very large, and after removal a big cavity is left; all obvious bleeding points should be secured and ligatured, and drainage of the cavity carried out for twenty-four hours.

Fibromata

Fibromata are clinically divided into soft and hard varieties. They may occur in many different organs, have a wide distribution, and may be single or multiple. They must be removed completely, including the capsule, by dissection, and cannot be enucleated satisfactorily. Diagnosis is often so difficult in these cases that the whole tumour should be submitted for expert pathological opinion. Those occurring in connexion with fascia are known as "recurrent fibroma," and are probably fibrosarcomata from their inception. Fibromas, usually of the hard variety, occurring in connexion with nerves are single or multiple as elsewhere; if single, the pain experienced when the tumour is subjected to pressure may be intense: an example of this is "the painful subcutaneous nodule" often met with on the sole of the foot. The single neurofibroma must be removed by dissection, but multiple fibromas are best left alone and the deformity accepted.

The fibromatosis that sometimes occurs in a scar, known as keloid, is best left alone unless it causes great pain. It can, however, be removed, but the condition will generally recur in the new scar, though it is then usually not so painful. A fibroma (epulis) often grows from the alveolar or dental periosteum around the neck of a tooth. It must be removed whole, and this means that in most cases one or two teeth will have to be extracted to expose the origin of the tumour, or even a small portion of the alveolar margin excised to make complete removal certain. It is advisable that the whole tumour should be sent to the pathologist for microscopical examination.

Chondromata

These tumours, usually multiple, occur most commonly in the metacarpal and phalangeal bones, and if left will ultimately protrude through the compact bone. If small they are treated by enucleation, and as they have no connexion with the articular cartilage removal will not interfere with the growth of the bone or the function of the joint. A bone-graft may have to be inserted into the parent bone to prevent post-operative fracture. If the tumours are large amputation will have to be considered. The cartilage may calcify, but ossification rarely takes place; malignant change may also occur. Before any operation is undertaken it is desirable to have both hands radiographed.

Osteomata

The cancellous variety of osteoma in the neighbourhood of the epiphyseal cartilage usually develops in a growing bone, but in most cases ceases to increase before the end of the normal period of growth. As a rule the tumour has a bulbous end covered with hyaline cartilage and a pedunculated base. An adventitious bursa is often present over the bulbous extremity, giving rise to a sense of fluctuation. If the tumour is causing any disability it must be removed through a generous incision, and important structures surrounding it, such as tendons, blood vessels, and nerves, should be adequately retracted and respected. The whole tumour, including the bursa, the hyaline cartilage, and the portion of compact bone from which it is growing, should be removed. The cancellous tissue of the parent bone is thus opened up when removing the flake of origin from the compact tissue; consequently,

if sepsis supervenes it may spread to the diaphysis. These tumours are often multiple, and others should be looked for and the patient's attention drawn to them.

The subungual exostosis usually appears on the dorsal surface of the terminal phalanx of the big toe. It gives rise to intense pain and projects under the nail bed. The nail often breaks off and there is ulceration of the bed. The resulting granulation tissue may mask the small tumour, which is either an exostosis or a fibroma. Treatment consists in removing the nail and also the whole of the underlying tumour by curetting it out of the parent bone: occasionally partial amputation of the terminal phalanx is necessary.

Ganglia

A ganglion is a cystic swelling in the neighbourhood of a joint or tendon sheath occurring commonly in the region of the wrist or foot. It may disappear spontaneously or after subcutaneous rupture caused by injury, or even occasionally after the fluid, if thin enough, has been removed by aspiration. The injection of sclerosing fluids—for example, sodium morrhuate 5 per cent.—has been recommended after aspiration, but these methods are so uncertain that radical excision by sharp dissection is looked upon as the method of choice. The associated tendons must be carefully retracted and not injured, and the whole of the cyst wall should be removed if possible. Any extension of the cyst wall between adjacent tendons should be carefully dissected out, and also any other smaller cystic formations in the neighbourhood. The joint capsule may be opened during the dissection, hence the importance of careful haemostasis after excision; and in addition, if the joint capsule has been opened, rest to the joint on a splint is advisable for a few days.

Bursae

These are often enlarged, and need excision owing to attacks of inflammation and pain. The same care should be taken in their excision as in the case of ganglia, the whole of the capsule being removed.

Conclusion

After excision of a tumour the closure of the wound needs the greatest care. An unsightly scar is to be avoided. The incision should, if possible, be planned in one of the lines or natural creases of the skin; fine needles should be used and accurate apposition of the skin edges obtained without tension or overlapping. A subcuticular suture is specially indicated in face wounds. All haemorrhage should be meticulously controlled, and the aseptic technique employed must be beyond criticism.

The operative field should be kept at rest as much as possible for a few days after the operation.

The whole of the tissue removed in excising any wart, mole, papilloma, naevus, fibroma, etc., should be sent for expert pathological opinion, and the report carefully filed for future reference.

After the operation the patient should be seen at the latest within twenty-four hours and inquiries made as to post-operative pain, throbbing of the wound, etc. If sepsis supervenes stitches will have to be removed as necessary and appropriate treatment instituted. The stitches may be removed in a few days. If a catgut subcuticular suture has been used it should be left, but if the suture is of non-absorbent material it should be removed when it has properly loosened, which is usually in about ten days.

The result of these small operations ought to be most gratifying to the patient and to the surgeon.

effects of the solutions used in the preparation of the skin, which is best done with methylated spirit. The operation will usually be performed with local anaesthesia, and in all cases the co-operation and the psychical control of the patient are necessary.

There are various methods by which innocent tumours may be removed: These are:

1. Excision, with a margin of surrounding healthy tissue.
2. Enucleation, either from within the capsule or including the capsule.—In the removal of cysts it is most important that the whole of the membrane lining the capsule should be removed, and in order to do this the capsule should, as a rule, be removed as well.
3. Destruction of the tumour mass.—This may be achieved by various cauterizing agents, such as acids, carbon dioxide snow, diathermy, electrolysis, radium, or deep x rays. The practitioner usually has only acids and carbon dioxide snow at his disposal, so of necessity the other methods must be left to experts.

It must be remembered that, with the exception of radiotherapy in the hands of an expert, all these methods leave a scar. Treatment with radium is certainly the least painful means to employ, but the pain of the subsequent reaction may be considerable, and if an overdose is given the resulting scar may be not only unsightly but a distinct menace. The treatment of tumours by any method of irradiation should be left strictly to experts. The treatment of angiomas by the injection of boiling water has been warmly recommended by some; but the technique is difficult, the procedure apt to be very painful and the result disappointing; it is therefore not to be recommended for general use. The methods adopted will naturally differ according to the nature of the tumour, its situation, and the appliances available.

Papillomata

These may be the result of local infection and discharges, which if present must first be cured. The papillomata will perhaps then disappear; if they do not they can be treated with trichloroacetic acid (100 per cent.) or be excised. Warts which occur on the fingers, especially in children, may be flat or pedunculated. They are usually multiple, often appear in successive crops, and several may coalesce to form quite a large mass. They are treated by cauterizing each individual wart daily with 10 per cent. salicylic acid collodion, or by dropping pure glacial acetic acid or fuming nitric acid on to the wart from a glass rod once a week. Carbon dioxide snow can be used by making the solid stick from the gas, cutting the stick for half of the wart, and applying it by steady pressure for half a minute. Considerable pain may follow later when the reaction occurs.

If these methods are not successful then irradiation by x rays or radium should cure; otherwise the papilloma must be removed with an adequate margin of healthy tissue. Warts, often pigmented, occurring in the elderly, may be the starting-point of malignant disease, and, if growing, must be excised, a sufficient margin of healthy surrounding tissue being taken at the same time.

Angiomas (Vascular Naevi)

These tumours are usually congenital, the capillary and cavernous types being the most common. A naevus, however small, should be treated as soon as possible. Radium is now the method of choice. If the growth is thin and small treatment with carbon dioxide snow is effective. The snow is applied for half a minute, and

the treatment repeated if necessary. The reaction may be severe, and subsequent applications should only be given when it has subsided. If the naevus is excised the incisions should be made outside the margin of naevoid tissue, thus minimizing haemorrhage and ensuring complete removal.

Sebaceous Cysts

These are the commonest tumours met with in the skin; they are tumours definitely in the skin. The usual indications for removal are disfigurement and attacks of inflammation. They are removed by enucleation or dissection, but whichever method is used the whole of the cyst wall must be taken away. Incomplete removal of the cyst wall results in recurrence, sinus formation, or the appearance of a granuloma known as Cock's peculiar tumour, which may be mistaken for an epithelioma.

Enucleation is carried out by transfixing the base of the tumour with a narrow-bladed scalpel and cutting right through the cyst wall on to the surface. The contents of the cyst are then expressed and the divided cyst wall on each side seized with forceps and twisted out entire, any adhesions between it and the surrounding tissues being divided with scissors.

If the cyst has been inflamed it is better removed by dissection. An elliptical incision is made over the most prominent part of it, the ends of the incision projecting well beyond the actual cyst wall; the skin is then undermined on each side until well clear of the tumour, and the whole cyst in its capsule dissected out, with the elliptical piece of skin attached to the prominent part. Haemorrhage is stopped by the ligature of vessels, and the skin edges are approximated. If the cyst is on the scalp, haemorrhage is controlled not only by ligature and the sutures approximating the skin but by pressure exerted on to the raw surface by bandaging firmly against the skull. If the position of the cyst is such that firm pressure cannot be exerted and there is a general ooze from the raw surfaces, a narrow piece of sheet rubber should be inserted as a drain for twenty-four hours.

Other cysts occurring immediately beneath the skin, such as implantation cysts and dermoids, should be dissected out; if the raw surface oozes, drainage should be established for twenty-four hours. It is advisable that the drainage rubber should always either be stitched to the skin or have a safety-pin attached so that it cannot slip into the cavity and subsequently cause a sinus.

Lipomata

These constitute the most benign of neoplasms. They are usually encapsuled. The capsule is tense and fibrous, being firmly connected to the surrounding structures but not to the neoplasm. The diffuse lipoma is not very amenable to treatment, as it will recur in course of time owing to the impossibility of removing it completely. Any specially painful lipoma—for example, in the condition known as adiposis dolorosa—can be removed easily, but as a rule some other tumour, which has previously been painless, becomes the seat of pain, and in its turn will have to be excised. A lipoma should be removed through a generous incision, so that all the outlying nodules of the neoplasm are excised. The incision should be made deliberately through the skin and into the tumour, the enucleation thus taking place from within the capsule. If the incision is not large enough outlying nodules may be left, and these will continue to grow and another tumour form.

from 1852 until it was incorporated with the *Dublin Medical Press* in January, 1866. He died in 1869, aged 64, and was buried at Sutton Bonnington, Notts, where his eldest son was rector.

Migrations of the Hospital

At his hospital Yearsley had as a colleague Peter Allen and, from 1866, Edward Bishop. Sir William Wilde, the famous Dublin aurist and father of Oscar Wilde, was for a time a member of the committee of management, but apparently not on the active surgical staff. Toynbee died in 1866, the victim of experimenting with prussic acid and chloroform as an inhalation to relieve inflammation of the ear, and Peter Allen succeeded him as aural surgeon to St. Mary's Hospital. After the death of Yearsley the hospital, with Bishop, Abbot Smith, and Charles Lovegrove as surgeons, moved first to Red Lion Square, and later, in 1875, to Howland Street, the leading members of the staff then and for many years being George Saunders, Jacob Pickett, and Dawson Nesbitt. In 1893 it was moved to Grafton Street, Tottenham Court Road, where the staff was joined in 1897 by Hemington Pegler and Frederick Spicer, and it was through their efforts that the hospital was reorganized, the honorary surgical staff strengthened, the late Earl of Crawford became an active chairman (he was succeeded on his death by his son, the present Earl of Crawford and Balcarres), and in 1911 a move was made to Fitzroy Square, where the hospital still remains. With the aid of a substantial legacy from the late Mr. Hovis Smith it is to be rebuilt in its centenary year upon its present and an adjoining site.

R. S. S.

PHILIP SYNG PHYSIC (1768-1837)

Philip Syng Physic, the father of American surgery, was born on July 7, 1768, at Philadelphia, where he received part of his medical education before going to London, where he became John Hunter's favourite pupil and house-surgeon at St. George's Hospital in 1789. Two years later he went to Edinburgh, where he qualified in May, 1792, with a thesis on apoplexy. In the following September he returned to Philadelphia and gained considerable experience in an epidemic of yellow fever in 1793, when he became the surgical consultant of Benjamin Rush, to whom in turn he sent his purely medical cases. In 1794 he was appointed surgeon to the Pennsylvania Hospital. Until 1800, when Physic gave his first lesson in surgery, no separate teaching on this subject had been attempted in Philadelphia, surgery being included under the department of anatomy in the University of Pennsylvania. Five years later a chair of surgery was founded which Physic was the first to occupy, and he held it until 1819, when he was elected professor of anatomy, and continued in that office until 1831.

Although he published little of importance himself Physic exercised considerable influence on American surgery, his teaching having been preserved in a treatise on surgery by his nephew, John Syng Dorsey, whom he succeeded in the chair of anatomy in 1819. American surgery was indebted to him for the introduction of absorbable ligatures, the use of the seton in ununited fractures, the operation of artificial anus, the advocacy of rest in hip disease, the invention of a tonsillotomy, a modification of Desault's splint, his description of diverticula of the rectum, and washing out the stomach with a syringe and tube in cases of poisoning. Physic also gained a well-merited reputation as an ophthalmic surgeon and as a lithotomist, his most famous operation being on Chief Justice Marshall, from whose bladder he removed a thousand stones with complete success. The honours bestowed upon him included honorary membership of the French Academy of Medicine and fellowship of the Royal Medical and Chirurgical Society. His death from myocardial failure and general anasarca took place on December 15, 1837.

MINERS' NYSTAGMUS

REPORT OF THE DEPARTMENTAL COMMITTEE ON WORKMEN'S COMPENSATION ACTS

The Departmental Committee appointed in 1935 has now issued its report on certain questions arising under the Workmen's Compensation Acts. The report—which is the result of an inquiry brought about by the general dissatisfaction with the diagnosis, certification, and management of cases of miners' nystagmus—is divided into three parts, of which the first is concerned with miners' nystagmus, the second with general medical procedure, and the third with lump-sum settlements. We shall here deal chiefly with the first and most important part.

The report contains some very interesting information concerning the history of miners' nystagmus: the cost (£450,000 yearly in compensation alone); the number of cases (averaging nearly 10,000 for several years, of which 2,000 are new); the distribution according to coal-fields; and the number of partially disabled men at work. Its main conclusions are: that the determining cause of miners' nystagmus is the low standard of underground illumination and that the cap-lamp should be in general use. The description of the disease is to be altered to "miners' nystagmus—process mining." Cases are not to be certified unless oscillations are found to be present for a definite period (at least fifteen seconds after stooping exercises in the dark).

Provision of Medical Boards

The provision of suitable work is essential for recovery. The necessity for co-operation between employers and workmen is insisted upon, and the Home Office is to obtain an undertaking from the Mining Association or individual colliery owners that they will do their utmost to provide suitable work. The certifying surgeons are to be retained, but medical referees are to be replaced by medical boards consisting of one ophthalmological surgeon and one physician. The decision of these boards is to be final. The committee does not curtail the right of the employers to have medical examinations made on their behalf, and presumably these reports may be forwarded to the board. It is the intention of the committee that this medical board shall have charge of all cases of miners' nystagmus throughout their course and that it shall decide whether the workman is fit for work; the nature of the work is also to be specified. A report on "The Diagnosis and Certification of Miners' Nystagmus," by a committee of the British Medical Association, was published in April, 1936, by order of Council (*British Medical Journal Supplement*, 1936, 1, 238). The conclusions of this committee are in almost complete agreement with the findings of the Departmental Committee outlined above. The B.M.A. committee strongly advocated the replacement of medical referees by medical boards, which should consist of two ophthalmic surgeons and one physician. They were of opinion that these boards should be utilized for disputed cases only, as they felt that most cases arising under the Workmen's Compensation Acts were settled without trouble, by mutual consent between employer and workmen.

The proposal of the Departmental Committee to make these medical boards responsible for the management of cases throughout their whole course is a striking departure from the procedure of the last thirty years. This proposal sets up State control of a section of the Workmen's Compensation Acts, the medical boards being elected and supervised by the Home Office. The duties of the boards will be to ascertain the extent of disablement and to advise the employer and workman when the latter is fit for work. The board will also supervise each case throughout and will call the men up for periodic re-examinations. There are obvious objections to boards consisting of two members, but it is probable that the

Nova et Vetera

JAMES YEARSLEY AND THE METROPOLITAN EAR, NOSE AND THROAT HOSPITAL, 1838-1938

The Metropolitan Ear, Nose and Throat Hospital, which celebrates its centenary this year, is the oldest ear, nose, and throat hospital in this country, and apparently in the world. It is true that Moorfields was started by John Cunningham Saunders in 1805 as an eye and ear infirmary, but only two years later it became an exclusively ophthalmic hospital, the first of its kind in the world; and that in 1816 an ear dispensary (which became in 1845 the Royal Ear Hospital) was established in Soho "in order to advertise his claims as an aurist" by John Harrison Curtis, a notorious quack with no medical qualifications, who had been a dispenser in the Navy and married a lady of means. But the Metropolitan Ear, Nose and Throat Hospital, founded as the Metropolitan Ear Institution, was from the first a hospital for the treatment of diseases of the ear, nose, and throat, and James Yearsley, its founder, repeatedly pointed out in his writings the influence on the ear of affections of the nose and throat, particularly in causing deafness. The gross ignorance and curious activities of Curtis, who for a time made £5,000 a year attending King George III, Cabinet Ministers, and half the aristocracy, before he fell into penury and fled the country, brought the specialty of the aurist into the lowest repute, from which it was raised by James Yearsley and Joseph Toynbee. Toynbee has been called the father of English otology, but if anyone really deserves that title Yearsley has at least as good a claim as Toynbee.

Early Work in Otology

Although Servetus, Eustachius, and Fallopius all described the ear in their anatomical writings in the sixteenth century, it was Joseph Guichard Duverney (1648-1730), professor of anatomy in Paris, who wrote the first treatise on otology in 1683, and Valsalva published his famous work on the anatomy and physiology of the ear in 1717. Guyot, the postmaster at Versailles, in 1724 succeeded in alleviating his own deafness by introducing through his mouth into the Eustachian tube a catheter through which he injected liquids; he communicated a description of the procedure to the French Academy of Sciences, which rejected it as ingenious but impracticable. Archibald Cleland, surgeon to Wade's Regiment of Horse, improved on this by passing the catheter through the nose and injecting warm water or blowing air through it (1731), and Jonathan Walther (1755) treated catarrhal deafness by this method. In 1802 the great Sir Astley Cooper received the Copley Medal of the Royal Society for his memoir on perforating the tympanic membrane for deafness resulting from obstruction of the Eustachian tube in twenty cases, but he withdrew from aural surgery "as he was afraid to be thought an aurist." In 1821 Jean-Marc Itard, physician to the Royal Institution for the Deaf and Dumb in Paris, published his textbook *Mémoire sur les Maladies de l'Oreille et de l'Audition*, the first treatise on diseases of the ear, and led the ascent of otology from empiricism.

James Yearsley

James Yearsley was born at Cheltenham in 1805, and was apprenticed to Ralph Fletcher, a celebrated surgeon of Gloucester, whose daughter he subsequently married. On leaving Gloucester he became a pupil at St. Bartholomew's Hospital, and took the diploma of M.R.C.S. in 1827; some years later he graduated M.D. of St. Andrews University. After practising for a short time at Cheltenham and Ross-on-Wye he came up to London to practise as an aural surgeon, and soon achieved success. His writings show that he was familiar with the work of Itard,

Deleau, Kramer, and other Continental otologists, but there is no evidence that he studied abroad. He founded the Metropolitan Ear Institution in Sackville Street, Piccadilly, in July, 1838, and in 1840 he published a textbook, *Diseases of the Ear* (London, Churchill, 1840). In his preface he observes:

"Almost all diseases of the ear originate in a morbid condition of the mucous membrane of the throat, nose, and ear, which becomes affected from a variety of causes, among which cold, the exanthemata, especially scarlatina, and stomach derangement stand pre-eminent."

In this book he describes and illustrates his operation for removing the tonsil, holding it in a powerful-sprung, tenaculum and dissecting it out with a hawk-bill-shaped knife; he states (in his third edition, 1850) that he had removed the tonsils from the throats of more than 1,400 patients. He all but described adenoids many years before Meyer of Copenhagen (1862) recognized and described them:

"I have sometimes suspected an overlapping of the mouths of the Eustachian tubes by the loose mucous membrane, and the results of treatment have occasionally justified the opinion I had formed; for shortly after excision of a small slip of mucous membrane from underneath the arches of the palate, amendment more or less considerable [in hearing] has taken place" (p. 138).

Yearsley and Toynbee

In the *Lancet* of July 1, 1848, Yearsley published an account of his "artificial tympanum" (a small pellet of moistened cotton-wool), which is still employed as a valuable aid in improving the hearing in deafness due to a post-suppurative perforation of the tympanic membrane. Toynbee in 1853 contrived another kind of artificial drum, consisting of a thin disk of vulcanized india-rubber with a stem of fine silver wire. Unfortunately controversy then ran high between the two aurists, who each claimed to have originated the artificial tympanum, and according to Peter Allen (who worked with Yearsley and succeeded Toynbee) "the war of words was long carried on with an unseemly bitterness, which was much to be regretted, on both sides." Yearsley was an enthusiastic advocate of the value of Eustachian catheterization in the treatment of deafness, and he states that he demonstrated his method to hundreds of medical practitioners anxious to learn how to pass the Eustachian catheter. Toynbee, on the other hand, discarded catheterism because, according to Peter Allen, he believed (erroneously) that during the simple act of swallowing with the nostrils closed the air in the drum is condensed. According to J. F. Clarke of the *Lancet*, a contemporary medical writer, Toynbee was an anatomist rather than a clinician: "Toynbee's splendid dissections were associated with no therapeutic or practical results." Certainly he dissected nearly 2,000 temporal bones, he was made an F.R.S. "entirely for his dissections," and the Toynbee Collection is to-day still one of the features of the Royal College of Surgeons Museum. Toynbee was the first aural surgeon on the staff of a general hospital in London, being appointed to the newly established St. Mary's Hospital in 1852. His textbook on diseases of the ear was published in 1860.

James Yearsley is memorable in other directions in the history of medicine. At the period when he came to London no hard-and-fast line was drawn between the qualified and the unqualified medical practitioner, as witness the case of John Harrison Curtis, nor was there any simple criterion by which the general public could distinguish the quack from the reputable practitioner. Yearsley, in conjunction with Tyler Smith and Forbes Winslow, founded in 1846 the *Medical Directory*, of which he soon became the sole proprietor on the retirement of his two partners. This directory was a precursor of the Medical Registration Act of 1858, as it showed clearly the advantages of placing the whole medical profession on one recognized list. Yearsley was also the originator and proprietor (though not the editor) of the *Medical Circular*

due to industrial disease. Above all, the report, by "the elimination of a hopeless dependence on compensation by provision of work . . ." (quoted, in para. 101 of report, from the Third Report of the Miners' Nystagmus Committee), holds out hope for those partially disabled men who, from being unemployed, become unemployable.

It will be a matter of congratulation to the Council and members of the British Medical Association that the findings of the Departmental Committee follow so closely the recommendations of their own committee. The Departmental Committee has done its work well, and has put forward valuable recommendations which will simplify the workings of the Workmen's Compensation Acts.

THE NEW MATERNITY SERVICES

ADDRESS BY SIR COMYNS BERKELEY

A new maternity home was opened at Hull on February 15, having as its object the service of middle-class women. The home is an adjunct to the Hull Hospital for Women and is named after Dr. Ethel Townsend, a Hull practitioner, who gave £5,000 towards the cost of the building. The opening ceremony was performed by Sir Comyns Berkeley, chairman of the Central Midwives Board, who took occasion in an address to pass in review the maternity services of the country in the light of recent developments, dealing first with the question from the point of view of poor mothers, then from that of the medical student, the future family doctor, and finally from that of women who were neither poor nor very well-to-do.

Sir Comyns Berkeley began by relating the circumstances which led to the passing in the early part of 1936 of the Midwives Act, following upon the Ministry of Health report on maternal mortality. Even before the passing of this Act, he said, some very valuable services were available to the pregnant woman if she cared to avail herself of them and if local authorities exercised their powers to provide them. But the new Act might be described as the "mothers' charter." It made provision for a domiciliary service of full-time salaried midwives, care being taken in the establishment of such a service that the most suitable women were attracted to this field, that their conditions of employment, with reasonable salaries and holidays, enabled them to give of their best to their patients, and that their skill and knowledge were maintained at a high standard.

In the past the midwifery service (said Sir Comyns Berkeley) had not been all that could be desired; many midwives had lacked sufficient practical experience to ensure that they were well up in their work. But the new Act had resulted in the resignation (with monetary payment) of a large number of women who were too old to continue in practice or who attended only a very few cases in the year. At the same time arrangements had been made for refresher courses for all midwives continuing in practice. One of the most important suggestions made by the Minister in the report on maternal mortality was that there should be expert obstetricians available for consultation with the doctors in each district. In towns where there was a maternity hospital or department of any size it was important that what was known as a flying squad—an expert obstetrician and qualified obstetric nurse—should be attached, in readiness for summons, with the necessary equipment, to the home of a patient who could not be moved. It would be left to the local medical profession and the local authorities to ensure that the best obstetric skill was available, and he was confident they would not be found wanting.

Medical Students and Midwifery

With regard to the medical student (Sir Comyns Berkeley continued) it was well known that for many years past medical students had been starved of experience in

practical midwifery owing to the fact that the General Medical Council had not stipulated for a period of training in that subject comparable to that on which it had insisted in medicine and surgery, and also to the fact that there were not sufficient cases for the student to obtain an adequate training. The General Medical Council stipulated that before he could enter his final examination the student must have attended and delivered twenty women in labour. The Central Midwives Board had had the same regulation for pupil midwives, but there had been this difference, that whereas the Council had to wink at its regulation because there were not enough cases for the students, the Board rigidly refused to allow any pupil midwife to enter for its examination until attendance on twenty cases had been certified. Several of the teaching hospitals which trained also pupil midwives had given these women their twenty cases, allotting the remainder—not many—to the medical students. But 70 per cent. of the women on the midwives' roll never practised as midwives; they took the Board's diploma as an extra qualification.

The Board had now come to the rescue of the General Medical Council by refusing to give separate approval for the training of pupil midwives to any hospital which trained medical students unless and until those students had had twenty cases each or as many as were available short of that number. Moreover, the training of midwives under the new rules was in two parts, the first of these including thorough instruction in all branches of midwifery but with attendance on only ten labours. It was hoped that this would satisfy nurses who wished to receive some training but did not intend to practise midwifery, and many more cases would thus be available for medical students and for women who contemplated practising as midwives.

Needs of the Middle-class Mother

Finally, Sir Comyns Berkeley turned to the needs of the middle-class mother. She belonged, he said, to the section of the community which was worse off as regards maternity services. It was true that under the new Midwives Act any mother, whatever her circumstances, could obtain the services of a salaried midwife, or of a maternity nurse if she was attended by her own doctor, at a very reasonable fee. Nevertheless the accommodation for their confinement was to many of these women an embarrassing question. They did not wish to enter the maternity ward of a hospital, a nursing home was expensive, and their own home, perhaps a small flat, was unsuitable. Some hospitals had private maternity wards, and in a few the prices were reasonable and the family doctor could have charge of his patient. But there was very great need in every district of any size for properly equipped maternity homes or departments at which reasonable fees were charged, and at which the patient's own doctor could provide the attendance. He added that the citizens of Hull might well feel proud of this further improvement of the maternity services of their city, and they with the medical practitioners of the district would be deeply grateful to Dr. Ethel Townsend for her munificent benefaction.

Special Report No. 45 of the Food Investigation Board of the Department of Scientific and Industrial Research is entitled *Microbiology in the Preservation of Animal Tissues*. The author, Dr. R. B. Haines of the Low Temperature Research Station, Cambridge, regards the successful storage of animal tissues as an exercise in applied microbiology. The report is divided into three parts. Part I deals with the access of bacteria to the tissues; Part II with aspects of the physiology and biochemistry of bacteria and of the tissues of the host; and Part III with the control of infection and growth. Two appendices describe methods and apparatus employed, and the report concludes with a very full bibliography, comprising 261 references.

question of expense and the greater difficulty of arranging meetings determined the findings of the committee. It will be difficult to constitute these boards throughout the country, and much care must be given to the selection of personnel. Difficulties of administration are also likely to be great, and there will almost certainly be some delay in dealing with references. The expense of these boards is to be met by fees from the industry and a contribution from the Exchequer. There is at present no definite scale of fees laid down as suggested in the B.M.A. report. All men must appear before the board, and the only medical evidence allowed in a county court is a report from the board. The committee hopes that only exceptional cases will proceed to litigation.

Use of the Cap-lamp

The committee realizes that the best way of coping with the disease is by preventive measures, and they urge the more extended use of the cap-lamp (over 80,000 of which were in use in June, 1937) as the best means of attaining the upper standard of 0.25 foot-candle on the working area advised by the Miners' Nystagmus Committee in its Third Report (M.N.C. Third Report, Medical Research Council, Special Report Series No. 176, p. 8). Recent mining regulations have brought into use improved lamps (Coal Mines General Regulations (Lighting), 1934: S.R. and O., 1934, No. 562). There has in recent years been a welcome fall in the number of new cases certified, and if this fall continues the collieries will be able to absorb all partially disabled men. The provision of suitable work for such men has been strongly advocated for years by all medical authorities, and the committee is to be congratulated on obtaining pledges from the colliery owners that this work will be found if possible. The problem is economic rather than medical. The number of men now employed on the surface has been greatly reduced by the introduction of labour-saving machinery, and with the best will in the world it may not always be possible for the owners to provide work in all cases.

Definition of Nystagmus

The alteration in the definition will be generally welcomed, and it is probable that the number of fresh cases will fall. The old loose definition was an anomaly, and was the chief cause of the diversity of medical views referred to in para. 68 of the report. No fresh case of miners' nystagmus should have any difficulty in passing the test laid down: definite oscillation for fifteen seconds after stooping exercises in the dark. In the past many cases were certified on the strength of a single flicker. Most cases of miners' nystagmus are managed by the large mutual indemnity companies, whose individual members are generally responsible for the first twenty-six weeks of the cost. The report suggests that the whole of the employers' liability in respect to miners' nystagmus should be covered by insurance. The question of susceptibility to attack has led the committee to recommend that young men severely affected by miners' nystagmus before the age of 30 should be suspended from underground work by the medical boards. This was also a recommendation of the B.M.A. committee.

The Question of Re-employment

The liability to recurrence has made it almost impossible for men to obtain re-employment underground with other employers, and has been the cause of much litigation in the higher courts. The report lays down the simple rule that if a man who has suffered from miners' nystagmus obtains work with another employer the original employer is liable if breakdown takes place within three years. If failure takes place after three years a fresh certificate is necessary and the case is regarded as a new one. To encourage employers to re-engage men it is suggested that an insurance pool should be established in each coal-field to cover the entire liability for miners' nystagmus. The owners would then only have to pay their subscription to the pool. The simplest way out of the difficulty would be to forbid any man certified as suffering from miners'

nystagmus to work underground again. This would entail great hardship on men who have only one occupation and who are incapable of adapting themselves to other work. The aim should be to improve the working conditions, and all that may be necessary in individual cases is the provision of a cap-lamp. Although the number of men employed in the industry has fallen in recent years by one-third, there is still a shortage of skilled colliers, the class of men chiefly affected.

Elsewhere in this issue is a suggestive paper by Dr. Raymond Brock of Wrexham, to which the reader is referred for a discussion as to the causes of miners' nystagmus. Dr. Brock thinks that failure is caused by a breakdown of the man's ability to stand the stresses of the mine—poor illumination and danger. In his view disability, when it arises, is due to an associated psychoneurosis. In a large number of cases disablement is entirely due to ocular movement, and the man is otherwise well. In others the symptoms which Dr. Brock describes appear either at once or after a period of unemployment, and may be correctly described as due to an associated psychoneurosis. Other men come out of the pit with well-marked anxiety neurosis and no oscillation. In the B.M.A. report the considered opinion is given that these men should not be considered cases of miners' nystagmus, and that the continued payment of compensation in these cases perpetuates in the mind of the sufferers, and of the medical men who are asked to certify them, a false conception of the disease. The Departmental report recognizes this type of case and expresses the hope that the change of the definition will eliminate them. These cases have been largely responsible for the difference of opinion, and it will be the duty of the medical boards to educate both workmen and medical men to a truer conception of this disability.

Cases Other than Miners' Nystagmus

The second part of the report deals with medical procedure in cases other than miners' nystagmus. The medical referees are to remain, with their numbers strengthened by the inclusion of more specialists. Appeals may be made from the medical referee to "medical appeal tribunals," which bodies are to be set up by the Home Office in ten or twelve large centres. The right of the employer and workman to arbitrate on medical issues is to be withdrawn, and these issues are to be settled by the tribunals alone. The certifying surgeon is to function as before, and the tribunals are to consist of three members, one of whom is to be an appropriate specialist. One very important recommendation is that approved societies are to make advances of sickness benefit to workmen while they are awaiting a decision as to their claim for compensation.

Part 3 deals with lump-sum settlements, and the report says that these settlements are generally popular with both employers and workmen and that as a rule they are used to advantage. They should be subject to the approval of the registrar, who should see each man and obtain a report from the medical referee if necessary.

Expected Beneficial Results

If these recommendations receive Parliamentary sanction, what benefits are to be expected? Disputed cases will be settled away from the disturbing influence of the courts. The system of reference will be greatly strengthened, and the aggrieved party will have the right of appeal to a strong medical board, except in cases of miners' nystagmus, which will be dealt with by a board from the first. The moneys formerly expended in litigation will, or should, be more profitably devoted to the rehabilitation and training of workmen. A strong lead is given to the prevention of miners' nystagmus by the insistence on good underground illumination. The reversion to the old description of the disorder—"miners' nystagmus"—and the standard of incapacity laid down will be a safeguard against the certification of cases not

the use of guinea-pigs and the virus of equine encephalomyelitis, these animals not being subject to poliomyelitis. It was discovered that the virus in this case used the same path in order to ascend to the brain.

The work carried out along these lines began by dropping a solution of tannic acid into the nose of guinea-pigs. Tannin had the property of coagulating albumin, and thus a layer of coagulated albumin was formed over the olfactory hairs. If the interval was not too long this layer of tannic precipitate excluded the virus, and whereas 100 per cent. of the animals would die if not so protected, few or none of them died during the few days for which this protection lasted. This led immediately to an effort to block the passage in monkeys, and a very considerable number of chemicals were tried. The one most successful was a 1 per cent. solution of zinc sulphate, which gave a protection lasting two or three months after the instillations had ceased.

The difficulty encountered in the human being was that the middle turbinate bones deflected the fluid, so that it did not pass over the olfactory mucous membrane. It became necessary to devise special atomizers for the purpose and to watch the process with a mirror. This was a performance requiring special skill, and not to be roughly improvised during an epidemic. The zinc sulphate solution, which was so mild that it did not hurt the conjunctiva, was painful when applied to the olfactory mucous membrane, but this disadvantage was overcome by procaine.

Last summer during an outbreak of poliomyelitis in Toronto an effort was made to test the zinc sulphate application. The report stated that nearly 5,000 children were sprayed twice by forty-four oto-rhino-laryngologists in eight hospitals, and about 6,000 controls were taken. Among the 4,713 children who were sprayed twice eleven cases of poliomyelitis occurred, and in the control group eighteen cases, a rate of 2.1 per cent. and 2.9 per cent. respectively, the difference not being statistically significant. Moreover, the way in which the applications had to be made practically excluded the method from ordinary public health practice. That was the present position in respect of immunization to poliomyelitis.

Second Attacks of Poliomyelitis

In 1930 Still drew attention to the occurrence of second attacks in previously paralysed children. He collected nine or ten cases, and others had been reported. It was possible with monkeys to experiment with second attacks. Although poliomyelitis was not a natural disease in monkeys, when it was given to them artificially they were more severely affected than humans. The mortality among monkeys was about 90 per cent., which was far higher than the mortality in man. When the monkeys recovered—and a certain number by careful nursing could be made to recover—they had residual paralysis of a crippling character, just the same as human patients. A number of these monkeys were studied with reference to the possibility of second attacks.

It must be remembered, Professor Flexner pointed out, that when a disease was produced experimentally the methods used, as compared with what took place naturally, were rough; in other words, nothing comparable to the dropping of a suspension of filtered virus into the nose of monkeys occurred even under the worst conditions of an epidemic in human beings. Thus it was found that second attacks could be produced in monkeys much more numerous than in any circumstances one could imagine to occur in children. But what happened in the monkey was precisely what happened in the human patient. The process was the same, although the incidence might be very different. The virus, using the channel of the nervous system, entered the axons and extended widely. Any parasitic material thus introduced had an enormous advantage over the ordinary defence mechanisms, even when these were efficient, and in the monkey experiments the

virus passed by means of these nerve structures in the same manner whether or not the animal had had the disease previously. Thus a relatively high percentage of second attacks was recorded in monkeys. If the process was studied carefully it would be found that very soon after the virus was dropped into the nose a reaction would take place in the cerebrospinal fluid. This reaction consisted of a rapid increase in the number of cells. The increase began within forty-eight hours, and continued rapidly to quite a high level. This was of interest because the virus of poliomyelitis itself never entered the cerebrospinal fluid, at least it had never been found to do so, either in man in the natural disease or in the monkey artificially inoculated.

On the general subject of second attacks, it was supposed that such an attack in poliomyelitis never occurred at all. But there was no infectious disease, whether of bacterial or virus origin, no matter how strong the immunity, in which second infection did not exceptionally occur. It was only very recently that something had been learned about reinfection in poliomyelitis.

Epidemic Encephalitis

Professor Flexner added a few remarks on the subject of epidemic encephalitis, which appeared in this country in 1918 and in America a year later. It was originally described in 1917 in Vienna, and often went by the name of lethargic encephalitis or sleepy sickness. In the summer of 1933 about 1,000 cases occurred in Missouri, mainly aggregated in St. Louis, where the attack rate was about 1 per 1,000. It was quickly determined that this was a virus disease. At first it was transmitted to monkeys, and then after a little experimentation and the selection of particular strains of mice it was successfully transmitted to mice, an enormous advantage from the experimental point of view. A great deal had been learned about the disease as a result of the epidemic in Missouri. This type of encephalitis, known as the St. Louis type, was immediately recognized as having similarities with the encephalitis which was very prevalent in Japan, where about 7,000 cases were reported, some years earlier.

The question was whether epidemic encephalitis in the United States was the same as the Japanese disease. Plates were obtained from recovered cases of the Japanese disease and tested against the virus of the St. Louis disease, and Japanese workers had also made experiments in the reverse direction. It was shown that the two diseases were distinct, though this did not mean that they had no relationship. It meant only that the two particular varieties, the one causing the Japanese disease and the other the St. Louis, were distinguishable immunologically. In spite of all the obstacles to the production of immunity, natural or acquired, in animals or man, an impression of a sort was made on the structure of the nervous system. Something happened there—nobody knew what—which rendered that system less subject to reinfection with the same type of organism as that by which it was originally attacked.

Professor Flexner concluded with a quotation from Dr. Theobald Smith, an eminent American microbiologist, who wrote that "humility of spirit should hover over our undertakings. In nature everything is molten, living things are changing, nature is everywhere trying hundreds of experiments. . . . Out of this trial and error method come new diseases or new adaptations of existing ones." It was of great interest to note that before 1905 there was no historical record of poliomyelitis as an epidemic disease on a world-wide scale, and there was no historical record of the disease encephalitis lethargica which could be recognized at all.

* Owing to the time of going to press, Professor Simon Flexner was unable to see a proof of the above report of his lecture at Cambridge.

PROFESSOR SIMON FLEXNER AT CAMBRIDGE

LECTURE ON EPIDEMIC POLIOMYELITIS

Professor Simon Flexner, formerly director of the Rockefeller Institute for Medical Research, visited Cambridge on February 21 and lectured in the physiological department to a large audience, which included the Regius Professor of Physic (Professor J. A. Ryle) and Sir F. Gowland Hopkins. He was introduced by Professor E. D. Adrian. Professor Flexner took as his subject epidemic poliomyelitis or infantile paralysis, and at the end of his lecture dealt much more briefly with epidemic encephalitis. He said that he was led to speak on these two diseases because America had been the victim of them—especially of poliomyelitis—on a scale exceeding that of any other country. The two diseases were different in this respect, that poliomyelitis was one disease and encephalitis was not. How many kinds of epidemic encephalitis there might be was not known, but there were certainly two, and there might be more.

Landmarks in History

In briefly sketching the history of research in poliomyelitis Professor Flexner first mentioned the name of Jacob Heine of Kronstadt, who was the first to attribute infantile paralysis to a spinal cord affection. He was led to make a systematic study of the disease by reading a report of four cases by a practitioner of Worksop in England. Heine wrote a well-known book on the cases he had observed, which was published in 1840. Many years later Wickman suggested that the disease be called "Heine-Medin'sche Krankheit," and it was under that name that references appeared frequently in Continental literature. Wickman himself investigated an outbreak of 1,025 cases in Sweden in 1905, and in many ways the modern knowledge of the disease dated from Wickman's studies. The epidemic flourished in the remote and isolated parishes of Sweden, and Wickman was able to trace the movements of many of the children attacked and reached the conclusion not only that the disease was infectious and that it affected much more than the central nervous system but that certain varieties of it could be distinguished. He discovered also that the infection passed, not from children who were actively sick, but from slight cases which would never be suspected of the disease if they did not occur at the same time and in the same families as the paralytic form of the complaint.

By 1908 the disease had spread widely to other parts of Europe, and cases were occurring in the United States, on the Atlantic seaboard, where immigrants landed from Europe, and in Minnesota, where there was a large Scandinavian population. In 1909 at the Rockefeller Institute spinal cord was obtained from two fatal cases, and it became possible to accomplish animal-to-animal inoculation. One of the individuals who furnished this material had the initials "M. A.," and this accounted for many references in world literature to "M. A." or sometimes "M. V." This indicated the original virus, which was isolated about thirty years ago and which had been continuously passed from monkeys ever since. The filterable nature of the virus was established about 1910.

Mode of Infection

Once the filterable nature of the virus was discovered all the discharges from the body were examined with a view to detecting its channel of egress. By filtering the discharges and inoculating the filtrates, freed from all bacteria, into the monkey, it was discovered that the virus was present only in the discharges from the upper respiratory tract. No particular skill or imagination was required to try the reverse experiment and to discover whether the virus also entered by the nasopharynx. It was soon found that it was necessary only to get a suspension of the virus

into the nose and the disease developed. By a suspension of the virus he meant merely a portion of the spinal cord of the paralysed monkey suspended in solution and dropped into the nose.

The study of the manner in which the virus entered through the nose had opened a new chapter in pathology. It was quickly determined that it entered directly through the olfactory areas in the nasal mucous membrane. These were portions of the central nervous system having a peripheral location. Protruding into the cavity of the nose were hairs or receptors, perfectly free except to the extent to which they might be covered with mucus. When the virus was introduced into the nose it attached itself to these hairs and to the first line of olfactory cells immediately adjacent, and very quickly passed from these hairs and cells by way of the olfactory nerves through the axons to the olfactory lobe of the brain. It was important to bear in mind that owing to its portal of entry and means of discharge poliomyelitis fell into the class of upper respiratory infections. It was important because of the problems and difficulties surrounding the prevention of the diseases which had that origin. Poliomyelitis was therefore just as difficult to prevent as colds or pneumonia, which had the same mode of infection.

Prevention and Specific Treatment

The lecturer next turned to the efforts which had been made in the United States within the last year or two to bring about artificial immunization. Ever since the epidemic disease appeared in America every summer and autumn there had been outbreaks in one State or another or in Canada, and the number of children affected and left paralysed was so great that it was natural to direct every effort to prevent the disease. Two attempts were made, one in New York with a vaccine consisting of the virus to which a certain amount of formalin was added, and in the other a similar material was used, sodium ricinoleate being the addition. These vaccines had been used quite extensively, but both had been given up, the former because there was no particular evidence that it produced the immunity principle and the other because the indications were that it accidentally produced in certain sensitive children the disease itself. The peculiarity about all virus diseases was that, so far as was known, in no case would the virus produce an active immunity in the dead state. This was in sharp contrast to bacterial diseases. Bacteria grew on media which contained no living cells, but no virus would grow on dead materials. The virus was strictly cytotropic—that is to say, it required cells to which it attached itself in order that it might multiply, and unless the virus was alive it had no power of multiplication and no power to give immunity.

It was this requirement of a relationship between the virus and the living cell which determined the occurrence or non-occurrence of immunization. As the living virus of poliomyelitis could not be safely used for vaccination it did seem that for the time being the way was blocked for the artificial production of active immunity to the disease. Some degree of immunity could be produced by means of a mixture of the living virus and immune serum. The serum, which neutralized the virus, did not actually destroy it. The dissociation between the immune material and the virus could be made to take place outside the body, and it undoubtedly also took place in the body. A small amount of immune material carried in by the serum seemed to hold the virus in check; so that in those circumstances the disease was not produced. Unfortunately, however, the amount of immunity thus conferred was low.

Possible Blocking of Path of Ingress

The failure to produce active protection in this manner had led to another approach to the subject. The effort was made to block the passage of the virus along the path of the olfactory nerves. This work was begun with

for years, and about ten couples out of the hundred would remain childless. Absolute fertility meant physiological perfection, a state which was common in animals, but human beings in comparison with animals were poor breeders, relatively but not absolutely fertile. In matings of high fertility in human beings pregnancy occurred promptly and repeatedly, even in spite of all contraceptive precautions, but if the fertility of the mating was average a desired pregnancy could easily be accomplished within a reasonable time and an undesired one prevented by contraceptives. This conception of relative fertility as applied to human matings was a comparatively new one and had done a great deal to clarify the whole subject.

In the causation of infertility a number of infertility factors of major and minor importance were recognized. The investigation of a childless marriage entailed an exhaustive examination not only of each partner but of the sum total of infertility factors found in both. The usual problem was not that of one sterile and one fertile partner, but rather of two individuals, both of whom exhibited some degree of infertility. Meaker in the United States had found in one hundred cases of sterile marriage 481 infertility factors, one-third of them on the male and two-thirds on the female side. In the experience of most of them, in about 40 per cent. of sterile marriages the semen showed some obvious defect, though such a finding was no justification for fixing the blame exclusively on the husband, because in most cases the wife also exhibited some infertility factor. The male factor might be defective spermatogenesis or some blockage in the male genital tract. Of these the first was the more important. It was due to constitutional causes which in the male preponderated over the local ones. Among them might be mentioned pituitary or thyroid dysfunction, malnutrition, and alcoholism. The female factors might also be divided into constitutional and local. Far too much importance was attached as a local factor to tubal occlusion, which he had not found in more than 10 per cent. of cases. Genital hypoplasia or failure of complete development of the reproductive system was by far the commonest cause of sterility in the female. It was a common estimate that 30 or 40 per cent. of all sterile women showed stigmata of genital hypoplasia. The tragedy about this condition was that medical advice was sought too late in life. If a girl did not menstruate regularly and normally before her fifteenth birthday her general health and endocrine functions should be investigated. If the delay extended to her sixteenth birthday the matter was really urgent. The aim of the members of the medical profession should be to detect the candidates for genital hypoplasia even before they reached the age of puberty. In Italy Mussolini had already established centres for hormone investigation of this sort, especially with a view to detecting incipient hormone defects.

Influence of Changes in the National Diet

Professor J. C. DRUMMOND discussed the changes in the character of the national diet with their bearing on nutrition, and possibly on fertility, having in mind the likelihood of a shortage of vitamins B₁ and E. The latter vitamin was known to play a very important part in the reproductive cycle. No fallacy was more widely held than that a mixed diet afforded protection against all forms of dietary deficiency. The vitamins were quite erratic, and it did not necessarily follow that with a mixed diet one was making good the deficiencies of one food with the adequacies of another. If a list of common foodstuffs were made curiously few of them would be found to be rich in vitamin B₁ or E, but there was one food in which they were both present to a considerable extent—namely, the germ of most of the cereals. If as he imagined, the decline in the population first became apparent about fifty or sixty years ago, the period did coincide with the change-over from wholemeal to white bread, which occurred very rapidly as a result of the introduction of the roller mill. The removal of the germ which the new

process made possible brought about in less than thirty years a sharp fall in the amounts of these vitamins in the everyday diet. For example, the intake of a poor person living largely on bread fell from about 800 international units daily to about 250. He considered it possible that the introduction of white germ-free breads had been in part responsible for lowered fertility.

The Part Played by Abortion

Professor J. YOUNG said that abortion and contraception were generally believed to constitute the effective influences in the declining birth rate. In a survey of gynaecological cases Beckwith Whitehouse found a history of 1,972 abortions in 11,430 pregnancies (17.2 per cent.). This estimate, however, was overweighted by the nature of the clinical material with which he had to deal. In a survey of the reproductive history of 365 women in a medical unit there were 137 abortions in 1,265 pregnancies (10.8 per cent.). From a medical standpoint abortion was sharply divided into two separate entities: criminal or intentional, and spontaneous or pathological. There were no accurate data with regard to the relative proportion of these. Raymond Pearl, after an investigation carried out in Chicago and New York, declared that current statements about the frequency of criminal abortion considerably exaggerated any conclusion that could be supported by critical scientific evidence. In England and Wales over the period 1928-35 there was no evidence in the Registrar-General's figures of any appreciable increase in the mortality from abortion, but the returns of the Ministry of Health, obtained in a different manner, showed a rise in mortality of nearly 80 per cent. in five years. Criminal abortion was to be regarded as a problem more for the sociologist and the publicist than for the doctor. As for spontaneous abortion, this was of the greatest importance to the medical profession in that there was increasing evidence that it arose in a significant degree from factors which were controllable. From two sides there was evidence that dietetic factors might be concerned—namely, the success obtained in investigations on vitamin E and the high proportion of developmental defects found in aborted ova of such a kind as might be ascribed to nutritional deficiency.

Economic Factors

Sir LEONARD HILL remarked on the ageing of the population in this country, the decrease in the number of children, and the greater longevity of old persons. For many years now all the energy had been put into the prevention of death, not into the production of young life. Probably by making people live to a greater age the fertility of the race was being reduced. Birth control undoubtedly was at the bottom of the diminution of the birth rate. There were shops in every street selling contraceptives. Books had been written in popular form making the methods of birth control familiar to all young people. He urged the medical profession to appeal to statesmen to apply at once the methods used with success in Germany and Italy, including family allowances, given both in additions to wages and reduction of tax, dowries for marriage, bonuses for children, the establishment of crèches where mothers could leave their children, the removal of all disabilities attaching to illegitimacy, and the prohibition of the inclusion among conditions for employment that the candidates must be unmarried. "The writing is on the wall, and in the far distance the vultures are getting ready to swoop down on dying England."

The PRESIDENT (Professor Phillips) said that among his private cases he had noticed in the course of years an increase in the number of consultations on account of sterility. Thirty years ago the proportion of such cases to the total consultations was 0.8 per cent.: the last figure was 6.6 per cent. One fact which gave ground for apprehension, to his mind, was the increasing number of cases

Reports of Societies

MEDICAL ASPECTS OF DECLINE OF POPULATION

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on February 18, with Professor MILES PHILLIPS in the chair, a discussion took place on the medical aspects of the decline of the population.

Multiple Causes of Declining Fertility

Professor A. M. CARR-SAUNDERS, in opening, said that in many countries of North-West Europe the decline had been in the neighbourhood of 50 per cent. within the last sixty years or so. It was clear that there might be many causal factors operating at the same time, and he proceeded to a classification of them. The first was a possible decrease in the natural capacity for child-bearing, meaning by "natural" an inherited capacity. It was conceivable that less fertile varieties might become more numerous either by selection or mutation. At the same time he could not think that this kind of cause had been seriously operative within the last two or three generations. The second possible cause was a decrease in intercourse, including decline in marriage and restriction in the frequency of intercourse between married persons. There had been a tendency to more rather than to less marriage during the period of declining fertility, but as to frequency of intercourse there was, of course, no direct information. The third factor was that, while intercourse occurred, conception did not follow either by reason of contraceptive measures or consequent upon certain physiological conditions. It was possible that modes of life might have altered during the period in question, and that the conditions had become such that conception followed intercourse less frequently than in a former time. The fourth possible factor was that while intercourse was followed by conception no living births took place by reason of either abortion or miscarriage, and again either deliberately or consequentially upon changes in the mode of life. He contented himself with stating the possible factors, leaving others to discuss their relative importance.

Statistics of Childless Marriages

Dr. R. R. KUCZYNSKI said that the number of childless marriages in England was not known, and even if it were known most people believed that the proportion of voluntarily childless marriages could not be estimated. That, however, was a mistake. The number of involuntarily childless marriages was so small that if there were adequate statistics of all marriages which had no issue it would be possible to estimate the number of voluntarily childless. The proportion of wives marrying under 30 who remained childless could be estimated for those who married in England between 1896 and 1901 at 8 per cent., for those who married in Norway between 1921 and 1924 at 8 per cent., and for those who married in Germany between 1924 and 1926 at 16 per cent. In Germany, according to the census of 1932, 10 per cent. of the women who had been married for from ten to fifteen years and whose age on marriage was below 25 remained childless, and in German statistics the "childless" women did not include those who had had a stillborn child. Assuming that in each of the cases just quoted the proportion of involuntarily childless wives was 5 per cent., the proportion of voluntarily childless women among the fecund women who married under 30 would have been about 3 per cent. for England and Norway and about 12 per cent. for Germany. In France the proportion of childless marriages seemed to be about as low as in Norway, while in Austria it was apparently much higher than in Germany. Whether

in England the proportion of wives marrying under 30 who remained childless was still 8 per cent. or 16 per cent., or even 24 per cent., it was impossible to say. It would also be a mistake to think that a few years hence, when the first statistics based on the records obtained under the new Population (Statistics) Bill would be available, much more would be known about childlessness in this country. The statistics should be supplemented by triennial or quinquennial fertility censuses, the first of which ought to be taken within a year.

Medical and Eugenic Deterrents

Dr. C. P. BLACKER, secretary of the Eugenics Society, said that the medical causes of declining fertility could be divided into three groups: (1) sterility in men and infecundity in women, giving rise to the incapacity to conceive; (2) various degrees of ill-health in men or in women, giving rise to a disinclination to have children; and (3) various abnormalities which might cause a miscarriage. The medical student was brought up to consider the various contraindications to pregnancy in women, and the deterrents in men were overlooked. Moreover, in women it was mainly the grave disorders imperilling the life of the woman, such as cardiac or renal disease, which were considered, and the minor degrees of ill-health, which though seldom acting as a single deterrent played an important part along with other deterrents, were forgotten. In any remedial measures taken with a view to stimulating fertility some would have to be included which had for their object the safeguarding of the health of the woman and offering facilities for the treatment of minor disorders—such, for example, as varicose veins. So far as men were concerned, ill-health or physical abnormalities had an important effect in determining the economic attitude towards procreation. These health reasons were particularly operative when the occupational stability was threatened.

The relative effect of the various deterrents was difficult to evaluate. Much was made in the Press of the "cannon-fodder" argument. This argument was very likely to be brought forward on first asking the woman about the reasons why she was disinclined to have more children, but subsequently, after she had discussed the matter with her husband, it took a very much smaller place among her objections, and was nothing like so important in general as the newspapers made it out to be. Eugenic deterrents must not be overlooked. In perhaps nearly all pregnancies the thought occurred to the prospective mother, "Supposing the child were deformed or defective." Some of them would take almost fantastic measures to protect themselves against "psychic trauma." In families where a hereditary abnormality was known this anxiety might be exalted into a positive deterrent, and it was possible that a misplaced eugenic zeal at the present time was seriously operative. In the majority of such cases in which he was consulted he had been able to counsel the prospective parents, after looking at both of them and into the family history, to take the risk. After all, if every pedigree were examined few people might be inclined to have children. Every family had genetic skeletons in its cupboard, and it was not well to be over-sensitive. Dr. Blacker mentioned that a questionnaire had been designed by the Population Investigation Committee, of which Professor Carr-Saunders was chairman, and it was hoped that this would be of use to the medical profession in giving guidance in these cases.

Medical Causes of Inherent Sterility

Mr. EARDLEY HOLLAND, in discussing the medical causes of inherent sterility and their relative importance, said that if one hundred couples married and had regular intercourse without the use of contraceptives the results might be predicted as follows: in a minority pregnancy would occur immediately; in a majority it would occur after a variable period of delay from a month to a year; in a few cases it would be delayed for a longer period, perhaps

and sinuses played a limited part in aetiology. Certainly tenectomy usually failed to bring about any relief of the pains.

Was there a type of child specially susceptible to rheumatic pains and the effects of climate? Although leg and other pains of a more or less localized nature might occur in obese children, the large majority of rheumatic subjects were thin, highly strung, and nervous. When in good health these children were noticeably high-coloured. Capillary stasis was specially marked on exposed parts when the subject was in damp or cold surroundings. Reaction to the sun's rays was peculiar; the skin became erythematous, but did not pigment easily. Many so-called general limb pains if analysed proved to be in reality a collection of local pains due to strains of various origin; acute strains of the foot due to some unaccustomed exercise came into this category. Dr. Pearson concluded with a few remarks about postural deformities and abnormalities without pain but with hypotonic muscles as opposed to painful hypertonic cases.

Pain and Spasm in the Muscles of the Back

Dr. NINA KELLGREN, with the aid of a child subject, dealt with specific examples of cases in all these categories, discussing the nature of the physical signs and their causes and outlining treatment. Muscular and ligamentous strains in children often produced no symptoms other than general fatigue, and it was only in the more acute forms of strain that pain was produced. She discussed in particular pain with localized spasm of the muscles of the back. These cases were like those of fibrositis in adults. In children there was often an acute tender area in the neighbourhood of one or more of the spinous ligaments, with pains referred along the course of the anterior division of the spinal nerves, and some spasm or tenderness in the muscles close to the spine, with or without scoliosis. The muscular spasm was not always on the same side as the pains referred around the trunk. She believed the muscular spasm to be secondary, the primary lesion being the fibrous tissue closely associated with the spine. She never used an anaesthetic for mobilizing the child's spine; the manipulation was generally painless, and she had never made a child cry. She demonstrated these movements, showing how everything could be done with the application of practically no force at all. She drew attention to an article by Dr. R. G. Abercrombie in the *British Medical Journal* of January 29 (p. 215) on the pathology of adolescent scoliosis. Dr. Abercrombie's experience with adolescent girls was very similar to her own with younger children. She agreed with him that long-continued muscular contraction could produce postural deformities. Education in muscular relaxation was a very important part of the treatment of children with hypertonic muscles. They were highly strung and self-conscious children, who did not usually complain of pain, but were obviously sickly, and on undertaking passive movements there was a general resistance.

Faults of Posture

Dr. J. B. MENNELL said that the reason for much strain and breakdown was faulty posture. He directed special attention to the foot, calling attention to some common fallacies. Many people were considered to have flat-foot because when they put their foot on the ground they had no marked arch; in the Russian ballet every dancer had a completely flat foot in the rest position. In itself flat-foot was not a deformity, but it could become one when it was due to a short tendo Achillis. Much was heard about the anterior metatarsal arch. Was there such a thing? The metatarsal heads rested on the ground when walking. Dr. Mennell gave a demonstration of the mechanics of the foot. He asked was there any explanation of the osteoarthritic hip except injury in younger days not adequately treated at the time? Any injury of a joint remaining untreated meant that later in life that joint might be ten or fifteen years older than the others. In

discussing general fatigue little was said about the portal circulation. These tired and weak and worn-out persons, nine times out of ten, were lacking in adequate muscular tone in the portal area. There was, so to speak, a bleeding into the portal area, depriving other parts of their blood supply. The importance of elasticity in the very young child had been brought home to him when he attended for a slight injury one of a Lambeth family of acrobats. He learned that unless in that family a definite training began at the age of two the individual could never become a first-class acrobat. By the age of three elasticity had so much diminished that his chances in the acrobatic world were seriously qualified. The effect of concealed injury was illustrated in the case of a child who had been for months under psychological treatment for sudden and uncontrollable attacks of temper. At some earlier date she had fallen from a horse on to the head, and examination now showed that the joints of the cervical spine had been injured, so that on movement the child experienced pain in the back of the head and lost its temper. As a result of appropriate treatment of the cervical injury the whole psychological outlook of the child was altered.

DEEP X-RAY THERAPY

A discussion on "What can be expected of deep x-ray therapy" took place at the meeting of the Medical Society of London on February 14. Mr. J. E. H. ROBERTS presided.

Dr. J. H. DOUGLAS WEBSTER reviewed the various non-malignant and malignant conditions in which deep x-ray therapy had been found of some use. Among non-malignant conditions he mentioned benign hypertrophy of the prostate, relatively few cases of which, he said, had been submitted to x-ray therapy, but in his own experience the treatment had proved often successful. In agranulocytosis a number of good results had been recorded following stimulation of the bone marrow by very small doses of x rays. Many cases of carbuncle also had yielded to this form of therapy. Within two or three hours of the treatment the patient was usually worse, but within twenty-four hours the condition became limited, and often cleared up with a small incision. Deep x rays was one of the best means of alleviating conditions such as leukaemia. Operation was the method of choice in operable cases of cancer of the stomach, colon, rectum, and gall-bladder, and probably of the kidney, though many renal cases would be better for a pre-operative irradiation, and the same applied to carcinoma of the bladder. Radiotherapy was the method of choice in cancer of the skin, lip, mouth, pharynx, larynx, cervix, penis, and testes, also in Ewing's and one or two other sarcomata and lympho-epithelial carcinomata. A combination of radiotherapy and surgery was probably advisable for cancer of the nasal passages, antra, and sinuses, some cases of breast cancer, bone sarcomata, and perhaps prostatic and testicular cancer. Dr. Webster was unable to subscribe to the view that the increasing of x-ray voltage until a quality of radiation was obtainable as high as, or higher than, that of radium was likely to offer a better method of treating malignant disease than the ordinary deep radiotherapy installations, and this was borne out by an American authority.

An interesting observation made by Dr. Webster was that the first sign of recurrence in a number of cases of breast cancer was invariably at the thirty-third week after the previous treatment. The same periodicity was found to hold good for a number of malignant conditions in the mouth and at other sites, also in leukaemia and Hodgkin's disease. Some patients showed, instead of a thirty-three-week period, a period of four lunar months, or half the full period. The ascertainment of such periodicity had its practical value, because it enabled one to instruct the patient to return for examination at the time the first indication of recurrence was due.

of people who had been married for from three to five years and had practised various methods of contraception and had then discovered that conception when desired did not occur. The use of contraceptives was often associated with disturbance of the menstrual function. While he could see the advantage of contraception and the spacing out of births, nothing would prevent him advising the newly married couple to have their first baby as soon as possible. One consideration not often regarded was the cost of childbirth for that section of the community among whom a higher birth rate was most desirable. He suggested that the obstetrician might charge a diminishing fee for each successive child in a family; he had even made a "sporting offer" to attend the fifth child for nothing. Childbirth must not only be made safer but cheaper.

Many Opinions

Mr. J. M. WYATT, on the dietary question, pointed out that Germany ate wholemeal bread, and yet according to the figures that was where there had been the greatest fall in fertility. Dr. G. ALABASTER also asked how it was, if the wheat question was so important, the Eskimos had not "faded out." Dr. BINNIE DUNLOP said that in this country the statistics showed that the birth rate had fallen principally among those who had always enjoyed a liberal diet.

Dr. J. M. BRYDONE quarrelled with what had been said about medical causes of declining fertility. It was unwillingness to bear children, not incapacity, which was at the root. The vast majority of couples wished to have one or two children, but not more. Medical reasons for not having more did not exist so far as they were concerned. The difficulty was financial. They did not want to have such a number as would lower for their children their own level of upbringing.

Mr. ALECK BOURNE questioned whether the measures adopted in Italy and Germany were genuine in their effect. They might result in a temporary increase of the birth rate in respect of families where it had been intended to have more children had passing economic circumstances not been adverse, but he doubted whether they would have a permanent effect. He could not discover any evidence that contraceptive measures during the early years of marriage were the cause of sterility. He thought this suggestion to be rather like the ogre which the nurse shook in front of the naughty child. He could not see why defective ovulation, which was the chief cause of female sterility, was likely to be increased as a result of the use of contraceptives. One real trouble was that of housing, also the trend of social custom, which was all opposed to the bearing of children. The income of the family was mortgaged to pay for instalment purchase of the house, the car, the piano, and perhaps the perambulator for the first and only baby. No one had mentioned the chief cause of all why the birth rate was falling—because the women of to-day wanted to have a better time than to spend the whole of their lives in pregnancy and lactation.

Dr. B. P. WIESNER suggested that a greater effort might be made to reduce the incidence of miscarriage, and pointed out that if this were done it might have important social consequences. It would not only save children who would otherwise remain unborn, but it would reverse the sex ratio, for the proportion of males was much greater than females among children who would have been born but for miscarriage. Instead of slightly over 100 male births to 100 female there might, if more energetic measures were taken to prevent abortion, be 130 or 140 boys born to 100 girls. Dr. G. F. MCCLEARY pointed out that in France the population began to decline long before it did in England. He was a little sceptical of the stress laid on housing conditions as a factor, and pointed to the extraordinary variety of sociological conditions obtaining in countries where fertility had fallen. It illustrated the danger of premature conclusions.

One speaker had been interested enough to look up the families of 100 recently deceased persons who had left large fortunes. The fortunes left amounted on the average to over £300,000. One-third of these people had hereditary titles, so that there was a special encouragement to maintain the family. These 100 persons had produced only 233 children—2.33 per married couple. Dr. E. STOLKIND remarked on the relative lack of fertility among doctors and clergymen. Dr. COOPER, who had used the questionnaire prepared by the Population Investigation Committee, said that among 300 married couples he had investigated only three gave as a reason for, not having children the "cannon-fodder" argument. Very

many of them were chiefly concerned that their children should have a good opportunity, and preferred to do well for two instead of not so well for three. He had also been struck by the extent to which birth control measures were used, but again by the number of people, not only Catholics, who would not use them in any circumstances.

Another suggestion which came from the audience was that a reason for declining fertility might be found in a certain alteration of mating conventions, so that more women of a neurotic type and less likely to bear children were marrying, while women adapted to bearing children, again owing to change in mating conventions, were remaining spinsters. The point was also made that for the working-class population the economic advantages of having children had diminished; children were rather a liability than an asset; and the speaker suggested that this position would continue until the State endowed parenthood.

The last of some twenty speakers was Dr. LETITIA FAIRFIELD, who pointed out that the desire for children as an economic factor had been taken away, while the emotional desire for children was satisfied with a smaller number. She also expressed the hope that the methods of despair which Sir Leonard Hill had advocated would find no acceptance. What was not wanted was a Nazified nation or a community of children without fathers. It was at least as important to have an appreciation of the true values of parenthood and children as it was to have more children born.

EFFECTS OF STRAIN IN CHILDREN

At a meeting of the Section of Physical Medicine of the Royal Society of Medicine on February 18, with Dr. F. D. HOWITT in the chair, a discussion took place on the effects of strain in children.

Muscular and Ligamentous Strain

Dr. WILFRED PEARSON limited his remarks to muscular and ligamentous strain, foregoing the consideration of joint affections. He said that the effect of strain might be demonstrated by pain of a general or local character, or there might be no symptoms except those of fatigue. As strain and apparent rheumatism were so closely related it was necessary to consider the type of child who was specially prone to rheumatic pains and muscle spasm. Aches and pains in the limbs with indefinite ailing or debility, sometimes associated with repeated sore throats, were often termed cases of subacute rheumatism—a term apt to be misleading. There were three classes of cases to be considered: those in which there was some disease or intoxication other than acute rheumatism; those which at the time or later gave evidence of specific rheumatic infection; and those with no obvious association except that of variation with climatic conditions. "Growing pains" were most common in the leg, but they also occurred in the arms and around the abdomen and chest, often localized over the attachments of ligaments and muscles; the commonest age was between six and ten. In more than half the cases the pains were related to atmospheric changes; damp and draughty houses and residence in low-lying neighbourhoods along old water-courses also came into the category of predisposing factors. Sultry, thundery weather accentuated the pains, which were worse towards the end of the day, consequent upon fatigue. Although warmth alone could relieve many cases, some of the subjects endured worse pains after going to bed. The milder cases were usually relieved by sleeping between blankets. Most of the children in whom fatigue played a part were thin and debilitated. The fatigue element was most marked during periods of sudden and excessive growth, as between the sixth and eighth year and in the early teens. The part played by infection was difficult to assess. The throat at times might show general redness and dryness, but not necessarily indicating infection; these changes were possibly part of a systemic disturbance producing an alteration in the vascularity of the mucous membrane. Even in such cases, however, certain climatic conditions repeatedly induced a state of ill-health. On the whole it seemed that infection of throat

SOLITARY DIVERTICULITIS OF THE CAECUM

At a meeting of the Liverpool Medical Institution on February 3, with the president, Dr. E. GILBERT BARK, in the chair, Mr. M. J. BENNETT-JONES read a paper on solitary diverticulitis of the caecum.

Four cases of primary solitary diverticulitis of the caecum were described, and specimens were exhibited. The cases were reviewed together with the seventeen previously recorded cases in the literature. This disease differed from the better-known diverticulosis of the colon in its age and sex incidence. It often occurred in young adult males and females, while diverticulosis was almost unknown before the age of 40 and was much more common in males. Although Odguist and Petró had described a large congenital diverticulum of the caecum, it did not follow that every solitary caecal diverticulum with a complete muscular coat was necessarily of congenital origin. Cases of this rare disease often simulated acute appendicitis, but might appear malignant when the abdomen was opened. It was likely that many cases had been unrecognized because abscesses in the right iliac fossa were invariably attributed to the appendix. Diverticulitis was always considered in the differential diagnosis of carcinoma of the pelvic colon, but rarely in disease of the right iliac fossa. The operative procedures that might be necessary varied between mere excision of the diverticulum, closure of a perforation, excision of the diverticulum with a part of the caecum, and radical excision of the right side of the colon. The last-named procedure was successfully undertaken in one of the speaker's cases. The true pathology had been recognized at operation, but there was a previous history of intestinal obstruction, some stenosis of the gut, and a large inflammatory mass involving the posterior abdominal wall due to perforation of the diverticulum.

A number of pathological specimens were demonstrated and described at the same meeting. Among those taking part in the demonstrations were: Drs. H. S. PEMBERTON, R. H. MOLE, R. OGILVIE GIRDWOOD, and T. F. HEWER.

ADLER'S CONTRIBUTION TO GENERAL MEDICINE

At a meeting of the Medical Society of Individual Psychology, at 11, Chandos Street, W.1, on February 10, with Dr. H. C. SQUIRES in the chair, a paper was read by Sir WALTER LANGDON-BROWN on the contribution of Adler to general medicine. This was the last of a series of four papers forming a symposium on the work of the late Dr. Alfred Adler.

The lecturer, after paying a tribute to Professor Adler's memory, referred to the chairman's suggestion that papers should be the expression of personal experience and opinion. Accepting that suggestion, he reviewed his own gradual approach to the Adlerian conception through biology and physiology; on the one side the sympathetic nervous system, on the other the endocrine glands; behind them both the hypothalamus as the centre of emotional expression began to assume increasing importance, since it was able to operate through either and in its turn was connected with the prefrontal cortex. Here was mapped out a route by which psychical states could be reasonably expected to produce physical symptoms. When the life of external relations was frustrated, the *élan vital* was thrown back on to the more primitive life of internal relation. Hence frustration often expressed itself in disturbances of plain muscle in the direction either of atony or of spasm. He gave several illustrative cases, recalling that many disturbances of the colon were not an inflammatory colitis at all, but the expression of a loveless and childless life. He next discussed the increasing incidence of anorexia nervosa, attributing it to the increased frequency of tension between mother and daughter, the

fashionable fear of obesity, and the fear of going out into a world fiercely competitive in work and games alike. The disturbances of the climacteric were then considered in terms of the sympathetic-endocrine apparatus.

Civilization and Disease

Attention was called to Dr. C. P. Donnison's book, *Civilization and Disease*, which brought out and explained, largely on Adlerian lines, the close aetiological relationship between hyperpæsis, diabetes, Graves's disease, and peptic ulcer. There was hardly an aspect of medicine which had not undergone some change as the result of Adler's teaching. When he linked psychoneurosis with organ inferiority, Adler enabled orthodox medicine to join hands amicably with the new psychology. Even though organ inferiority subsequently retreated into the background of his teaching, the bridge had been built. He emphasized Adler's distinction between a feeling of inferiority and the inferiority complex, in which he limited the latter to the non-cooperative retreat from life's responsibilities, and concluded by a brief reference to the ethical outcome of Adler's teaching.

There was a large audience, and an interesting discussion took place in which Drs. CRICHTON MILLER, GEORGE GORDON, BEVAN-BROWN, C. BRASHER, M. MARCUS, J. C. YOUNG, J. C. BAKER, HILDA WEBER, and O. WOODCOCK joined. Sir WALTER LANGDON-BROWN then replied to the various questions raised.

HEALTH OF THE COAL MINER

At the last meeting of the Association of Industrial Medical Officers, held on January 28 in the London School of Hygiene and Tropical Medicine, with Dr. L. P. LOCKHART in the chair, a paper on "The Health of the Coal Miner" was read by Dr. S. W. FISHER (H.M. Medical Inspector of Mines).

Dr. Fisher discussed in general terms the problems of the present-day coal mine in relation to health, both from the point of view of environment and specific hazards. The average number of persons employed in the coal-mining industry during the year 1936 was 767,100—about 2,400 less than in 1935, and nearly 190,000 less than in 1929.¹ Of these persons the great majority were subjected in some form or other to factors which tended to produce incapacity for work. Dr. Fisher next described the common features of the structure of the coal mine and various points to do with working conditions underground, physiological and psychological. In discussing specific diseases to which the miner might be liable he mentioned in some detail silicosis, nystagmus, beat hand, elbow, and knee, and infective jaundice. He outlined the present-day theories regarding the causation and pathology of silicosis, and showed how important it was as a cause of serious disability in mines, particularly in South Wales. With regard to miners' nystagmus Dr. Fisher discussed its international incidence, aetiology, and treatment. He showed how modern methods of lighting in mines were definitely preventing its occurrence, and demonstrated the different types of lamp which had been used by the miner in the past and up to the present day. It was interesting to note, he said, how the methods of providing illumination in mines were intimately associated with safety, and he welcomed the fact that over the past few years the number of electric cap lamps used by miners had much increased at the expense of hand lamps.

Safety Measures in Mines

Dr. Fisher discussed in considerable detail the causation and prevention of accidents in mines, illustrating his remarks by lantern slides. He demonstrated various types of rescue apparatus, and told something of the work of the Mines Department on safety measures. Finally Dr. Fisher dealt with the question of carbon monoxide

¹ Annual Report of H.M. Chief Inspector of Mines for 1936.

Radiosensitivity

Dr. W. M. LEVITT said that if they took as their standard of cure a total disappearance of clinical evidence of disease and its continued absence for five or ten years, there was abundant evidence that certain varieties of cancer might be cured by x-ray treatment. Of the several factors which influenced the result of x-ray treatment in cancer the most important was the radiosensitivity of the tumour. Such growths as lymphosarcomata, lympho-epitheliomata, and the less-differentiated squamous-celled carcinomata could be made to disappear locally by doses of x rays that did little or no damage to the normal tissues. On the other hand, fibrosarcomata, most periosteal carcinomata, carcinomata of the bowel, and the highly differentiated squamous-celled carcinomata were all radio-resistant, and required for their destruction doses of x rays that would not be tolerated by normal tissues. Another factor was the accessibility of the growth to treatment by irradiation. Thus the treatment of most skin growths could be regarded as a trivial matter, while the treatment of a similar growth in the mid-oesophagus was quite a serious undertaking. Palliative treatment by x rays in malignant disease fell roughly into two classes—first, that in which the x rays were applied for relief of an urgent pressure symptom; and, secondly, that in which temporary regression, more or less complete, could be obtained of the growth and of the symptoms which it was causing. The first class consisted mainly of cases with pressure from growth or glands on the trachea, oesophagus, or vena cava. As to the second class, it might be taken as a general rule that patients with multiple secondary deposits were unsuitable for this type of palliation; but there were two types of case with isolated secondary deposits that gave very good palliative results. One was the case with secondary deposits of carcinomata in bone, and the other the case of lymphosarcoma. On the "debit" side of x-ray treatment were the discomforts and in some cases the suffering inflicted by the treatment itself. In his opinion only a good hope of cure or at least of palliation for some years could justify the infliction on patients of the reactions which followed the treatment of disease in the mouth and throat. He did not advise x-ray therapy at all in cases of carcinoma in the throat with secondary glands in the neck, except when the primary was in the palate or post-nasal space. In prostatic and bladder cases the reactions, though not so severe as in the throat cases, were of sufficient severity, but he thought carcinoma of the prostate was worth treating in an otherwise favourable case.

Glandular Enlargements

Dr. G. VILVANDRÉ said that the enlarged glands of lymphadenoma, whether of the neck, abdomen, or groin, responded readily to x-ray treatment, and usually within two or three weeks a mass of glands would diminish and disappear when subjected to proper x-ray treatment with filtration, but such results were obtained for many years before deep therapy came into use. The ready response of such glandular masses to irradiation could also be used as a means of differential diagnosis. Patients suffering from Hodgkin's disease benefited from x-ray treatment, and even when pleural effusion was present they were definitely helped. The disease was not cured by x rays, but the patient was made more comfortable and as a rule his life was prolonged. He had seen good results follow the treatment of tuberculous glands of the neck provided they were not caseous, in which case they should be treated surgically. X-ray therapy would reduce the size of an enlarged spleen, but it would not cure the myelogenous leukaemia from which the patient was suffering. There was no doubt as to the efficacy of deep therapy in the treatment of some gynaecological conditions, and his main consideration and interest lay in the treatment of fibroids and excessive haemorrhage at the menopause. Blended, weak patients, too ill to stand, would, as a

result of x-ray treatment, recover good health and efficiency within a few months. In osteo-arthritis really useful results could be obtained. The function of the joint was restored and pain allayed. In malignant disease of the thyroid the results of deep therapy might be as brilliant as they were unexpected. Malignant adenomata and papillary adenocarcinomata were said to be more radiosensitive than the rapidly growing cellular types of carcinoma. Hard carcinomatous glands of the neck had never responded satisfactorily to deep therapy. With regard to breast cancer, even given the same type of malignant disease one could not expect to get the same results in every patient. Two patients of the same age, presenting the same clinical features and histologically the same type of growth, would react entirely differently to x-ray therapy. In reply to the plain question, "Can deep therapy cause the complete disappearance of a breast carcinoma?" his answer was in the affirmative in some instances.

After-results

Sir JAMES WALTON brought forward certain statistics relating to the treatment of cases of carcinoma of the breast and of the thyroid. The figures were not valuable in the absolute sense, but only as comparing the results of surgery and radiotherapy. Moreover, he had not given the radiologist a "fair deal," because only the worst cases—those entailing serious operative risks—were sent to the radiologist. Since a special follow-up system, which he described, was started he had treated 201 cases of carcinoma of the breast by operation only. Of this number sixty-six patients had died—thirty-seven of them of recurrence within a year—but a number had lived for several years, and seventy-five were still alive and well; of this group twenty-one dated back for three years, and others for longer periods, even up to seventeen years. The patients operated on in whom the condition had recurred and had been treated by x rays numbered forty-four, of whom thirty-seven had died, and seven were alive and well, one of them seven years after the treatment. Eleven patients were not operated on but sent direct for x-ray treatment, and of these three had died and eight were alive and well. His cases of carcinoma of the thyroid numbered thirty-two. Twelve had had surgical treatment only; four were dead, five alive and well, and three had been lost sight of. Those patients operated on who had subsequently had a recurrence treated by x rays numbered eight; five had died, and three were alive and well. Nine others had been treated by x rays only, and seven of them had died, all within the first year. Sir James Walton said that he was conscious of the inadequacy of these statistics because he had had to lump together among the survivors those who had had treatment only a few months previously, and among some of whom recurrence was probable, and those whose immunity had lasted for several years.

Mr. J. E. H. ROBERTS suggested that in some cases treatment by x rays precipitated the dissemination of the growth. It had been suggested that irradiated cancer cells underwent a process of autolysis, and those not killed were swept away by lymphatic spread to other parts of the body. With what frequency did such dissemination occur, and how soon did it arise after x-ray treatment had been given? Mr. WILLIAM INNOTSON asked what was the effect of treating a malignant growth to which was superadded an active syphilis. Sir WILLIAM WILLCOX mentioned the value of x-ray therapy in persistent sciatica and in brachial neuritis. Dr. DOUGLAS WEBSTER could not agree with the president's suggestion that radiotherapy was empirical. As to the passage out of the cells into the lymphatic stream, they did that in any case, apart from x-ray treatment. With regard to active syphilis, he recalled one case of cancer of the tongue which had a syphilitic indication, and which responded to treatment more slowly than other cases of its kind.

of the Departmental Committee on Health Services had recommended closer co-operation among local hospitals, but there had been no comprehensive legislation based on this, and the case for co-ordination of hospital services was stronger to-day than when the committee reported. Voluntary hospitals in Scotland now proposed to make representations to the Government to speed up a decision on the Departmental Committee's recommendations. The report of the Infirmary showed that the ordinary revenue of the hospital had fallen short of ordinary expenditure by £29,344, the ordinary expenditure having been £127,431. Subscriptions from wage-earners generally amounted to £30,290, and legacies and donations, out of which the deficit on ordinary revenue had been paid, to £45,637. The Blind Asylum buildings adjoining the Infirmary are being reconstructed to provide a new out-patient department.

IRELAND

Medical Research Council's First Report

The Medical Research Council, which was incorporated on January 26, 1937, has issued its first annual report. The members of the council were: Professor R. P. Farnan (chairman), and Professors J. W. Bigger, J. F. Donegan, W. J. E. Jessop, H. F. Moore, T. G. Moorhead, John McGrath, J. M. O'Connor, and J. M. O'Donovan. The report states that a sum of £10,000 was allocated to the council by the Minister for Local Government and Public Health out of the hospitals' share of sweepstake funds, and that the council's thanks are due especially to the Minister for the sympathy shown during the long period of negotiations, to Hospitals Trust Ltd. for financial assistance during this period, and "to all those who have worked so unremittingly during the past few years in order that a research council for the Irish Free State might become a reality." During the year the council held nine meetings, the first on February 16, 1937. Twenty-eight applications for grants were received, of which fifteen were sanctioned for one year, eleven were refused, and two were withdrawn by the applicants. Information concerning the training, whole-time, and part-time grants was published in these columns on November 6, 1937 (p. 934). In addition grants-in-aid have been awarded to Professor E. J. Conway, Dr. Ninian Falkiner, and Professors Fearon and Ditchburn. Dr. J. C. Shee has been given a grant to enable him to undergo six months' training in goitre research at a centre abroad, to be followed by six months' research into the goitre problem in Ireland. The grant holders, with the exception of Drs. Patrick FitzGerald and J. C. Shee and Professors Fearon and Ditchburn, began work before the end of December. Dr. de Valéra started on November 1; since the end of the year he has found himself unable to continue to hold the grant and has refunded to the council all payments made to him. Further applications for grants will be considered by the council three times each year, in February, June, and November, and it is hoped that before very long workers will be engaged on most of the vital medical problems which exist to-day. The offices of the council have been established at 85, Merrion Square, Dublin.

Curriculum at the National University

The National University of Ireland has adopted recommendations of the General Medical Council, and is to substitute at the beginning of the next academic year a pre-medical examination for the existing pre-registration examination. Under regulations now in force a student may sit for the pre-registration examination in elementary physics and chemistry at the age of 17. In future he may not sit for the new pre-medical examination, which will require a period of study of at least twelve months, until he is 18. He will thus have

reached the age of 23 before qualifying instead of 22 as now. The present first medical examination—in applied chemistry, applied physics, and general and applied biology—is to be replaced by a first medical examination in anatomy and physiology. The second medical examination will be in more advanced anatomy and physiology, while the third and final examinations will be as before.

ENGLAND AND WALES

Joint Tuberculosis Council

The winter meeting of the Joint Tuberculosis Council was held in London on February 19, and the members, with some visitors, were afterwards entertained to luncheon by the chairman, Dr. S. Vere Pearson, at the Hotel Russell. The health of the guests was proposed by the chairman, who remarked that the Council had rather tended to leave out the general practitioner, though one of its aims was to foster a good working relationship between tuberculosis officer and G.P., and he therefore welcomed particularly Sir Henry Brackenbury as a distinguished representative of that very large and important section of the profession. The Council was doing good work, but might do better still; that morning it discussed a valuable report on nursing and held a discussion on pneumothorax. Dr. Vere Pearson welcomed also Dr. L. Haden Guest, M.P., and Dr. Stella Churchill, Colonel Caddell, secretary-general of the National Association for the Prevention of Tuberculosis, and the editors of several medical journals. He voiced the feeling of all present in regretting the retirement from the honorary secretaryship of the Council of Dr. Ernest Ward, who, with his initiative and devotion, had been its moving spirit since it was founded seventeen years ago. Sir Henry Brackenbury, in reply, spoke of the importance of the Press and of Parliament in relation to medicine and the field of health. He said that the Joint Tuberculosis Council was now accepted by, and acceptable to, the public and the profession, but, like other specialist services, the tuberculosis service should be aware of the general practitioner's reactions to it. The good general practitioner wanted to be, and to remain, an all-round man, desiring full association with the special branches of medicine; it was not good for him to feel a sense of intrusion or a deprivation of experience and responsibility. The toast of "The Council" was proposed by Dr. Haden Guest, who recalled that the two main functions of the Joint Tuberculosis Council were the giving of scientific and administrative advice: beyond this he thought it might do more to influence public opinion, taking a leaf from the B.M.A.'s book. The medical view was apt to be underestimated by the public and by Parliament, and some pushing forward—even some vulgarization, however repellant to scientific people—must be indulged in nowadays to get points home. Dr. Ernest Ward, in reply, said that he laid down his secretarial work for the Council with regret and thankfulness. The chairman's health was proposed by Dr. Stella Churchill.

Medical Treatment of London School Children

The arrangements made by the London County Council for the medical and dental treatment of school children for the year beginning April 1 include the further extension of the treatment of squint by orthoptists working under the direction of ophthalmic surgeons, a method which has proved very successful during the past three years: an additional audiometric unit to relieve the congestion of children needing testing and treatment for ear defects; the opening of four new centres for the treatment of minor ailments; and an extension of the scheme of nutrition centres. An increase in the number of sessions devoted to dental treatment and additional provision for orthodontic treatment are proposed.

poisoning, mentioning in particular the delayed action that had caused so many fatalities in mine disasters. He showed how vitally important it was to use oxygen and carbon dioxide to expel the residual gas from the body, and urged the use of such apparatus not only in gassing cases but also in any injury where serious shock had occurred.

Dr. A. J. AMOR (Mond Nickel Company Ltd.) gave a practical demonstration of the value of radiology in the diagnosis and prognosis of silicosis. The problem under discussion, he said, was one of very great social significance. Disability for work had caused some of the most tragic conditions in the miner's home. The eventual disablement as a result of disease or injury produced repercussions on the whole economic structure of the community and the country as a whole. Dr. Amor devoted the main part of his remarks to a critical survey of the relationship between radiology and the problem at issue.

Dr. C. L. SUTHERLAND (Silicosis Board), Dr. A. MEIKLEJOHN (Silicosis Board), and Dr. E. R. A. MEREWETHER (H.M. Medical Inspector of Factories) also showed x-rays of the thorax, with reference mainly to the difficulties of differential diagnosis and of determining degrees of pathology from radiological examination of workers exposed to silicate dust. Captain HAY (Mines Department) was present by invitation, and demonstrated modern mechanical methods of dust prevention in mines, illustrating his remarks by a series of lantern slides.

TOWN-DWELLER'S LUNG

At a meeting of the Pathological Society of Manchester on February 9, with the vice-president, Dr. L. SAVATARD, in the chair, Dr. J. DAVSON read a paper on town-dweller's lung.

Dr. Davson said that anthracosis in town dwellers was due to the inhalation of siliceous dust along with carbon, and a study of ninety-four lungs which were free from gross pulmonary disease showed, by the technique of micro-incineration, that carbon and silica existed together throughout the tissue. Siliceous dust accumulation was most marked in the apical region and in elderly subjects. Histological examination of apical pleural scars showed that the majority contained no evidence of past tuberculosis, but appeared to be secondary to the accumulation of siliceous dusts at the apex. In some cases the intensity of siliceous dust accumulation in apical scars was quite comparable to that seen in cases of true silicosis, yet the subjects had not been especially exposed to the inhalation of silica dust. In a number of these cases actual silicotic nodule formation was observed at the sites of the most intense accumulation of silica. If so many of these apical scars were not tuberculous, the truth of the view that the majority of adults develop and recover from apical tuberculosis could be questioned; more stress should be laid on the factor of infection and less on the factor of individual immunity in the pathogenesis of pulmonary tuberculosis. This view should stimulate the efforts of public health workers towards the attainment of the complete and permanent segregation of the patient with "open" pulmonary tuberculosis. Siliceous dusts were known to encourage the growth of tubercle bacilli in the tissues: therefore the inhalation of such dusts from the atmosphere of towns must have a deleterious effect on the patient with pulmonary tuberculosis. *For that reason* he urged that no patient known to have pulmonary tuberculosis should ever be allowed to return to town life.

At a meeting of the London Association of the Medical Women's Federation on January 27 Dr. A. MEAVE KENNY read a paper on the use of sulphanilamide in obstetrics, discussing its application from the preventive and from the therapeutic points of view.

Local News

SCOTLAND

Scottish Lunacy Law

The Secretary of State for Scotland has appointed a Departmental Committee to inquire into the law of Scotland in relation to the treatment of mental disease. The reference to this committee includes the certification and supervision of persons of unsound mind, the release of such persons, arrangements for those suffering from mental illness but not certified, the procedure followed in the case of dangerous lunatics and in the case of mental defectives accused of criminal offences, the definition of mental deficiency, and the arrangements for dealing with mental defectives. The committee is to consist of Lord Russell of the Court of Justice in Scotland (chairman); the Hon. Mrs. J. E. Hamilton; Professor D. K. Henderson, Professor of Psychiatry in Edinburgh University; Sir James C. Irvine, Principal of St. Andrews University; Mr. William Leonard, M.P.; Major Basil Neven-Spence, M.P.; Mr. William D. Patrick, K.C.; Lord Provost John Phin, Dundee; Bailie Violet Robertson, Glasgow; Professor Thomas M. Taylor, Aberdeen University; and Dr. Aidan G. W. Thomson of the General Board of Control for Scotland. The secretary of the committee is Mr. J. A. W. Stone, secretary of the General Board of Control, and communications regarding the inquiry should be addressed to him at the offices of the Board, 25, Palmerston Place, Edinburgh, 12.

Carnegie Trust

At the annual meeting of the Carnegie Trust Lord Normand stated that the market value of the investments of the Trust, which had begun its operations thirty-six years ago with a capital of £2,000,000, now stood at £3,700,000, while out of the annual income a total of £4,000,000 had been distributed in grants. Mr. Andrew Carnegie had expected that beneficiaries would restore to the Trust a part of what they had received, and the sums repaid by beneficiaries had varied from year to year within narrow limits; the amount repaid in the thirty-six years had been about £40,000. A cheque for £200 in recognition of assistance amounting to £50 received nearly thirty years ago was recently received from a beneficiary, while a lady doctor had repaid not only sums granted to her but also those to her two brothers who had left the University in 1914 and had been killed in the war. Lord Macmillan said that thirty-seven beneficiaries had made repayments in the past year, of whom twenty were men and seventeen women: it was noteworthy that the women beneficiaries were rather less than one in three of the total. The report showed that for the seventh quinquennial distribution, covering the period 1935-40, an aggregate sum of £257,300 was allocated to universities and extramural institutions: St. Andrews £43,400, Glasgow £69,000, Aberdeen £46,000, and Edinburgh £68,900, with £30,000 to extramural institutions. The objects for which these sums were granted were: for libraries £38,750, for buildings and equipment £177,550, and for teaching and general purposes £41,000. The number of beneficiaries in 1936-7 had been 3,534, and the sums granted totalled £51,797.

Glasgow Royal Infirmary

At the annual meeting on February 14 of subscribers to Glasgow Royal Infirmary Sir James Macfarlane, who presided, said that during the year 18,155 patients had been treated in the institution. The daily average was 871 (22 more per day than in 1936), although the infirmary was designed to accommodate 650 patients. The report

building of the Great Western Railway led to the scheme being pushed on to completion. The opening celebrations on May 27, 1839, ended with a dinner costing 5s. a head (wine not included). The meal began at 3 o'clock and the company dispersed at 8.15, after listening to twenty-nine toasts, many with musical honours. A gallery was provided for 100 ladies, who were "regaled not with viands off the table but with the more refined luxuries of music and eloquence." The ladies appear to have become restless after the twenty-third toast, but were persuaded to remain until the twenty-fourth, when the reporter states that "they made their escape." The various chapters deal with different phases of the hospital's activities, the dental section alone appearing to have been omitted. X rays were soon used by the hospital, but not on a very large scale, as the running expenses of the department for the year 1900 were £7 12s. 11d. In 1903 Dr. Gordon Paterson exhibited to his colleagues a patch of dermatitis on his own skin, the result, he said, of carrying a small tube of radium in his waistcoat pocket. Dr. Logan Dahne gives an excellent account of the recent grant of Arms to the hospital, and illustrates it with a double-page plate in colours. The very useful appendices contain lists of the various officials attached to the hospital, with the dates of their appointment and termination of service. There is also a satisfactory index. The fifteen illustrations are well reproduced.

Remuneration in L.C.C. Mental Hospitals

Changes in the grading and remuneration of medical officers at certain institutions under the Mental Hospitals Committee of the London County Council are proposed. When the institutions of the old Metropolitan Asylums Board for mental patients were transferred in 1931 the medical needs of those institutions were not thought to require a large staff of medical assistants, and consequently there appeared to be a smaller degree of medical responsibility than at the large original institutions of the Council. Lower rates of pay were therefore fixed for the higher medical staff, though subsequently at two institutions special allowances were made. Since the transference there has been a considerable alteration in the conditions under which medical work is done, the standard of medical care has been raised, and the scope of treatment expanded in every direction. It is therefore felt that the grading and remuneration of the higher medical staff should now be the same at all the large transferred institutions as at the large county mental hospitals. This means that the medical superintendent, instead of £1,250 plus a house, will receive £1,450 plus a house; the remuneration of the deputy medical superintendent of a large institution will be £850-£50-£950, being an increase of £50, and that of the first assistant medical officer will be £750-£25-£850, instead of £625-£25-£750.

Medical Staffing of L.C.C. Mental Observation Units

The existing arrangements for the medical staffing of mental observation units at the hospitals of the London County Council provide for the seconding to those units for periods of not less than one year or more than two years of selected assistant medical officers in the mental services. Experience has shown that there is little likelihood of there ever being a sufficient number of officers of this rank in the mental services with the necessary qualifications and experience to maintain the steady sequence of volunteers needed for this duty. In fact, the four units at St. Pancras, St. Clements, St. Francis's, and St. Alfege's hospitals are, or very shortly will be, without suitable medical staff. It is therefore proposed to recruit the specialist staff required from the ranks of second assistant medical officers in the mental services, a grade higher than that from which volunteers for the duty are at present sought. This will necessitate an increase in the fixed medical staff of the mental services of the L.C.C. by four positions of second assistant medical officer, so as to permit of four officers of the grade always being seconded

to the observation units. It is also proposed that it should be a condition of promotion from the rank of assistant medical officer to that of second assistant medical officer that the officer promoted will be ready to undertake service, without option and in rotation, in an observation unit, and that a year should be taken as the normal period of seconding, though exceptional circumstances might make it necessary in some cases to extend the period to not more than two years. The scale of salary of the second assistant medical officers to be appointed will be £625-£25-£700; that of the assistant medical officers seconded under the original scheme was £470-£25-£570, with a special allowance of £50 a year to a holder of a diploma or degree in psychological medicine.

INDIA

All India Obstetric and Gynaecological Congress

The second All India Obstetric and Gynaecological Congress will be held at Bombay from April 13 to 16 next under the presidency of Dr. B. D. Mukherji of the Carmichael College, Calcutta. A medical exhibition is also arranged as part of the programme. The subjects chosen for official discussions are toxæmias of pregnancy and carcinoma of the cervix. The congress will be inaugurated by the Prime Minister of the Government of Bombay, and the medical exhibition will be declared open by the Minister of Health. An invitation is extended to all obstetricians and gynaecologists to attend the congress. Further information can be obtained from the organizing secretary, Raj Bhuvan, Sandhurst Road, Bombay, 4.

Women Patients in the Panjab

The report on the working of hospitals and dispensaries in the Panjab (1936) records a remarkable increase in the number of women patients. Unfortunately, however, continued financial stringency has precluded appreciable progress in the scheme for expansion of female medical relief. Although the number of women and children attending hospitals during the year under review exceeded that of the men, the available accommodation is stated to be totally inadequate. The deficiency is especially marked in the smaller centres. Only a few district headquarters have separate women's hospitals; in most cases the hospital includes a female section under the charge of a woman subassistant surgeon. At one district headquarters, Jhelum, there are no facilities, except at a mission hospital, for the treatment of women by doctors of their own sex. The report also emphasizes the need for special women's dispensaries in small towns and villages. A tribute is paid to the work of the mission hospitals, the pioneers of medical relief for women in the province. Many of these are finely equipped and are staffed by fully qualified lady doctors assisted by competent nursing staff. With regard to facilities for the medical education of women in the province the report states that the need for the establishment of the proposed Medical School for Women at Lahore becomes more pressing every year. The accommodation available at the Panjab Medical School for Women, Ludhiana, and at the Amritsar Medical School, where the system of co-education is in force, is far from sufficient, and many applicants for admission have to be refused. Dispensing appears to be less popular as a career for women, and it is a matter of difficulty to induce students to train for this important work.

Assam in 1936

From the annual public health report of the Province of Assam it appears that 1936 was a comparatively healthy year, without major epidemics; the death rate fell, as also did the birth rate. The registration of vital statistics is still regarded as being far from satisfactory, and officials of the public health department have been urged by the

Hunterian Society Dinner

The annual dinner of the Hunterian Society was held at the May Fair Hotel on February 17, the 210th anniversary of the birth of John Hunter. After the loyal toasts, "The Memory of John Hunter" was honoured. Lord Snell, the guest of honour, then proposed the health of the Society. He said that much medical knowledge—for example, about food—was not applied either by local authorities or by individuals in their own homes: in fact, much propaganda was devoted instead to creating an entirely wrong sense of food values. In responding, the president, Dr. D. C. Norris, reviewed the activities of the Society during the past twelve months. The publication of the *Transactions* had been resumed last year. He then formally presented to Dr. John Wilson Reid of Anglesey the gold medal of the Society for an essay on the prognosis and treatment of heart disease in general practice. The toast of "The Guests and Kindred Societies" was proposed by Mr. Alex E. Roche, and on behalf of the guests Judge Earengay, K.C., Sir John Stavridi, and Mr. Hugh Lett (Master of the Apothecaries' Society) responded.

Births and Deaths in London in 1937

The births registered in London during the fifty-two registration weeks of 1937 numbered 63,816, compared with 65,375 in the fifty-three registration weeks of 1936. The crude birth rate per 1,000 of the population in 1937 was 15.6 as against 15.8 for 1936. The corrected rate (which excludes the births of non-Londoners) will be about 13.4. The deaths registered in 1937 numbered 50,081, compared with 51,454 in 1936, when, however, there were fifty-three registration weeks. The crude death rate was 12.2. The infant mortality showed a marked drop in 1937, being 51 per 1,000 registered births, as against 57 in 1936. Deaths from puerperal sepsis and other accidents of childbirth in 1937 numbered 124, or 1.9, per 1,000 registered live births, against 115, or 1.8, in 1936. There were 520 deaths from street accidents in London in 1937, a slightly lower figure than for the two previous years.

Reunion of Radiographers

The annual dinner of the Society of Radiographers, held in London on February 19, brought together over 200 members, the largest gathering in the seventeen years' history of the society. Dr. G. W. C. Kaye, the president, welcomed the guests, who included Mr. C. Thurstan Holland, the "grand old man of radiology," Dr. Russell J. Reynolds, president of the British Institute of Radiology, with which the society has a working alliance, Dr. R. E. Roberts, president of the Section of Radiology of the Royal Society of Medicine, and representatives of affiliated societies of radiographers in Manchester, Liverpool, and the Midlands. Mr. Thurstan Holland, in responding for the guests, took his audience back to the earliest days of x-ray work in 1896, and declared that he had as good a claim to call himself a radiographer as any of those present, because in those early years, until 1904, he had to do everything in his department, including the repair of apparatus, the development of plates, and the making of prints and lantern slides. He had also occasionally to offer an opinion to senior physicians and surgeons, among whom in those days the "x-ray man" was not very popular. In 1904 at the Royal Infirmary, Liverpool, he was given the services of a lay assistant, and to that first assistant and all his successors he paid a tribute. Never once had he been let down by an assistant. Mr. Cuthbert Andrews, in proposing the health of the Society of Radiographers, reminded his listeners of what they had gained in status, recognition, and salary scale under its auspices, and Dr. Kaye, in responding, said that the membership of the society was over 1,100, and was increasing at the rate of about 100 a year. It was recognized by the Board of Medical Auxiliaries, and it had four

branches—in Scotland, in South-West England, and in Australia and South Africa. The aim of the members was to serve the medical profession to the utmost of their ability. During the evening the Sir Archibald Reid memorial medal was presented to Miss A. M. V. Ash of the Western Infirmary, Glasgow, for a prize essay, and the Stanley Melville memorial medal to Mr. H. T. Ferrier for the best lecture of the session. A cheque was also presented, with many expressions of appreciation, to Mr. F. Melville, who has been honorary secretary of the society since 1927.

Ambulances in Air Raids

The report of the Home Service Ambulance Committee of the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society for the quarter ended September 30, 1937, points out the importance of ambulance transport in air raid precautionary schemes. In the event of war a great deficiency in the number of ambulances available is foreseen, and the creation of improvised transport from trade vans and other vehicles is envisaged. For the manning of these ambulances a large increase in the numbers of trained personnel would be necessary. The staffing of first-aid posts for treatment and decontamination, and of first-aid parties to search for and rescue the wounded in streets and houses, together with the provision of skilled helpers to assist overburdened hospital staffs, would also demand a large number of trained men. The report therefore maintains that recruiting must be pursued with the greatest energy, and that the time for this is now. Alluding to recent trials carried out in various parts of the country, the report draws a vivid picture of the difficulties likely to be encountered, especially during air raids at night.

"With all lights extinguished or obscured, with vision further hampered to a considerable extent by respirators, driving perhaps through clouds of gas, and having to keep a constant watch to avoid craters in the road caused by high explosives, and floods due to burst water-mains, they would have to grope their way to places where casualties have occurred; to assist the first-aid parties in carrying out such first-aid work as is immediately essential; to make every effort to avoid the contamination of themselves and their patients by mustard gas; and to get their patients as quickly and safely as may be to their appropriate destination, whether hospital or first-aid post."

The report states that many consultations have taken place between representatives of the Air Raid Precautions Department of the Home Office and those of the Order and the Society concerning the preparation of schemes for adequate ambulance service. It is pointed out that if ever the occasion for action arises it will come suddenly, and it is therefore of prime importance that plans to secure, adapt, equip, and man the necessary vehicles should be completed beforehand.

Royal Berkshire Hospital Centenary

The story of the Royal Berkshire Hospital¹ is told with the laudable intention of helping the hospital's centenary appeal fund. Every good wish, therefore, attends its publication. The approbation of Queen Mary, to whom the volume is dedicated, has already been obtained, and her signature is reproduced in each copy. The book is a cento rather than a reasoned history, for the eleven chapters are contributed by ten writers. But it is a readable patchwork, contains much that is interesting, and details the growth of the hospital from small beginnings to its present position amongst the greater provincial hospitals. It secured the patronage of William IV at a very early period of its existence. His death caused the postponement and final abandonment of the opening ceremonies until the number of accidents attending the

¹ *The Story of the Royal Berkshire Hospital 1837-1937*. Edited by Ernest W. Dormer. Reading: Poynder Press, Gun Street. (6s., or 6s. 6d. post free.)

An English Pneumonia Service

SIR.—I cannot tell Dr. W. G. Booth (*Journal*, February 19, p. 417) whether a county council is allowed to supply anti-pneumococcal serum free, but any local sanitary authority can do so. For years past the two local authorities for which I am part-time medical officer of health have done this. They pay for the typing of the sputum and provide the serum free of charge. It is stored at the sanitary inspector's office, at his residence, and at my residence; in this way, as Dr. Booth so wisely stresses, it is available day and night. The storage of the serum is not costly, since any serum which is not used can be returned to the makers shortly before the date of expiry stamped on each packet is reached, and is replaced by a fresh supply free of charge. I suggest that Dr. Booth might ask the local medical officers of health to request their council to pass resolutions authorizing this service.—I am, etc.,

ARTHUR T. BLEASE.

Medical Officer of Health, Bucklow Rural
and Knutsford Urban Districts.

Altrincham, Cheshire, Feb. 20.

Oblique Osteotomy for Fracture of Neck of Femur

SIR.—The one problem which remains in the treatment of this injury is avascular necrosis of the head of the femur. In reporting his operation of oblique osteotomy (*Journal*, February 12, p. 330) Mr. T. P. McMurray attributes this necrosis to the nailing operation, and suggests that it is due to the mass of metal in the bone. He therefore advocates osteotomy and plaster immobilization as the primary treatment in recent fractures.

But avascular necrosis and disintegration of the head is not a complication of the nailing operation; it is a complication of a certain type of hip injury which occurs whether there is a nail in the bone or not. The nutrient vessels of the shaft extend no higher than the femoral neck; the head of the bone is supplied entirely by vessels which enter through the capsule of the joint, and in a proportion of cases through the ligamentum teres. If a fracture lies below the capsular attachments the blood supply of the head is unimpaired. Avascular necrosis does not occur, therefore, in basal or low cervical fractures even if they are nailed. If the fracture lies above every capsular attachment to the bone, this source of blood supply is cut off and the vitality of the head depends on the vessels of the ligamentum teres. Where these vessels are also inadequate necrosis will now occur, whether the fracture is treated without operation, by nailing, or by osteotomy. It occurs even more commonly after traumatic dislocation of the hip, because both capsule and ligamentum teres are damaged and both sources of blood may be cut off. It also occurs after arthroplasty of the hip if the capsule has been too freely reflected, and occasionally in epiphyseal coxa vara and other hip injuries. The evidence suggests, therefore, that the complication has nothing whatever to do with the nail. Provided that the earlier type of open reduction involving capsular reflection is abandoned in favour of extra-articular insertion, the operation for introduction of the nail must also be exonerated.

To perform the oblique osteotomy successfully is no easier than to perform the nailing operation successfully. Moreover, the end-result is not quite so good. There is slight limitation of certain hip movements, shortening, and a tendency to stiffening of the knee. If we can be

sure that we are dealing with a case which will not develop avascular necrosis the nailing technique is undoubtedly better. On the other hand, if necrosis and degenerative arthritis supervene the result of oblique osteotomy is as good as the result of an arthrodesis, and has the advantage of attainment by one operation instead of two. The only justification for the routine use of osteotomy in recent fractures would be a very high incidence of degenerative arthritis.

We know the incidence of the type of fracture which impairs the blood supply of the head of the femur, for there is always radiographic evidence of this five to eight weeks after injury. But we are not sure how often the head can survive this ischaemia. Not until several more years have elapsed shall we be certain of the incidence of actual disintegration of the head. But there can be no doubt that it will be less than the 25 per cent. Mr. McMurray suggests. The report that Henderson has found disintegration of the head in 25 per cent. of his successful results is, I think, a misquotation. In the article with which I am familiar (*Surg. Gynec. Obstet.*, 1937, 65, 711) Henderson merely states that in approximately 20 to 25 per cent. of adults the blood vessels in the ligamentum teres are lacking. This would mean that avascularity of the head occurs in 20 to 25 per cent. of fractures which lie above all capsular attachments—that is, in 5 to 10 per cent. of all fractures of the femoral neck. This incidence would conform much more to one's own provisional estimates, and it is not high enough to justify abandoning the nailing operation with its possibility of perfect results in the other 90 to 95 per cent. of cases.

At the moment one's own routine is to nail all recent fractures, arthrodesis united fractures with disintegration of the joint, and perform the McMurray osteotomy for ununited fractures and for fractures several weeks old which already show evidence of an avascular head. Possibly we should go further, and in those few cases already nailed which after a few weeks show an avascular head we should not wait for the disintegration, but at once remove the nail and perform the osteotomy. But I would urge that the osteotomy should be reserved for these strictly selected cases. For them it is an invaluable procedure—simple and effective. For the uncomplicated case it is far short of the ideal.—I am, etc.,

Liverpool, Feb. 13.

R. WATSON-JONES.

SIR.—It is with considerable diffidence that I write to criticize a paper by so eminent an orthopaedic surgeon as Mr. T. P. McMurray (*Journal*, February 12, p. 330). My experience of the nailing operation for median fractures of the femoral neck has been so satisfactory that I cannot allow Mr. McMurray's comments on this procedure to go unchallenged. Summarizing his points he writes:

"The disadvantages of the insertion of a metal pin are: (1) the risks of failure to insert the pin in the ideal position, and the very definite risk of non-union; (2) the occurrence of fragmentation in the head of the femur following an apparently successful operation; (3) the very definite risk of infection in the hands of non-experts in the method."

To take these objections in order. In the radiologically controlled operation (which is an operation that must at least be considered in any criticism of nailing procedures) a guide wire is first placed in the "ideal" position in an accurately reduced fracture and its position is checked by x-ray examination before the nail is driven home. Following this technique there should be no badly placed nails.

Governor to acquaint themselves more closely with the conditions of the villages in the interior, and to track out and subdue those diseases to combat which the department was created. Malarial fevers constitute the chief scourge of this Province, but there was a fall in the incidence of them in the year under review as compared with 1935. Quinine-reinforced cinchona febrifuge was used as a general preventive and curative agent, and its supply to the population has been promoted by lowering its cost. The Assam Medical Research Society has been concentrating its activities on malaria control with promising results, especially as regards the campaign against *Anopheles minimus*. There was a slight rise in the incidence of small-pox, but a fall in that of cholera. Vaccination against the former disease is not compulsory in rural areas in Assam, but the people are encouraged to be vaccinated; in some areas there is much opposition to overcome. The kala-azar incidence and mortality rate fell. The intravenous injection of urea-stibamine is the method of diagnosis and treatment, and a great deal of survey work is undertaken with a view to prevent a recrudescence of this disease. Rice is the staple diet. It is reported that adulteration of food is increasing and that the Assam Pure Food Act is not working very satisfactorily, local boards showing little interest in this matter, though the record of municipalities in this respect is somewhat better. Consideration has been given to the problem of reorganizing the public health department so as to create a more intimate spirit of co-operation between the villagers and officials of the department.

Madras Hospitals and Dispensaries

Major-General Sir Frank Connor, I.M.S., surgeon-general with the Government of Madras, reports a net increase of one in the number of civil hospitals and dispensaries in that Presidency in 1936 compared with the previous year. There were 1,235,295 cases of diseases of the respiratory system other than pneumonia and tuberculosis, and 1,192,351 of diseases of the digestive system: 614,079 operations were performed, with a death rate of 0.25 per cent., compared with 0.27 in the previous year. There was a decrease in the number of maternity cases conducted in these institutions, due to the opening of more maternity and child welfare centres, the appointment of separate midwives by municipalities and district boards for domiciliary work, and the consequent prohibition of hospital and dispensary midwives from conducting labour cases outside their institutions. A considerable fall occurred in the tuberculosis death rate. As a further step in anti-tuberculosis work in Madras City a tuberculosis clinic on up-to-date lines has been started for the examination of contacts as an adjunct to the Tuberculosis Institute, and the Government has taken over Dr. Muthu's sanatorium at Tambaram with the view of providing more accommodation for such cases. Sir Frank Connor states that there is need of some thousands more beds for tuberculosis cases in hospitals, sanatoria, and clinics. Radiological work grows apace in the Presidency; two new departments were opened in 1936, and more are being established, while several of the older ones are being brought up to date by the addition of new equipment. At the end of 1936 there were 445 leprosy clinics actively functioning; with a grant-in-aid from the Silver Jubilee Fund special clinics for the study of leprosy and its epidemiology are being established in five places and increased bed accommodation is being arranged in eight leper hospitals. Special investigation units are being established for intensive study of the disease, particularly in children. The Government General Hospital in Madras has been remodelled, and new hospitals have been completed at Madura and Cocanada. There was an increase in the number of medical students in the Vizagapatam and Madras medical colleges; a revised curriculum was approved in 1936 suitable to the extended course of five years.

Correspondence

Co-operation

SIR,—The report by Mr. Harold Murphy on the outbreak of typhoid fever at Croydon will be closely studied by medical officers of health in order that they may find out if there are any ways in which their customary procedure in dealing with outbreaks of infectious disease may be varied or improved on, and it may be assumed that both the Society of Medical Officers of Health and the British Medical Association, between which there exist the most cordial relations, will during the coming months give the matter their close consideration.

There is one important section of the report which unfortunately is not quite clear. I refer to the functions of the suggested committee of local practitioners to consult with the medical officer of health. It is true that Mr. Murphy does not actually suggest that "the more ready communication between the medical officer of health and the general body of practitioners" should take the form of a committee representative of local general practitioners, but it is evidently the view of Lord Dawson and other prominent medical men that it should take this form. Now the universal practice of medical officers of health when confronted with a possible epidemic of a dangerous disease is to establish immediate contact, either by telephone or by letter, or by both, with all the local medical men practising in the area at risk, informing them of the danger, in order that they may get in touch with him at once if they have any patients with symptoms arousing suspicions of the disease in question. It is also the universal practice for the local medical men to co-operate fully with the medical officer of health and to refer to him without delay either definite or suspected cases of the disease. They expect and receive without question and without delay the fullest help which the public health department can offer them, usually in the form of personal consultation with the medical officer of health at the bedside of the patient. The medical officer of health can do no more; he dare do no less.

What, then, would be the function of the committee, which would necessarily consist of only a small proportion of the practitioners of the area? What information could be given to or by the committee which should not be given to all the practitioners in the area? The medical officer of health cannot delegate any part of his responsibility in dealing with an epidemic to any committee; he must personally be responsible for all information reaching all the practitioners direct. And when the practitioners have information of value to the medical officer of health, why should they not, in a situation where no time may safely be lost, transmit this information directly to the medical officer as in the past? In the face of recent legislation, especially the Local Government Act of 1929, which transferred all the old Poor Law beds to the local authority, no one will question the advantage to both the medical officer of health and the local profession of a standing committee through which both sections may consult and co-operate, but in the presence of an actual epidemic of infectious disease it is not clear what useful purpose meetings of this committee would serve.—

I am, etc.,

HUGH PAUL, M.D., D.P.H.,
Medical Officer of Health.

Smethwick, Feb. 16.

that he had been misinformed. Nadi district was first put under my control in 1933, and a similar series of inoculations was started there. It will be of interest to note the results at Nadi also if the vaccination is continued, say, for five more years.

The immediate value of antityphoid inoculation as carried out at Lautoka may be admitted. Much sickness and many deaths have been prevented, and there is value in the success of any beneficent measure that calls for explanation and co-operation between the different classes and races. Such are unfortunately the total gains. The causes of the prevalence of enteric fever remain, and they are to a large extent also the causes of bacillary dysentery. These causes are well known. They are published in the newspapers. They evoke the taboos and dogmas of primitive man. They are platitudes of the schoolroom and the council chamber. Nevertheless a little repetition may be of benefit. The chief cause is polluted water. A pipe supply of pure water to all closely settled areas would spell the end of epidemics of typhoid and bacillary dysentery in Fiji.

Existing water supplies for drinking and cooking in this and most other Indian districts are from wells and streams. Both sources are subject to the gravest pollution. The wells are badly made and badly situated. The streams mostly run through small holdings, the custom being for defaecation to be performed near water—that is, near a stream. The first rain then washes the excrement into the stream, and thus pollutes the supply for all below it. Even in the absence of rain some of the ablation water may reach the stream. This bad habit is not confined to Indians: I have seen similar practices in Fijian districts. In this district the pollution is realized by those who live on the lower reaches of the streams, so that they go out to collect their drinking water at four in the morning, when the stream has had the night for recovery, and pollution may be, they think, at its minimum. The above is unpleasant reading, but it is as well to remember that no sensible person would drink river water or stream water in England—pollution is just as bad, though of a different nature.

The true answer to the problem of dysentery and typhoid in Fiji is a piped supply of pure water. The next best thing is a rigid inspection of all wells. A less beneficent method is that which has been described above—namely, immunization.—I am, etc.,

Lautoka, Fiji, Jan. 2.

PHILIP HARPER, M.D.

Br. abortus Infection Treated by Sulphanilamide

SIR.—Although the occurrence of infection by *Brucella abortus* in this country is not common, according to Creed 25 to 30 per cent. of retail samples of mixed unpasteurized milk contain this organism, and it is estimated that 20 per cent. of the cattle in Great Britain are infected. It is therefore surprising that more cases do not occur, since pasteurization is, unfortunately, by no means the usual practice, and infection, except among those engaged in milking the cows, is always milk-borne. The comparative rarity of the disease and the lack of distinctive physical signs make the diagnosis difficult, and treatment up to the present has been mainly symptomatic and consequently somewhat unsatisfactory.

The following case presents the usual symptoms and signs of the disease and suggests an effective treatment.

A married woman, aged 66, was seen by me on December 20, 1937. She said she thought she had a temperature for a fortnight, but had not felt sufficiently ill to consult a doctor. It was her first day in bed and she complained of headache,

lassitude, anorexia, and insomnia. The temperature was 102° F. and the pulse rate was 92, but careful examination revealed no other abnormal signs. A specimen of urine showed nothing abnormal.

I saw her again on December 23, and as the temperature had risen each day to between 102° and 103° F. I asked Dr. Facey to examine her blood. He reported that the Widal was negative for T.A.B. but agglutination occurred with *Br. abortus* in dilutions up to 1 in 2,500. The blood count revealed: red cells 4,050,000, haemoglobin 68 per cent., colour index 0.84, white cells 4,000; a differential count showed nothing abnormal. To confirm the diagnosis an intradermal dose of brucellin was given, and gave a strongly positive reaction in thirty-six hours.

A supply of brucellin for inoculation could not be obtained, so a blood transfusion of 350 c.cm. was given on January 6 in order to increase the leucocytic and red cell count, and also in the hope that it might supply missing complement to the patient's blood. She felt better but for a few hours only. On January 13 a dose of 0.75 c.cm. of brucellin was given intramuscularly, but no reaction occurred and no improvement followed.

Having read a letter by Dr. J. H. Lloyd in the *Journal* of January 15, I gave my patient a first dose of *p*-aminobenzenesulphonamide on January 17. At the same time I gave her another injection of 1.25 c.cm. of brucellin. There was again no reaction from the brucellin, but next day the temperature was normal. Two 7½-grain tablets of sulphonamide were given the first day, eight the second, and eight the third, the temperature remaining normal all this time. The dosage was then cut down to one tablet daily, and on January 25 a rise in temperature to 99° F. occurred. The tablets were increased to four daily and the temperature has been normal since. The patient is now up and about and appears to be in normal health.

A reactionary rise of 2° F. is required before brucellin is expected to have any beneficial effect, and, as no reaction occurred after either injection, it would appear that the fall in temperature was due to the sulphonamide preparation, especially as it controlled a slight rise of temperature later. The duration of *Br. abortus* infection, according to Dalrymple-Champaey, averages twelve and a half weeks, so that any remedy which appears to influence so readily the course of the disease deserves to be brought to notice. It is with this object that I record this case.—I am, etc.,

NEWTON MATTHEWS, M.B., Ch.B.

Bournemouth, Feb. 15.

Erysipelas and Cellulitis

SIR.—In these days of sulphonamide medication for haemolytic streptococcal infections some of the older and approved methods of treatment are apt to be lost sight of. In Mr. John Hosford's interesting article on erysipelas and cellulitis in the *Journal* of February 12 (p. 346) I note that no mention is made of the advantages of open-air treatment in these cases. During the war, when erysipelas infections of war wounds were not uncommon, it was generally accepted that a marked improvement occurred on removing these cases from the wards and treating them under canvas.

At the Royal Victoria Hospital, Netley, during the war a relatively high mortality was noted among the cases treated in the wards of the old hospital, whereas the cases transferred to bell tents showed a rapid fall of temperature and a general improvement in their condition. Among those treated in this way there were no deaths at all, although the numbers under observation were considerable. It was noted that if the case were transferred back to the hospital wards in under seven days a relapse was liable to occur, but if they were kept over ten days

The problem behind fragmentation of the head is surely one of destruction of its blood supply, which is mainly carried to it by the capsule and its reflexions. Any open exposure of the fracture site perhaps adds to the damage to the "vascular" capsule, which has already been injured by the trauma causing the fracture, but in these days we pay as much attention to the capsule as we can, and reduce our fractures by gentle methods. We nail them by an extra-articular technique when, and only when, we have an exact reduction of the fracture. This reduction does not indicate that the bony surfaces alone are in apposition, but it also means that the rent in the torn capsule is reduced and its edges are in close enough apposition for healing to occur and for the vascular damage to be repaired. Mr. McMurray's figures (quoting Henderson) of a 25 per cent. incidence of necrosis of the head of the femur following the nailing operation are much too pessimistic. In my series of over fifty radiologically controlled operations I am aware of only one case of a definite change in the head. I think it would be safe to reduce this 25 per cent. incidence to 5 per cent., and I am prepared to grant larger figures than this when fractures are nailed which are not accurately reduced; but surely this is an error of technique rather than a criticism of the method. I disagree with Mr. McMurray's contention that the metal nail may be a cause of necrosis of the head fragment at "any time within the next two or three years" following the operation. The nail is placed through the fracture to immobilize it until union has occurred. When that result is obtained the nail should be removed. I have removed over twenty nails when I have considered their removal a safe step. I think I can look upon these cases as true end-results. They all are satisfactory, and prove to me the real value of the nailing operation. As regards infection, I have not even one such case in my extra-articular operations. Compared with my experience of the open operation, the absence of infection and shock is one of the greatest advantages of the extra-articular procedure. Since the average age of my patients is well over 60 this advantage is real.

Considering only recent medial neck fractures, there is one type in which the bone of the femoral neck is extremely soft—so soft indeed that the nail is not an efficient immobilizing agent, and "impaction" of the fracture is impossible. A plaster support has to be used in addition to the nail to secure immobilization. For this type of fracture Mr. McMurray's osteotomy may be the wiser procedure; but such patients will be considerably older than those reported in his series.—I am, etc.,

St. James' Hospital, S.W.12, Feb. 14. WILLIAM GISSANE.

Adult Serum in Measles

SIR,—I should like to enter a timely plea to those clinicians and pathologists who, like myself, are concerning themselves with the preparation and use of adult measles serum to utilize the present epidemic as a means of comparing adult serum in its preventive and attenuative aspects with commercial placental extracts. I am informed by an L.C.C. authority that the potency of such placental extracts was found to be *rather less than half* that of adult serum. The matter is one which needs clarification, and it is hoped that the present epidemic will provide a clear and unequivocal answer. The results obtained from adult serum in local use have so far been very satisfactory, but it would be premature to form a comparative opinion at

the present time. The British Medical Association would be performing a very valuable service by collecting and correlating statistics on these lines.—I am, etc.,

A. GEOFFREY SHERA, M.A., M.D.Camb.,
Eastbourne, Feb. 17. Honorary Pathologist, Princess Alice
Hospital, Eastbourne.

Antityphoid Inoculation

SIR,—On taking over the appointment of district medical officer, Lautoka, in February, 1930, it appeared to me that a complete or almost complete immunization of my whole district against enteric fever and the maintenance of that immunity over a period of years would be one of the most beneficial of practical public health measures. Hitherto no such comprehensive measure has been carried out in this country.

A yearly crop of cases of enteric fever used to occur in Lautoka district, one year one area providing the bulk of the cases, another year another area. In 1923 there were thirty-four cases with four deaths, and in 1927 sixty-one cases with ten deaths. In other years before 1930 the true Lautoka cases were not always distinct from cases which were admitted to Lautoka Hospital from other districts, so that accurate figures are absent, but undoubtedly the amount of sickness and death was large. The Lautoka medical district contains 10,000 persons, of whom just over 7,000 are between the ages of 1 year and 40. The races are roughly: Europeans, 400; Fijians, 900; Indians, 8,000; others, 600. The population of Nadi district to the south of Lautoka is 12,000 and of the Ba district to the north is 15,000. The other boundaries to Lautoka medical district are the mountains to the east and the sea to the west.

It was decided to inoculate that section of the population which was aged from 1 year to 40 years, the full dose to be 1 c.cm., but the dose to be decreased according to age and weight. The inoculations performed in each year were as follows:

1930	4,000	1935	790
1931	2,451	1936	1,237
1932	4,179	1937	4,744
1933	4,093		
1934	2,740	Total	24,234

The following are the numbers of cases of enteric fever and mortality by years up to 1937:

Year	Cases	Deaths
1931	19	4
1932	7	0
1933	8	1
1934	0	0
1935	2	1
1936	1	0
1937	3	1

These figures suggest a very large measure of success for the antityphoid inoculation. During these years the Lautoka Hospital has received many cases of enteric from Ba, Tavua, and Nadi, some even from Ra and Sigatoka. There were in fact several epidemics at Tavua, Ba, and Nadi. Though bounded on each side by districts in which typhoid epidemics were occurring, the disease steadily decreased in numbers at Lautoka, as shown above.

It is true that in 1935 the Deputy Governor stated in Legislative Council that a small epidemic of typhoid fever had occurred at Lautoka. I wrote to point out His Excellency's error, since there was no epidemic at Lautoka, though there was an epidemic at Ba and at Nadi—that is, on either side of Lautoka. His Excellency replied to me in a personal letter admitting his mistake and regretting

advises on contraceptive technique and to the principles and teaching of the National Birth Control Association.

For many newly married women it is imperative that pregnancy should be postponed, as, for instance, when the woman is working and her husband is unemployed. The contraceptive measures advised at the clinics are considered essentially to be prophylactic, both for avoiding "anxiety states" and, of utmost importance, for combating the high incidence of criminal abortion with its subsequent morbidity and sterility. Some of the clinics have maintained records of the "condition of cervix" over a period of many years. Nulliparous and multiparous patients return at six-monthly intervals for supervision and for general advice upon spacing their pregnancies. The quotations offered by Mr. G. H. Alabaster concerning the relation between endocervicitis, erosion, and sterility (*Journal*, February 19, p. 419) seem to add confusion to the original issue.

If there were any evidence that the methods advocated by the N.B.C.A. did, in fact, induce these conditions (or influence fertility in any other way) these suggestions would become a matter of gravest concern. As this has not been evident among large numbers of control cases, the contention does not appear to be relevant.—I am, etc.,

JOAN MALLESON.

London, N.W.1, Feb. 21.

Time for Midwifery

SIR,—May I reply to a letter by Dr. John Elam (*Journal*, February 5, p. 310) asking why nothing has been done regarding maternal mortality? I do not know what has been done in New Barnet, but I can assure him that my county has not been idle, and that we have four services in good working order: (1) the general practitioners' ante-natal service; (2) clinics all over the county where expectant women may receive dental treatment and free milk; (3) beds, ready to receive the cases, are available in the special and general hospitals; and (4) consulting obstetricians are prepared to attend at once on the request of the general practitioner, and are paid for by the county authorities. Dr. Elam also suggests that women doctors have a special aptitude for midwifery and that all cases should be handed over to them. Having myself attended more than 2,000 cases, I cannot believe that this suggestion was made seriously. If Dr. Elam would get his prospective mothers to live healthy outdoor lives, and see that they were not worried by too much pelvimetry, vitamins, or headlines in the yellow press, the maternal mortality problem would solve itself.—I am, etc.,

Torquay, Feb. 14.

HORACE ROSE.

SIR,—It is unfortunate that your correspondent Dr. Robert Anderson (*Journal*, February 19, p. 419), before criticizing my suggestion that want of time is the basic cause of bad midwifery, did not give a little time to a study of the Maternal Mortality Report of 1937. This report I cannot quote at length in your columns, but Dr. Anderson would find it worth close study. We read, for example, on page 189, that certain essential examinations in the ante-natal period were found to have been infrequent and irregular. The Departmental Committee tells us that "there is too little ante-natal supervision, and what there is too perfunctory to deserve the name." The Scottish Report says: "It is obvious that ante-natal care falls far short of what might reasonably be expected." It is not suggested that practitioners did not know how to do ante-natal work but that they did not give sufficient time to ante-natal work. On the other hand, comment is made on the good work done at

municipal clinics, where the maternity officer did have time.

Turning to the conduct of the confinement (p. 191) we read that "there was evidence of hurried midwifery and of premature interference, etc." According to the Scottish Report, "one of the most disquieting features of present-day practice is hurried and unnecessarily meddlesome midwifery." Comment, too, is made in both these reports on "failed forceps" cases. Hurried midwifery, premature interference, what is this due to but want of time? So long as doctors and midwives are expected to work twenty-four hours a day for seven days a week, just so long will the disasters and mistakes of midwifery occur. Fatigue plays an important part in the cause of accidents. There is ample evidence in the 1937 report that, be the reason what it may, practitioners do fail to give sufficient time to midwifery. The suggestion that practitioners will not take time over their cases is not mine, but is made by the writers of the report. Many people have found the report objectionable, especially the women sufferers. It recommends that "these general practitioners who undertake obstetric work should be interested, experienced . . . and have sufficient time for unhurried work" (p. 193). By all means train the student and the young practitioner in obstetrics, but without time to give to the work knowledge is in vain.

Your correspondent appears to deplore the fact that so much work has been handed over to the midwives, yet it is generally recognized that the conduct of the normal confinement is best left in the hands of the competent midwife. Those of us who are attached to maternity hospitals constantly see cases coming in of which we are ashamed. If we are to retain the confidence of the public these cases must cease. There is urgent need for drastic reform of our maternity services, and it is better that we should do this ourselves rather than wait for an exasperated public to do it for us. We must hope that there are practitioners who have more constructive proposals to make towards this end than your correspondent.—I am, etc.,

New Barnet, Feb. 19.

JOHN ELAM.

Asthma and Sensitivity to Aspirin

SIR,—The leading article on drug allergy in the *Journal* of February 5 (p. 289) is most interesting and valuable, especially the reference to sensitivity to aspirin. It is taking the profession a long time to realize the importance of the fact that aspirin is not the harmless drug it is commonly supposed to be in certain cases of asthma. As long ago as August, 1919, you published a letter of mine which said:

"It is a fact not sufficiently well known that a patient with a low blood pressure and nasal polypi cannot safely take aspirin. Consequently there is great danger in giving aspirin indiscriminately in cases of asthma. It is always risky to use if the patient has, or has had, nasal polypi, but if the patient has a high blood pressure unpleasant results are not so likely to happen."

In spite of this and other repeated warnings of mine,¹ and of others, the risk of giving aspirin in these cases is not properly appreciated, as is shown in the following instance. I warned a patient, who had asthma with nasal polypi and a low blood pressure, that she must never take any aspirin. She told me that she was well aware of the fact because she had been made very ill by being given aspirin, in spite of her protestation that she could not take it, at five different hospitals to which she had applied

¹ *British Medical Journal*, August 29, 1925, and *Asthma and its Treatment*, 1922.

the return to the surgical ward was not followed by any untoward complication. The conditions of treatment in the bell tents were by no means ideal; the tents were often leaky, and in winter were cold and wretched. It seems to be hardly appreciated at the present time how important the open-air treatment of septic cases has proved in the past.—I am, etc.,

London, W.1, Feb. 19.

DENNIS EMBLETON.

Treatment of Boils and Carbuncles

SIR,—I read with great interest in the *Journal* of February 19 (p. 400) Mr. John Hosford's article on boils and carbuncles, and especially the section of his article dealing with carbuncle in diabetes. For some years past in such cases I have with great success, in addition to getting the urine sugar-free, used a lotion which is composed of syrup. simplex, usually with a little brilliant green:

R Brilliant green gr. ss
Syrup. simplex ad 3 iv

It is a good stimulant to lymphatic activity, and soon produces a much more healthy-looking granulation area, and when the slough has separated healing is much more rapid in such cases than I can obtain by any other method. I usually soak a piece of lint in the lotion of the size of the sore part and cover with cotton-wool and a moderately firm bandage, and redress once or twice a day.

I believe the action is mainly that of the sugar, which is hypertonic, and also probably makes up for a deficiency of sugar in the parts, which retards active cell proliferation. It is equally valuable in the sloughing type of ulcer which one finds in many diabetic cases, but I have not found it do any good when so applied to parts where there is a threatened slough and the skin is not broken. I would be interested to know if others get similar results.—I am, etc.,

London, S.E.6, Feb. 18.

LAWRENCE WEIR BAIN.

Cauterization of the Cervix

SIR,—Electrotherapeutists who deal with gynaecology welcome the article of Professor James Young (*Journal*, January 15, p. 105), and also the letter of Mr. E. Lawton Moss (February 12, p. 361), which drew attention to certain after-results of strong cauterization applications to the cervix. Cervical erosion is less radically dealt with by copper ionization. Enlarged, inflamed, and everted cervical lips usually become normal in one or two months after a few applications of local ionization; some cases are hastened by a few doses of pelvic diathermy. The patient does not require to lie up, but can continue at work during the course of treatment. On Christmas Day the *Lancet* published my conclusions on the electrical treatment of pruritus and eczema vulvae; in that article I describe a case sent to me by a leading gynaecologist who had been consulted as to the advisability of amputation of the cervix. This patient had had pruritus for many years, caused by a slight clear discharge. For this the cervix had been so severely treated with coagulating diathermy that it had become hard, like wax. As the discharge remained unaltered it was evident that it originated from above the cervix. Only after many attempts did I succeed, by using the negative pole and vaginal diathermy, in passing an electrode through the hardened canal into the body of the uterus. Intra-uterine ionization arrested the discharge, and at the same time the dysmenorrhoea was cured for good.—I am, etc.,

London, W.1, Feb. 15.

AGNES SAVILL.

Temporary Sterilization by X Rays

SIR,—It would appear from Dr. Louisa Martindale's letter in the *Journal* of February 19 (p. 419) that the only, or at any rate the most important, disadvantage of temporary sterilization by x rays for contraceptive purposes is the uncertainty of the duration of the sterility. This is far from being the case. There are two much more serious objections to this form of treatment, which in my opinion render its use totally unjustifiable in healthy women, at any rate in the second and third decades. The first of these is the fact that every successful sterilization, whether temporary or permanent, is followed by more or less severe menopausal changes. Of these the well-known vasomotor symptoms are only the least important, the psychological changes, though less obvious and more insidious in their development, often leading to great and prolonged unhappiness. The psychological changes are the more marked the younger the patient, and I agree that they become quite slight after the age of 35 or so, but even then I submit that their production is unjustifiable in a healthy woman.

The second objection is the possibility of injury to the germ cells resulting in abnormalities in the children born after recovery from temporary sterilization. It is true that a large number of children, born to mothers who have been temporarily sterilized, have been investigated and no undue incidence of abnormality observed. It should, however, be remembered that in animals abnormalities may not appear until the second and third generation, and such investigations cannot be regarded as complete until at least two further generations have been observed.

My own view is that x-ray or radium sterilization should not be carried out below the age of 38 except as an alternative to oophorectomy or as a life-saving procedure for severe and persistent functional haemorrhage. This excludes its use below this age, not only as a contraceptive measure but also in operable fibroids.—I am, etc.,

London, W.1, Feb. 21.

WALTER M. LEVITT.

Contraceptives and Fertility

SIR,—It is emphatically contrary to the experience of the Constructive Birth Control Society's clinics that sterility is engendered by the use of the contraceptives they advise. It is not the practice at these clinics to teach the patient to put a soluble pessary *within* the cap next the cervix but merely to place it in the vagina, nor is jelly put in or around a cervical cap. During the preliminary examination of the patient, should any factor be noted which suggests there will be difficulty in conception she is told of it and advised to consider founding her family first and use contraceptives later, as should she prove to be sterile she might incorrectly attribute to contraceptive methods her inability to conceive.

It is noteworthy that patients who have failed with their contraceptive appliances—that is, become pregnant—nearly always admit to the omission of one or both of the prescribed precautions on some occasion because they "thought once wouldn't matter," whereas if they acquired sterility through the habitual use of their contraceptives this reasoning would hold good.—I am, etc.,

London, W.1, Feb. 19.

E. FISHER, M.D., D.P.H.

SIR,—The statement that "the use of contraceptives early in marriage is inimical to pregnancy" is one of very great importance, both to the individual practitioner who

fronting their medical colleagues. However long and arduous its labours, such a committee will have been worth while if it eventually produces recommendations acceptable to the trade and to the medical profession.—I am, etc.,

St. Albans, Feb. 10.

TOM HARE.

Why "Post-anaesthetic" Pulmonary Complications?

SIR,—I have read Dr. G. R. Osborn's article (*Journal*, February 5, p. 279) with pleasure, and I hope some little profit, but I cannot accept all his assumptions, and I should like to question one of them in particular. He states early on in his paper that "inhalation anaesthesia does not predispose to pneumonia unless there is pre-existing lung disease." Apparently the surgeon is asked to take most of any blame which may be going, although, of course, in 95 per cent. of cases we do not wish to place the pneumonia to the credit of either party.

I submit, however, although I may be behind the times and old-fashioned, that inhalation anaesthesia still has a lot to do with pneumonia following operation. Cases of chest trouble, varying from a slight bronchial catarrh to actual consolidation, are often seen in healthy subjects whose chests were beyond reproach before an anaesthetic was administered.

If the surgical procedure is the main cause of post-operative pneumonias, how is it that some anaesthetics, such as ether, are more liable to cause such complications than others? Any inhaled irritant gas is a potential cause of lung disease, with pneumonia as a climax, and though chloroform, ether, nitrous oxide, and similar gases are obviously not as potent as chlorine, I for one would hesitate to regard them as above suspicion. I should imagine that any gas which irritates the lung alveoli, as inhalation anaesthetics do, is a powerful factor in causing trouble, and that any gas so used, since it is a mild poison, reduces the vitality, which in itself predisposes to pneumonia. If Dr. Osborn would alter his categorical statement to a fifty-fifty basis I might agree with him, but really we should not expect chloroform—a chlorine compound—to be above reproach in cases in which the lung tissue is concerned.—I am, etc.,

Woodley, Cheshire, Feb. 14.

J. G. BENNETT, M.D.

Technique of Blood Transfusion

SIR,—I was interested to read "Recipient's" letter in the *Journal* of February 12 (p. 363), since it raises the important question as to the quantity and strength of citrate solutions used in blood transfusion. At present I am engaged in studying the effect on blood of different amounts of citrate, and also as to whether it is the ideal anti-coagulant. Although final conclusions have not yet been reached, there is ample experimental evidence to show how important it is that the citrate solution should be isotonic (3.8 per cent.) and added accurately, in the proportion of 10 c.cm. to each 100 c.cm. of blood, at the time of collection. In making transfusions free from reactions there are undoubtedly other factors concerned, some details of which I hope to publish in due course.—I am, etc.,

Norwich, Feb. 15. W. R. THROWER, M.D., M.R.C.P.

SIR,—In the *Journal* of January 29 (p. 241) Dr. H. F. Brewer describes the technique of blood transfusion using the interrupted method of withdrawing blood into a flask, citrating, and injecting into the recipient. From personal experience with the direct method I can recommend a far simpler technique, and a safer one as regards contamination. Further, cutting down for a vein is

eliminated unless the recipient is so dehydrated as to be in *extremis*.

The materials required are an Unger machine and two large-bore needles, each having a circular shield at the hilt. The machine can be made immobile by tightening it on to the edge of a board, like a vice, the board lying transversely between donor and recipient for the support of their arms. A tourniquet is applied and the needles are inserted into the veins, the circular shields holding them in position. Rubber tubing connects the needles to the machine, which has four outlets. The remaining two outlets are for 20-c.cm. Record syringes, one for blood, the other for saline. By rotating the stopcock to the donor, the operator fills his syringe with 20 c.cm. of blood, gives a twist to the stopcock, and the blood is then injected into the recipient's vein. In order to keep the entire machine clear and to prevent clotting, about 20 c.cm. of saline are injected by the assistant, slowly, from the other syringe. In a 500-c.cm. transfusion about 20 c.cm. of saline will be used. I have never seen blood clot in the barrel, but as a prophylactic ether can be sprayed on the syringe. The entire routine is simple, there is no possibility of contamination, and the site of venepuncture heals in a day, leaving no trace. Also, the time is necessarily prolonged, a factor to the patient's advantage. I am certain that given a fair trial this method will meet with the approval of the profession.—I am, etc.,

Edinburgh, Feb. 12.

NORMAN L. FREUND.

Hysterical Dermatitis

SIR,—Dr. Henry MacCormac's paper on autophytic dermatitis in the *Journal* of December 11, 1937 (p. 1153), prompts me to record the following two cases of self-inflicted dermatitis.

CASE I

This patient was admitted to Queen Charlotte's Hospital on November 11, 1937, for her second confinement. Her case was complicated by rheumatic mitral stenosis, well compensated. On November 13 the patient drew the nurse's attention to a single oval lesion on the lower and innermost quadrant of the right breast. The lesion was half an inch long, irregularly oval in shape, with erythematous base and outline and central superficial slough comparable to a second-degree burn. Close inquiry revealed no possibility of extraneous heat or irritant so far as could be ascertained: no fomentations had been applied. The lesion was treated with calamine lotion. On November 14 similar lesions were present on a circular plan, arranged around the areola, identical with the primary. On November 15 no further lesions were found on the right breast, but three identical lesions were present on the left breast. The rapid appearance and the character of the lesions raised the suspicion of a chemical irritant, but none could be incriminated. On this date the patient in the next bed was reported to have a similar lesion on the right buttock.

No definite abnormality of the nervous system could be detected, apart from increased tendon reflexes, absent palatal reflex, and an indiscriminate distribution of blunting of sensation to pin-prick, mostly on the upper arm and calves of legs.

CASE II

This patient had a normal pregnancy and puerperium. Four lesions, roughly oval in shape and arranged in a linear manner, were seen on the right buttock, with faint scratch excoriations in the intervening area. No further lesions were noted. Examination of the central nervous system exhibited increased tendon reflexes, absent palatal reflex, and typical glove-and-stock distribution of anaesthesia to pin-prick, extending up to a hand's breadth above the knees and just below the elbows. Dermographia was particularly marked.

Dr. MacCormac kindly consented to see the patients, and said the cases were evidently self-inflicted lesions,

for treatment. On the last occasion she was unconscious for ten hours after taking 10 grains of this drug.

Another important point is that all rhinologists do not yet realize that it is disastrous to remove polypi in an asthmatic subject who is aspirin-sensitive. The question as to when to operate for the removal of polypi in asthmatic subjects has been clearly discussed in a paper by Clement Francis in the *Practitioner* of September, 1929. I have seen many cases in which such patients have become asthmatic wrecks as a result of having polypi removed, and the more complete the operation the more desperate does the asthmatic condition later become. In your article you quote H. F. Buchstein and L. E. Prickman as stating "there was a high incidence of nasal polypi in patients extremely sensitive to aspirin." I am convinced that in all asthmatic subjects who are sensitive to aspirin there is a "nasal polypus element." No polypi may be apparent at first, but in such cases polypi invariably show themselves after a time.—I am, etc.,

London, W.1, Feb. 13.

ALEXANDER FRANCIS.

Infantile Pyloric Stenosis

SIR,—I have read with interest Dr. J. Vernon Braithwaite's article on the treatment of pyloric stenosis (*Journal*, February 12, p. 334). In 1936 I published a consecutive series of fifty cases of pyloric stenosis treated at the Infants' Hospital with a mortality of 2 per cent. (*Post-Grad. Med. J.*, 1936, 12, 414).

The one death was due to a streptococcal infection which had nothing to do with the operation. I cannot agree with Dr. Braithwaite that eumydrine is the treatment of choice for pyloric stenosis, for the following reasons: (1) the operation for pyloric stenosis performed according to the technique I have previously described is one of the safest operations in surgery; (2) it is performed without previous preparation of the patient, and the duration of the child's stay in hospital need only be three to five days, recovery being rapid and uneventful.

Eumydrine necessitates a prolonged period of medical treatment and hospitalization, which last is very fatal to young babies. Quite apart from the pyloric stenosis for which the patient was admitted, mere hospitalization of a baby for a period of two and a half weeks, the shortest time, to twelve weeks, the longest time, mentioned by Dr. Braithwaite as necessary to cure pyloric stenosis by medical treatment alone carries with it a very definite mortality. Some babies treated by eumydrine fail to respond, and either die or come for operation in a half-starved and emaciated condition. Although I think a baby is never too ill to be operated upon for pyloric stenosis, I feel that it is definitely dangerous to starve young babies for long periods, even as part of medical treatment.—I am, etc.,

London, W.1, Feb. 14.

DAVID LEVI, M.S., F.R.C.S.

Trauma and Progressive Muscular Atrophy

SIR,—The correspondence on Dr. G. E. Frederick Sutton's interesting case (*Journal*, January 29, p. 225) prompts me to call attention to Speransky's researches into the results of trauma to the nervous system (1935, *A Basis for the Theory of Medicine*, New York). He showed that after a standardized trauma to the nervous system in dogs certain trophic lesions developed. Not every animal so injured developed the lesions to the same degree; the subjects classified themselves into six groups: (1) rapidly fatal result; (2) illness followed by death; (3) illness followed by recovery and then relapses occurring

at regular intervals; (4) illness followed by recovery; (5) no illness, but on a further trauma ("second blow") illness followed by death; (6) no tissue changes and immunity to further traumata. These variable results, following carefully standardized experimental procedures, demonstrate that there are, at least in dogs, a series of types of nervous constitutions. As progressive muscular atrophy does not invariably follow traumata, it appears reasonable to suppose that the patients developing it after trauma inherit a nervous system predisposed to this type of disorganization. These cases may be compared with those patients exhibiting general neurological manifestations following spinal anaesthesia (Critchley, 1937, *Medical Annual*, p. 33).

Dr. R. G. Abercrombie's cases of poliomyelitis following fractures (February 12, p. 359) are probably examples of the "second blow"; occurring during an epidemic, they were probably suffering from a latent virus infection of their nervous systems, which the second blow of the fracture precipitated into a full-blown infection. Corresponding experiments have been described by Speransky. Two members of his team induced in cats a mild form of tetanus by injecting tetanus toxin into the eye. After a mild illness eight out of nine cats recovered. Five days after spasmodic symptoms could no longer be elicited, a "second blow" (injection of bile into a sciatic nerve) was inflicted. The animals developed generalized tetanus, the relapse taking a more pronounced form than the original illness; practically all the animals died. I believe Speransky has presented convincing evidence that such injuries to the nervous system set in train a dystrophy of the nervous system which may have widely different results, depending on the individual nervous constitution.—I am, etc.,

Bristol, Feb. 14.

FRANK BODMAN, M.D.

Correct Footwear

SIR,—From your annotation (February 5, p. 290) and the preceding correspondence it would appear that the following conclusions command general agreement: (1) that "incorrect" footwear causes a large amount of physical and mental disability; (2) that these disabilities are preventable and, when established, to some extent curable by "correct" footwear; (3) that something should be done in collaboration with the boot-and-shoe trade to encourage the public to adopt "correct" footwear; and (4) that a committee composed of medical and trade representatives might be set up to make a comprehensive study of the problem, including the accurate definition of "correct" and "incorrect" footwear.

Rational folk of my acquaintance know what they mean by "correct" footwear—namely, boots, shoes, slippers, etc., which serve the wearer's purpose without causing him (or her) any mental or bodily disability. Such footwear is made by at least one firm of manufacturers in this country, though it is sold only by certain, and a limited number of, "untied" retailers at prices beyond the means of many people.

From the private correspondence received since the publication of my former letter (December 25, 1937, p. 1302) it would appear that many doctors are deeply concerned at the prevalence of the "tied" retailers in their district, and at the difficulty of obtaining "correct" footwear now that the craftsman in his own business is almost a relic of the past. These observations, and the question of price, suggest to me that the representatives of the trade on any committee of inquiry which might be set up (and this would appear to be desirable) would be up against a far more difficult problem than that con-

But apart from all this, surely ordering purgative treatment in bacillary dysentery is breaking one of the most sacred basic laws of sound therapeutics? Is it not definitely stimulating an inflamed organ—as bad a crime as exercising an acutely inflamed joint, for instance, or giving diuretics to a case of acute nephritis? The patient and the patient's bowel obviously need to be given rest with opium and belladonna, so that the ulcers can be given time to heal and specific treatment—for example, with bacteriophage—can have a chance to work.

In my experience results obtained by this method are sometimes almost spectacular, and nearly all cases seem to respond far more rapidly than those that are given frequent purges.—I am, etc.,

Calcutta, Feb. 15.

FRANK MCCAY.

Acute Appendicitis

SIR,—With reference to the article of Dr. A. M. Spencer on the aetiology of acute appendicitis in the *Journal* of January 29 (p. 227) the following case history is worthy of record.

The patient was a male cook aged 34. Five months before operation for appendicitis on January 19, while he was trying to inflate the subcutaneous tissue of a sheep through a cut in the skin of the leg, to facilitate skinning the carcass, he felt that he swallowed some of the hair. A few months later he had an attack of severe colicky pains all over the abdomen, which subsequently localized in the right iliac fossa. The attack was accompanied by nausea but no vomiting. There was a rise of temperature. The clinical examination some days after the attack revealed an appendicular mass. Operation was performed six weeks later.

The pathological report of the specimen, by Dr. Anise Onsi Bey from the laboratories of the Ministry of Health, was: "Purulent appendicitis; appendix contained foreign matter (hairs) in the lumen and also embedded in the tissue under the mucosa, showing distinct reaction around the hairs."

—I am, etc.,

Demerdache Hospital, Cairo, Feb. 11.

H. STIVEN.

The Radiologist's Range of Service

SIR,—I am in entire agreement with Mr. H. Osmond Clarke (*Journal*, February 5, p. 310) when he says:

"But a radiologist has neither the special training nor the wide experience which enables him to speak with authority on clinical end-results. . . . Thus it is quite unfair to him and to the patient that he should be asked to express any opinion on the treatment of a fracture."

In reply to this letter the writer who hides behind the hieroglyphic B.M./MC5W (February 19, p. 422) says:

"I would like to point out that in fact a radiologist does see patients at all stages, and that he sees at least as many films as the rest of his hospital staff put together and, supposing that he has any intelligence at all, he gets a very good idea not only of the efficacy of various surgical performances but also of the judgement and ability of the surgical performers."

Now I am quite prepared to believe that this writer sees x-ray films of fractures at many different stages, including the time when firm union has occurred. After this it is rare for further films to be taken, but it is not until after this that the end clinical result is obtained. The writer apparently judges the result of a fracture by the radiographical appearance, forgetting that the functional result is what really counts. This is a pity and the very reason why radiologists' advice on the treatment of fractures should not be sought, especially when every effort is being made to teach our students that good function is the most important thing in the treatment of fractures.

Dr. F. Hernaman-Johnson in the same issue (February 19, p. 422) appears to imply that a general practitioner, before calling in a consulting surgeon in a fracture case, should talk the matter over with a radiologist. Radiologists give invaluable help in the diagnosis of fractures, but why they should be consulted in the matter of treatment I cannot imagine. Surely it is better for a general practitioner to talk things over with a fellow general practitioner.—I am, etc.,

London, W.1, Feb. 19.

JOHN HOSFORD.

The Problem of the Final M.B., B.S.Lond.

SIR,—The problem of the M.B., B.S. of London University is weekly becoming more and more the problem not only for the members of the Conjoint Board but for every member of the medical profession who is not a holder of the London M.B. We cannot afford to tolerate the exaltation of this degree at the expense of other qualifications. For weeks I have been awaiting the onslaught of the offended legions upon its haughty holders. How much longer must I wait?

Comparisons are odious, but if made at all should be made for all, at least when made in public. What a pretty picture a comparative table of the merits of all the university degrees would make! But it would not be "cricket," nor does it seem to my humble intelligence to be "playing the game," to allow invidious comparisons between the London M.B. and the M.R.C.S. to appear in a public journal, and still worse in one which is supposed to be upholding the interests of the whole of the medical profession. It would seem that the object of the "highbrows," apart from enhancing their own prestige, is to make it more and more expensive and difficult for middle-class parents to provide their children with a livelihood. The birth rate is falling, and they wonder why! If they honestly think that ever-rising standards of education are in the best interests of the race I would ask them to think again, and think earnestly and disinterestedly.

The time has arrived to put a stop to the "cut-throat" competition to add to our names letters which at present mean little to the public but may soon mean so much that they will demand nothing less than an F.R.C.S. for first-aid work. We don't want to become "sandwich men" with honour degrees on strike for refuse collectors' wages. Qualifications which satisfy the General Medical Council should satisfy all and no additions should be encouraged. If advertising is undesirable in any form it is more so in this form.

Is it really right to deprive children of the joy of childhood and to fill their lives with work and worry? Are examinations in their present form the best means of detecting and rewarding the best citizens or are they merely or mainly detectors of a retentive memory and little else? Has the time not arrived to assess and give credit for other and more important qualities and to reduce the time spent in accumulating facts mostly forgotten or out of date when they are wanted? Finally, when is "boosting" the London M.B. not advertising?—I am, etc.,

Gosport, Feb. 3.

G. W. FLEMING.

SIR,—I have followed keenly the letters concerning the problem of the final M.B., B.S.Lond. It seems to me that the opinion of the young graduate should be voiced.

In defence of the young practitioner I would like to reply to Dr. C. S. Staddon's letter in the *Journal* of February 5 (p. 309). If, as has been stated, a fair number

probably inflicted by a combination of acid irritant and nail trauma. On his advice the lesions were treated with flavine and paraffin and the patients were impressed with the importance of leaving the lesions strictly alone. After application of flavine the lesions healed with great rapidity.

The first patient was seen on December 1, 1937, and all the lesions were covered by a firm scab. No further lesions had appeared. The second patient did not report for inspection, but on inquiry the lesions were said to have healed.

No definite irritant was incriminated, but the patients had access to dettol 1 per cent. solution, and a lysol jar in which forceps were kept was normally placed on a table between the two beds.

I wish to record my thanks to Mr. Carnac Rivett for permission to publish these cases and to Dr. H. MacCormac for his help in the diagnosis and treatment.—I am, etc.,

London, S.E.5, Feb. 1.

O. LLOYD, M.B., B.S.

Referred Pains arising from Muscle

SIR,—I read with much interest Mr. J. H. Kellgren's article on this subject in the *Journal* of February 12 (p. 325). By combining Dr. T. Stacey Wilson's mallet method of dealing with nodules with a previous injection of novocain into the fibrositic masses I have obtained results similar to those of Mr. Kellgren. The amount of novocain required is much less, the average dose being from 2 c.cm. to 5 c.cm. The results are immediate, and although I have not yet used this treatment for long and the number of patients is small, there has so far been no return of the pain.—I am, etc.,

Cheam, Surrey, Feb. 15.

STUART GOLDHURST.

Recovery in the Spinal Cord

SIR,—My letter (February 5) was not intended to express dissatisfaction with Dr. J. Purdon Martin's statements, as I was unable to attend his lecture, but to correct the impression which the report gave. As he now makes clear (February 19) the "rightful position" of interference with the circulation is "on an equality with, not subordinate to, damage to the structure of the cord." Dr. Martin adds that "ischaemia is at most only the means by which more primary factors exert their influence," nevertheless its treatment by every method at our command is theoretically important and clinically urgent.—I am, etc.,

Northfield, Birmingham, Feb. 21.

F. A. PICKWORTH.

Dangers of Immune Globulin

SIR,—The prevention or modification of measles by the use of convalescent or adult serum is now established as a useful procedure; but the inconvenience of preparation and the absence of a commercial supply have probably led medical men to show interest in the preparations of immune globulins, prepared from placenta, which are now on the market. These are represented as affording the means of complete control of measles infection, and are recommended by the makers for universal use, with very little insistence on unpleasant results from their use.

A limited experience of these products has been sufficient to show me that there are disadvantages associated with them of which other practitioners may be as ignorant as I was myself. The circulars of the manufacturing chemists, which provide us general practitioners with our postgraduate instruction in therapeutics, cannot be expected

to do anything but minimize the drawbacks of the preparation advertised; but to describe the possible reactions produced by placental extracts as "local irritation and also rise of temperature, with malaise, in some subjects," is apparently an understatement. Two recent patients of my own who were given doses appropriate to their ages according to the maker's recommendation suffered from such serious collapse as thoroughly to alarm both the parents and the medical attendant and to make them feel that the cure was worse than the disease. Within an hour of the injection the patients vomited, and when I saw them were lying in a condition of semi-coma, cold, pale, and almost pulseless; this condition lasted about two hours and was followed by pyrexia, with such pain at the site of injection and down the leg as to prevent sleep far into the night. Next day there was still slight fever and considerable pain, though both patients had obviously recovered.

We are accustomed to feeling secure from serum-sickness and anaphylaxis when using convalescent serum, and I feel that my experience, though perhaps exceptional, is worth recording as a warning that placental extracts cannot be used quite so light-heartedly.—I am, etc.,

Wimbledon, Feb. 20.

GARETH A. EASON.

Coproliths and Appendicitis

SIR,—In the issue of January 29 (p. 227) Dr. A. M. Spencer stresses the importance of coproliths in the aetiology of acute appendicitis, apparently on account of the 70 per cent. incidence in what appears to be a series of twenty cases. In a consecutive series of 528 appendicectomies I found the incidence of coproliths to be as follows:

In 47 incidental appendicectomies during operations on other viscera, six instances—12.8 per cent.

In 198 indubitably acute cases (where perforation, gangrene, or an abscess was present), eighteen instances—9 per cent.

In 114 cases where the appendix was found not to be the cause of symptoms, fourteen instances—12.3 per cent.

In 169 chronic cases, twenty-seven instances—16 per cent.

While coproliths therefore seem to me aetiologicaly unimportant, their presence may often determine the site of ulceration and perforation in acutely inflamed appendices.—I am, etc.,

London, Feb. 14.

MALCOLM BAILLIE, F.R.C.S.

Treatment of Bacillary Dysentery

SIR,—I have read the article and letters on bacillary dysentery that you have recently published with interest, as I see a great many cases here in Calcutta and have had a Flexner infection myself.

I am certain that the old purgative treatment—giving drachm doses of magnesium and sodium sulphate every four hours or so until the stools become almost completely watery—is wrong. In mild cases, with the patient complaining of abdominal pain and tenesmus and of having a stool, say, every hour, symptoms are made worse, and in severe cases, especially in old people, it is terribly drastic. Most authorities now agree, moreover, that although this treatment flushes the bacteria, toxins, blood, and pus from the lumen of the large intestine, and although it may reduce the oedema of the mucous membrane, it does not alter the course of the disease appreciably. I think that patients can usually be left to get rid of the contents of the large bowel themselves, although some may require a very light dose of salts at one stage or another of the disease process.

house-surgeon to the Adelaide Hospital, Dublin, and later he served as surgical clinical assistant at the London Hospital. At Littlehampton he built up a successful practice and held the appointments of surgeon to the Littlehampton Hospital, Arundel Hospital, and the West Sussex County Mental Hospital. He had been visiting surgeon to the Graylingwell War Hospital and medical officer in charge of Slindon House Red Cross Hospital, and was latterly consultant surgeon to the Arundel Hospital. He had been a member of the British Medical Association since 1891.

Rear-Admiral CARY T. GRAYSON, M.D., chairman of the American Red Cross and of the International League of Red Cross Societies, died in Washington on February 15 at the age of 59. The son of a Virginian doctor, he had a most distinguished career in the service of the U.S.A. Government until his retirement from the Navy ten years ago. He had been the medical attendant and intimate friend of three Presidents of the United States—Theodore Roosevelt, William Howard Taft, and Woodrow Wilson.

The death is announced, at the age of 86, at Pau, of Dr. DOLERIS, who in 1924 was President of the French Academy of Medicine. His interests were wide; he made his mark in medicine as a gynaecologist, but he also played a distinguished part in scientific agriculture, and he represented his constituency in the French Parliament between 1921 and 1924. The late Dr. LE TELLIER was at one time President of the Ligue Française Homéopathique, and in 1933 he was the President of the International Homoeopathic League.

The following well-known foreign medical men have recently died: Dr. RICHARD HERMANN JAFFE, an eminent pathologist and bacteriologist of Vienna, aged 50; Geh. San. Rat Dr. STODER, for many years leader of the Bavarian medical profession; Dr. OTTO KREN, a distinguished Viennese dermatologist; Dr. M. BOGUNOVIC, professor of gynaecology at Belgrade; Dr. LÉON BELLIN, the Paris oto-rhino-laryngologist, aged 64; Dr. RAYMOND SABOURAUD, the eminent Paris dermatologist and great authority on parasitic diseases of the skin, especially ringworm, aged 73; and Professor WERNER KÖRTE, permanent secretary of the German Society of Surgery and an authority on the surgery of the pancreas and bile ducts.

Mr. HARTLAND S. WRIGHT, who died on February 16 in his ninetyeth year, was actively associated with the business of John Wright and Sons Ltd., the Bristol printers and publishers, for over seventy years, and had been chairman since the incorporation of the company.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on February 22 the Regius Professor of Medicine, Sir Farquhar Buzzard, proposed that the degree of Doctor of Medicine be conferred by decree of the House upon the following four newly appointed Professors:

H. W. B. Cairns, Fellow of Balliol, Nuffield Professor of Surgery.

R. R. Macintosh, Fellow of Pembroke, Nuffield Professor of Anaesthetics.

J. Chassar Moir, Fellow of Oriel, Nuffield Professor of Obstetrics and Gynaecology.

J. A. Gunn, Fellow of Balliol, Nuffield Professor of Therapeutics.

The House approved the conferment of these degrees.

UNIVERSITY OF CAMBRIDGE

At a congregation held on February 19 the following medical degrees were conferred:

M.B., B.Chir.—S. B. Darbishire, *E. B. Hacking, *M. Williams, L. H. Cane, H. G. W. Hoare, J. M. G. Wilson, G. Sheers, R. McK. Miller.

M.B.—S. A. Probert, *G. L. Foss, R. E. Rodgers.

* By proxy.

The Professor of Physiology announces that a public lecture will be given in the Lecture Theatre of the Physiological Laboratory on Thursday, March 10, at 5 p.m., by Professor A. P. H. A. De Kleijn of the University of Amsterdam. The subject of the lecture is "Some Remarks on Vestibular Physiology."

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

A special University Lecture in biochemistry on "The Role of Dicarboxylic Acids in Metabolism" will be given at University College, Gower Street, W.C., by Dr. P. E. Verkade, professor of chemistry and chemical technology in the Nederlandsche Handels-Hoogeschool, Rotterdam, on Thursday, March 10, at 5 p.m. The lecture, which will be delivered in English, has been arranged under a scheme for the exchange of lecturers between England and Holland. It is addressed to students of the University and to others interested in the subject, and will be illustrated with lantern slides. Admission is free, without ticket.

UNIVERSITY OF LEEDS

Dr. M. J. McGrath, medical superintendent of the West Riding Mental Hospital, has been appointed lecturer in mental diseases.

UNIVERSITY OF EDINBURGH

The Senatus Academicus, on the recommendation of the Faculty of Medicine, has awarded the Cameron Prize for 1936 to Karl Landsteiner, M.D., member of the Rockefeller Institute for Medical Research, New York; and the Straits Settlements Gold Medal to Thottakat Bhaskara Menon, M.D., M.R.C.P.

The Services

ARMY MEDICAL SERVICES

The War Office announced on February 21 that the King has approved of the following promotion and appointments:

Colonel F. Casement, D.S.O., late R.A.M.C., Deputy Director-General, Army Medical Services, at the War Office, to be promoted to the rank of Major-General and to be appointed Deputy Director-General of Medical Services, Southern Command, with effect from April 15, in succession to Major-General O. Ievers, C.B., D.S.O., K.H.S., late R.A.M.C., who will vacate the appointment on completion of four years' service as Major-General.

Colonel O. W. McSheehy, D.S.O., O.B.E., at present Assistant Director of Medical Services, Home Counties Area (West) at Woolwich, to be Deputy Director-General, Army Medical Services, in succession to Colonel Casement.

DEATHS IN THE SERVICES

Squadron Leader RONALD ELTRINGHAM ALDERSON, R.A.F.M.S., was killed on February 18 near Athlit, south of Haifa, Palestine, when the taxi in which he was travelling was fired on by a party of bandits, a lady travelling in the same car being also dangerously wounded. He was educated at Durham University, where he gained a University Scholarship in 1922, the Goyder and Philipson scholarships in 1927, and graduated M.B., B.S. in 1927. After filling the posts of house-surgeon at the Royal Victoria Infirmary, Newcastle-upon-Tyne, and medical officer of the Ministry of Pensions Hospital at Newcastle, he entered the Royal Air Force, and at the time of his death was serving in the R.A.F. General Hospital for Palestine and Transjordan, to which he was posted as squadron leader on March 14, 1927.

Lieutenant-Colonel ALFRED THOMAS IRVINE LILLY, R.A.M.C. (ret.), died at Ealing on February 13, aged 76. He was born at Hingoli in the Deccan, India, on September 8, 1861, was educated at St. George's Hospital, and took the M.R.C.S., L.R.C.P. in 1884. He entered the Army as surgeon on January 31, 1885, became lieutenant-colonel after twenty years' service, and retired on December 28, 1917. He served in the South African War from 1899 to 1902, taking part in the operation in the Orange Free State, the Transvaal, and Cape Colony, including the actions at Belfast and Lydenburg, and received the Queen's medal with three clasps and the King's medal with two clasps. He also served in the war of 1914-18.

of those who take the conjoint examination *could* pass the M.B., B.S., why do they not do so? Is it not that they embarked upon medicine without a matriculation standard of general education, or else that they failed to stay the course?

It was somewhat disconcerting to read of the shortcomings of graduated assistants. From the letter in question one gathers that they are completely incapable. I suggest that the young assistant fresh from a house job is often better versed in modern technique than his employer. For example, he has usually been dealing with more cases daily that require minor surgical procedure than the general practitioner deals with in a month. In fact he often leaves his hospital post with the impression, judging from cases he has seen in the casualty department, that many practitioners are either incapable or lazy. Incidentally, the practitioner should surely show some discrimination when engaging an assistant.—I am, etc.,

BASIL S. KENT, M.B., B.S.Lond.

Crouch End, N.8, Feb. 8.

Obituary

HERBERT LUND, M.B., F.R.C.S.

We regret to announce the death on February 18, in his eightieth year, of Mr. Herbert Lund of Manchester.

The son of Edward Lund, F.R.C.S., one-time professor of surgery in the Owens' College, Manchester, he was born in 1858. Edward Lund moved from Surrey to Manchester and became a leader in the surgical life of the town, and continued in activity for many years. He introduced Listerism into the Royal Infirmary when others remained aloof and scornful of its reputed virtues. Herbert Lund took his B.A. in the Natural Sciences Tripos at Cambridge in 1881 and the M.B., B.Ch. five years later. In the meantime he qualified from Guy's Hospital with the M.R.C.S. in 1885, and after holding resident posts in the hospital he settled in Manchester. The F.R.C.S. was received in 1887, and in 1889 he was appointed honorary assistant surgeon to Salford Royal Hospital. He continued in active work there until his sixtieth year in 1918, when by regulation of the hospital he joined its consulting staff. In the war of 1914-18 he was attached to the 2nd Western General Hospital with its headquarters in Manchester, and later was a referee on the War Pensions Board in Salford. Useful service was done for many years as medical referee to Lancashire County Courts under the Workmen's Compensation Act. Although he kept the name of Lund alive in Manchester and Salford, he was of a somewhat retiring nature and did not take such a leading part in its consultant and scientific life as his father, who was twice president of the Medical Society (1863 and 1881); secretary from 1850 to 1853, and one of its most useful members.

Herbert Lund published some papers on the surgical treatment of diseases of the urinary organs. He was a keen and extensive stamp collector and a member of the local Philatelic Society. He had been a member of the British Medical Association for twenty-eight years, and when the Association held its Annual Meeting at Manchester in 1902 he acted as secretary of the Section of Surgery.

We regret to record the death on February 10 of Dr. JOHN COURTENAY MACWATTERS at his residence in Almondsbury, near Bristol, at the age of 64. He entered the Bristol Medical School in 1891, and obtained the diplomas M.R.C.S., L.R.C.P. five years later. In 1897 he was appointed to the newly created post of resident obstetric

officer to the Bristol Royal Infirmary, where he was also house-physician and clinical assistant. About 1901 he removed to Almondsbury, where he had lived ever since, taking a long and very active interest in Almondsbury Memorial Hospital, of which he was medical officer. He built up a large general practice and was very popular throughout the district. At one time he devoted himself to the possibilities of therapeutic immunization, contributing articles on this subject to the *British Medical Journal* and other periodicals. An article by him on the vaccine treatment of pyorrhoea appeared in the *Journal of the British Dental Association* in 1913. Dr. MacWatters had been a member of the British Medical Association since 1899.

Mr. ERNEST CHARLES ARNOLD, F.R.C.S., who died on February 10 at his residence in Westbourne Road, Forest Hill, at the age of 77, had been a member of the British Medical Association for over forty years. He was a medical student at St. George's Hospital, graduating M.B.Durham in 1886 and obtaining the diploma F.R.C.S. in 1888. He had studied also in Vienna and Berlin, his special interest being ophthalmology. At St. George's Hospital he held the posts of senior assistant demonstrator of anatomy, ophthalmic assistant, and house-surgeon. Other appointments held by him earlier in life were those of out-patient officer to the Royal London Ophthalmic Hospital and refractionist to the Royal Westminster Ophthalmic Hospital. He was ophthalmic surgeon to the cottage hospital in Welwyn Garden City and ophthalmic medical officer for out-patients to Queen Mary's Hospital, Stratford. Mr. Arnold was for some time in the service of the London County Council as an ophthalmic officer. He was a member of the West Kent Medico-Chirurgical Society; and during the war held a commission as captain R.A.M.C.

Dr. FRANK PATTERSON, F.A.C.S., Leader of the Conservative Party in British Columbia and of the Opposition in the Legislature, died in Vancouver on February 11 at the age of 61. He graduated at McGill University in 1898, and subsequently specialized in bone diseases, becoming widely known for his work among crippled children. He held a commission during the war. He was a member of the Canadian Medical Association, the North Pacific Surgical Association, and was elected a Fellow of the American College of Surgeons. After a very full professional life Dr. Patterson turned his attention to politics, being elected party leader eighteen months ago and to the Legislature last year. His work as Leader of the Opposition during the last session was conducted under the great handicap of serious illness.

Dr. HENRY ANGUS, who was medical officer of health for Bingley, Yorks, for over thirty years before his retirement in 1933, died at his home on February 14, aged 74. A medical student of Aberdeen, who graduated M.B., C.M. in 1886 and M.D. in 1898, he played a large part in helping to raise the standard of health in the district which he served. He was closely connected with Bingley Hospital for many years, and during the war worked at Morton Banks War Hospital. Dr. Angus was a former president of the Bradford Medical Society, of which he had been a member for nearly fifty years, and was an honorary life member of the St. John Ambulance Association.

Mr. ROBERT MARSHAL GOING, F.R.C.S., late of Littlehampton, died at his residence in Tonbridge on February 14. He was the son of the late Archdeacon Going of Killaloe, and was born in 1867. He was educated at St. Columba's College, Trinity College, Dublin, and the London Hospital. Having taken the L.M. at the Rotunda Hospital in 1890, he graduated M.B., B.Ch., B.A.O. in 1891, obtained the diplomas M.R.C.S., L.R.C.P. in 1896, and proceeded F.R.C.S. in the next year. In 1891 he was

dents, but the Board of Control had answered inquiries from local authorities and medical superintendents in so far as it was competent for the board to advise.

Typhoid and Tinned Foodstuffs.—On February 15 Mr. BERNAYS informed Mr. Rhys Davies that in connexion with outbreaks of typhoid fever investigations had been made into the possibility of contamination from tinned foodstuffs. All articles of food and drink consumed by the patients during the material periods were considered. The Minister of Health was not aware that the source of infection in any outbreak of typhoid fever had been traced to the consumption of tinned foodstuffs.

Tyneside Health Services.—The Minister of Health has sent letters to the Northumberland County Council and the Newcastle City Council suggesting informal exploration by the two authorities of the possibility of co-ordinating public health medical services. The city council has agreed to appoint a committee to consider the matter, and the county council had the subject before them this week.

Employment of Water Engineer by Local Authorities.—On February 21 Sir KINGSLEY WOOD informed Mr. Rhys Davies that all local authorities with populations of 200,000 and over other than the Croydon Corporation had a water engineer who was employed solely for the purpose of supervising their water supply undertaking.

Pulmonary Disease among Coal Miners.—On February 22 Earl WINTERTON, replying to Mr. J. Griffiths, said that following the closure of the pit originally selected by the special committee of the Medical Research Council the investigation into chronic pulmonary disease among coal miners was transferred to the Ammanford Colliery, South Wales, early in December. Satisfactory progress was being made there, both in the medical and in the environmental inquiries. The work at this colliery would probably be completed about the end of March, after which some time would have to be given to a study of the information collected. It was proposed thereafter to extend the investigation to another anthracite colliery, but the selection of a pit would depend on the results of the work at present being done. It was not yet possible to indicate any date for the completion of the investigations as a whole.

Nutrition Investigation at Stockton.—Sir KINGSLEY WOOD, replying to a question put down by Captain Elliston on February 22, said the Stockton-on-Tees Town Council had informed him that in present circumstances it was not possible for them to release their medical officer of health, who was a full-time officer of the corporation, to undertake the proposed investigation by the Ministry into problems of nutrition. The investigation would entail about one day per fortnight for one year.

Notes in Brief

During 1937 the Minister of Health approved 4,235 orders for clearance of slum areas. The orders were made by 409 local authorities in England and Wales and affected 192,000 persons.

Patients discharged by the Board of Control from certified institutions under the Mental Deficiency Act, 1913, were: 152 in 1936 and 200 in 1937.

All local supervising authorities in the county of Devon have prepared proposals under the Midwives Act, 1936. The Minister of Health has no information of a shortage of certified midwives in that county.

Glasgow Corporation completed 1,841 houses in 1937 and 1,985 in 1936.

A memorandum for local authorities containing information relative to the Factories Act is in course of preparation.

In England and Wales approximately 1,000,000 persons remain to be rehoused from houses included in the slum clearance programmes of local authorities.

The latest figures of juveniles in attendance at the three junior instruction centres conducted by the Rhondda local

education authority who have been certified as in need of supplementary nourishment show an increase on earlier figures.

At the end of January 2,121 officers, nurses, and men were receiving hospital treatment for war disabilities.

On March 31, 1937, the latest date for which figures are available, 29,385 physically defective children and 13,815 mentally defective children were on the registers of certified special schools in England and Wales.

Sir Samuel Hoare states that under the silicosis schemes the medical board can, and often does, give a certificate where the silicosis is not the primary cause of death but is a secondary and accelerating cause.

The cost of the research work at present directed by the Industrial Health Research Board is approximately £9,500 yearly. The programme has not included any research into rheumatism.

SOCIETY OF APOTHECARIES' DINNER

The Society of Apothecaries of London held a Livery Dinner on February 22 at the Hall of the Society, the Master, Mr. Hugh Lett, being in the chair. After the loyal toasts had been honoured the health of the Society was proposed by Sir StClair Thomson, who introduced himself in the terms of the title of one of Priestley's plays—"I have been here before." The first occasion was in 1881, when, after an interview with the examiners at Apothecaries' Hall, he had sent off the following telegram: "Dearest Mother, I am licensed to kill." This, he said, launched him on fifty-seven years of happy work in the medical profession. As he was now enjoying *otium cum dignitate* he had avoided "mugging up" an impromptu speech. Sir StClair's discourse then centred upon a plaque of glazed pottery bearing the Arms of the Society, which he was about to present to it. After sketching the history of Lambeth pottery from the days of Charles I to George III he gave a racy account of the anatomy of heraldry, which he linked up with the perennial youth of the Society of Apothecaries.

In response the Master said that Sir StClair Thomson had long been known as "the honey-tongued Nestor" of our profession. In briefly recording recent events in the life of the Society he referred to the fact that during the past few months they had promoted to the Livery Mr. W. T. Withers, who had come to the Society as assistant bedel in 1887. It was not possible, Mr. Lett continued, to overstate the value Mr. Withers had been to the Society, and in welcoming him to the dinner he presented him with a memento from a past Master. He drew attention to the special lighting of the pictures "in the next room," and told the story of how Sir Joshua Reynolds had managed to get Hunter to sit for a portrait without a beard; the one with a beard was at Apothecaries' Hall and the one without at the Royal College of Surgeons. Mr. Hugh Lett also mentioned a tablet of Robert Harris, a Master of the Society in 1687, which had been discovered in Wisbech. Finally he thanked Sir StClair Thomson for the valuable plaque he had presented. The health of the guests was proposed by the Junior Warden, Mr. L. Vernon Cargill, who mentioned that both he and Sir StClair Thomson had been house-surgeons to Lister. In welcoming Dr. G. C. Anderson, the Secretary of the British Medical Association, he reminded those present that the Society of Apothecaries, together with the B.M.A., had formed the *Register of Medical Auxiliaries*.

Replying for the guests, Dr. Anderson returned thanks for the kindly hospitality they had all received. He recalled that in his student days he was taught that at times it was necessary to administer a corrective, and lately it had been his task to consider what correctives should be administered as regards medicine to the public of this country through the Press. A doctor drunk in charge of a car was "news," as he always was when he got into trouble. They should try to make news of the more normal and pleasanter aspects of his professional life.

Medical Notes in Parliament

Both Houses of Parliament this week debated foreign policy on the resignation of Mr. Eden from the Secretaryship of State for Foreign Affairs.

In the House of Lords on February 17 the Divorce and Nullity (Scotland) Bill passed through committee. On February 22 in the same House the Population (Statistics) Bill and the Blind Persons Bill, which passed the Commons on February 17, were read a first time.

By 150 to 198 the House of Commons carried on February 16 a motion proposed by Mr. Leach which called for a committee to inquire into the practicability of granting a pension of 10s. weekly to spinsters at 55 years of age.

The National Health Insurance (Amendment) Bill was read a second time in the Commons on February 17. Sir Kingsley Wood explained that it was intended to preserve to certain persons in "family employment" the right to a free insurance period and the option of becoming voluntary contributors.

Dr. Haden Guest moved the second reading of the Bakehouses Bill in the House of Commons on February 18. The object of the Bill is to prohibit night work in bakehouses. He said the men worked in dust, high temperature, and glaring light which affected their eyesight. The Registrar-General reported that there was among bakers a high death rate from phthisis. The Bill was read a second time by 147 to 126.

A conference between dental practitioners and the Parliamentary Medical Committee was arranged for February 24.

Parliament and Rheumatic Disease

Fifteen members of Parliament accepted an invitation to attend a meeting convened by the Medical Committee of the House of Commons on February 17 to discuss the formation of a Parliamentary Group to assist the Empire Rheumatism Council. Sir Francis Fremantle presided. Lord HORDER said rheumatism cost this country £17,000,000 annually in wages and in sick pay paid by the approved societies alone. Medicine was greatly in arrears in an exact survey of the field and in assaying causative factors. To fill that gap in the national health defences the Empire Rheumatism Council came into being. The Council hoped to be able to say what was really the position in this country and in the Dominions. From the Falkland Isles, Fiji, Rhodesia, and elsewhere useful facts and suggestions had been received and research into this information was being instituted. Old fallacies were being exposed. Australia, for example, showed as much rheumatism despite its sunny and dry climate as did Great Britain. This confirmed the growing belief that the climatic factor in causation had been overestimated. Climatic and environmental factors were likely to prove determining rather than primary or essential. These essential causes so far eluded research, or perhaps did not so much elude as confuse. Enthusiasts and empirics attributed rheumatism to a focus of microbic infection, to defective nutrition, to climatic, to occupational, or to nervous factors, but the problem was more complex than that. Side by side with the double task of searching for causes and of segregating types of rheumatic diseases the Council proposed an inquiry into all accepted methods of treatment now followed. In this task the staff of the Ministry of Health was with them. Lord HORDER suggested that any member of either House who was willing to help the Council would be invited to join its ranks, and the Parliamentary Group would be asked to nominate

members to the key committees of the Council. They could give great practical help in educating the public and in enlisting the sympathy of the leaders of industry. The Council would also look to the Parliamentary Group for advice on all questions affecting legislation and public administration. Other speakers were Sir William Willcox, Dr. Mervyn Gordon, Dr. W. S. C. Copeman, and Sir Frank Fox.

Voluntary Patients in Mental Hospitals

Mrs. TATE asked on February 17 the number of voluntary patients applying for treatment at public mental hospitals in each year since the passing of the Mental Treatment Act, 1930, and the number of these patients who were subsequently certified. Sir KINGSLEY WOOD, in reply, furnished these statistics:

Year	Admissions	Subsequently Certified
1931	1,495	65
1932	2,295	108
1933	2,961	131
1934	4,078	129
1935	5,834	181
1936	6,904	177

Figures for 1937 are not yet available.

Price of Milk to Hospitals

On February 21 Mr. W. S. MORRISON, replying to Mr. C. Wilson and Mr. Boulton, said that the milk-in-schools scheme was initiated with a view to encouraging the milk-drinking habit in children. Different considerations applied to the question of the price paid for milk by hospitals. Mr. BOULTON asked if the Minister did not think that the hospitals were receiving somewhat exceptional treatment and if he would consider some other method. Mr. MORRISON replied that at present the hospitals were getting milk at wholesale rates. He did not see why producers of milk should supply milk below cost price any more than those who supplied bandages should do so. Replying to further questions, Mr. Morrison said he was not aware of the statement that had been published that the cost of milk to hospitals had now gone up by £400,000 a year. If there had been an increase in the cost of milk to hospitals it should be compared with the price charged at the time when the whole industry was in a state of collapse, and if it had not been for the action of the Milk Board there would have been a serious shortage of milk in this country.

Maternity Services in Scotland

In replying to Mr. Westwood on February 22 Mr. ELLIOT said that agreement had been reached with the Scottish Committee of the British Medical Association on the revised terms of remuneration which they were prepared to recommend for acceptance by members of the Association for medical services under the Maternity Services (Scotland) Act, 1937. It had been agreed that the basic fee should be 40s. per case for all attendances during pregnancy, labour, and the lying-in period, including ante-natal examinations and a post-natal examination. Insured women were entitled to certain ante-natal services under the national health insurance scheme, and accordingly it had been agreed that in these cases the basic fee should be 36s. The terms would be subject to review at the end of an experimental period of two years.

Replying to a further question by Mr. Westwood, Mr. Elliot said he understood that there would be some arrangement between the local authorities and the medical practitioners to give effect to the scheme he had outlined.

Mental Hospital Patients and Matrimonial Causes Act.—On February 15 Mr. SORENSEN asked the Minister of Health what advice had been given to medical superintendents of public mental hospitals respecting patients likely to be affected by proceedings under the Matrimonial Causes Act. Mr. BERNAYS replied that the matter had not been made the subject of a general communication to medical superintendents.

EPIDEMIOLOGICAL NOTES

Enteric Fever

One further case of typhoid fever in the Somerset outbreak was notified during last week, the number now being 40, while the addition of one fatal case brings the total number of deaths to 6.

Dysentery

Bacillary dysentery appears to be on the increase in England and Wales, the notifications for the week being 242 compared with 215 in the previous week. For London the figures are 91 and 50 respectively. The increase affected chiefly the home counties: there were notified in Middlesex 23 cases, in Essex 9, Kent 15, Surrey 11; in all areas the disease was widely scattered in both urban and rural districts. In London boroughs the figures were as follows: Wandsworth 35, Shoreditch 6, Kensington 5, Islington 5, and 4 each in Chelsea and Holborn.

Diphtheria

Notifications of diphtheria in England and Wales continue to drop, there being 1,738 for the week compared with 1,874 in the previous week; the London figures remained almost stationary. The deaths in England and Wales for the week have been 29, compared with 37 in the previous week, and 3 compared with 4 in the county of London. In Eire notifications rose from 58 to 78, while in Scotland and Northern Ireland they were practically the same. Diphtheria appears to have increased in incidence and severity in Leeds, in which town 37 cases were notified compared with 19 in the previous week; during this period there were 2 fatal cases, while in the previous week no deaths were reported. The incidence in the West Riding (Yorks) has declined slightly from 221 to 207, in Bradford from 30 to 13, and in Sheffield from 49 to 45.

Scarlet Fever

The incidence of scarlet fever in England and Wales has dropped during the week from 2,417 to 2,326, but is still greater than the median value for the last nine years—1,999. In London notifications have increased from 168 to 193, but the numbers remain well below the median value of 242.

Measles

During the week under review there were in England and Wales 40 deaths from measles, as compared with 27 in the previous week. The principal towns affected were Greater London 7 (7), administrative county of London 6 (3), Liverpool 15 (6), Manchester 6 (5), Bristol 2 (1). The figures in parentheses denote the deaths in the previous week. During the same period 1,417 cases were reported from the L.C.C. elementary schools, compared with 1,152 in the previous week, and the average daily admissions to the L.C.C. fever hospitals were 53 compared with 39 for the previous week. During the same week 31 cases were notified in Stepney, 11 in Shoreditch, 7 in Bermondsey, making a total of 49 compared with 37 last week. There were no notifications of measles in the Port of London during the week under review. It should be emphasized that these figures refer to cases reported to the London County Council, from whose weekly returns they are taken. Measles is notifiable in certain metropolitan boroughs, the actual number and the conditions of notification varying from time to time. At present all cases of measles are notifiable in only one borough—namely, Fulham. In the boroughs of Battersea, Finsbury, Greenwich, Hampstead, Lambeth, Southwark, and St. Pancras the first cases of measles occurring within two months only are notifiable—that is, subsequent cases in a family are not notifiable unless an interval of two months has elapsed since the notification of the first case. In the boroughs of Shoreditch, Stepney, and Bermondsey notifi-

able cases are further restricted to children under 5 years of age.

In Scotland notifications of measles during the week have risen from 1,330 to 1,551, and the deaths from 17 to 20, the increase affecting chiefly Glasgow, where the figures rose from 1,020 to 1,245, while the deaths rose from 11 to 17. In Edinburgh the notifications rose from 119 to 121, while the deaths fell from 4 to 2. In Belfast the cases fell from 789 to 577, and the deaths from 25 to 19. In Dundee the cases rose from 18 to 38, and in Aberdeen from 7 to 10.

Medical News

A public meeting has been arranged on Thursday, March 3, at 8 p.m., at the Royal Society of Arts, 18, John Street, Adelphi, W.C., for a debate on "The True Path to National Fitness." The chair will be taken by Professor V. H. Mottram, and the speakers will include Professor W. E. Le Gros Clark, Miss Marjorie E. Green, and Professor J. R. Marrack. Tickets (6d. and 1s.) may be obtained at the door or from the honorary secretary, Committee against Malnutrition, 19c, Eagle Street, Holborn, W.C. A small book, *National Fitness—a Brief Essay on Contemporary Britain*, was published on February 8 by Messrs. Macmillan Ltd. at 6s. net. Some of the above speakers participated in the preparation of this book, which contains a foreword by Major-General Sir Robert McCarrison. The aim of the authors has been to provide in readable form the essential facts and figures for a critical study of this vital problem.

The following postgraduate courses will be held at the Hamburg Institute for Tropical Hygiene during 1938: (1) March 21 to April 9, course for ship doctors in the diagnosis and treatment of the most important tropical diseases occurring on shipboard; (2) July 11 to 30, Spanish course in tropical medicine for doctors, veterinarians, and zoologists; (3) October 3 to December 3, international course in tropical medicine and hygiene for doctors, veterinarians, and zoologists. Further information can be obtained from Institut für Schiffs- und Tropenkrankheiten, Bernhard Nochtstrasse 74, Hamburg, 4.

A discussion on illumination levels and comfort conditions as applied to the lighting, heating, and ventilating problem will be held at a joint meeting of the Illuminating Engineering Society with the Institution of Heating and Ventilating Engineers in the Hall of the Institution, Storey's Gate, St. James's Park, S.W., on Tuesday, March 1, at 7 p.m.

The German Institute of Psychological Investigation and Psychotherapy is organizing a postgraduate course from April 25 to 30. Further information can be obtained from the Institute, Budapesterstrasse 29/11, Berlin, W.62.

The eleventh annual meeting of the German Society for the Study of the Circulation will be held at Bad Nauheim on March 26 and 27; the main subject for discussion will be circulatory failure, and papers will be read on muscle tonus as a factor in post-operative shock; arterio-venous aneurysms; and capillary permeability. Further information may be obtained from Professor Eb. Koch, Kerchoff Institute, Bad Nauheim.

The fiftieth Congress of the German Paediatric Society will be held at Wiesbaden from March 26 to 31 in conjunction with the German Society of Internal Medicine. Further information can be obtained from the general secretary, Professor Goebel, Akademische Kinderklinik, Moorenstrasse 5, Düsseldorf.

On February 21 fire seriously damaged one of the laboratories at Elstree of the Lister Institute for Medical Research, but valuable apparatus and other material were saved. On the discovery of the fire some members of the staff fought it with hand extinguishers, while others removed most of the contents of the laboratory. Two fire brigades were called in, confining the outbreak to one building.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended February 12, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	35	6	11	—	—	33	7	3	4	1		
Deaths		1	2				8	3				
Diphtheria	1,738	203	279	78	43	1,212	166	216	44	37	1,345	204
Deaths	29	3	6	2	1	30	1	5	6	—		
Dysentery	242	91	129	—	—	19	4	1	—	—		
Deaths												
Encephalitis lethargica, acute	2	—	1	—	—	8	—	2	1	—		
Deaths		2					1					
Enteric (typhoid and paratyphoid) fever	21	3	5	9	1	49	8	4	3	1	24	—
Deaths	1	—	—	—	—	3	1	—	—	—		
Erysipelas			75	8	7			74	6	5		
Deaths		2					2					
Infective enteritis or diarrhoea under 2 years												
Deaths	65	20	9	8	5	45	11	5	3	3		
Measles			1,551	—	617*			57		2		
Deaths	40	6	20	—	19	5	—	—	3	1		
Ophthalmia neonatorum	108	9	33		1	87	5	28		1		
Deaths												
Pneumonia, influenzal§	1,155	79	6	5	25	2,539	94	119	88	20	1,974	173
Deaths (from Influenza)	40	3	5	—	2	697	50	64	51	21		
Pneumonia, primary			220	18				248	11			
Deaths		16		28	19		19		48	20		
Polio-encephalitis, acute	1	—				1	—					
Deaths												
Poliomyelitis, acute	9	1	—		1	13	5	—		—		
Deaths												
Puerperal fever	7†	7	18	2	—	35	2	24	8	1		
Deaths		2†										
Puerperal pyrexia	177	13	24		2	127	11	16		3		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,326	193	471	108	83	1,456	153	362	72	36	1,999	242
Deaths	6	—	1	—	1	3	2	1	2	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			58	—	8			710		11		
Deaths	24	4	3	—	1	39	10	14	5	—		
Deaths (0-1 year)	458	76	80	52	38	428	75	88	40	22		
Infant mortality rate (per 1,000 live births)	76	63				68	62					
Deaths (excluding stillbirths)	4,866	921	712	228	178	6,581	1,151	914	377	219		
Annual death rate (per 1,000 persons living)	12.0	11.6	13.4	15.4	15.8	16.4	14.3	17.3	25.7	21.0		
Live births	6,688	1,271	913	313	232	6,479	1,305	914	333	236		
Annual rate per 1,000 persons living	16.5	16.0	18.6	21.1	20.6	16.1	16.3	18.7	22.7	22.6		
Stillbirths	301	49				274	39					
Rate per 1,000 total births (including stillborn)	43	37				41	29					

(i) 122 great towns in 1937.
(ii) 12 " " " "
(iii) 9 " " " "

* 577 cases in Belfast alone.
† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Deaths from puerperal sepsis.
§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

anti-diphtheritic serum; stethoscope, patella hammer, two thermometers, and a spare hypodermic syringe; pronotus and tab, aspirin, co. tablets; a tube for gastric lavage, which can also be used as a tourniquet; lastly a tracheotomy tube.

Primary Vaccination at the Age of 12

Surgeon Captain PERCIVAL M. MAY (London, S.E.10) writes in answer to "Chelsea" (*Journal*, February 19, p. 432): For a period of some thirteen years at the Royal Hospital School, Greenwich, where all new entrants had to be vaccinated, the total number of boys admitted was between three and four thousand. They were aged from 11 to 13 years, and there was a gradually increasing proportion (in 1930 28 per cent.) of primary vaccinations. The possibility of post-vaccinal encephalitis was ever in my mind, after I had become aware of such a rare sequel, but I never had a single case, and after adopting the intradermal "multiple pressure or prick" technique, as recommended and described by Leake (1927) of the U.S. Public Health Service, the number of cases of vaccinia, and the days of sickness from vaccinia morbidity, were markedly lowered. The vaccine employed was in all cases obtained from the Government Lymph Establishment and used within a week of its receipt.

Income Tax

Division of Partnership Profits

"QUERIST" is a partner with two other practitioners. Up to January 1, 1938, the profits were divided in the ratios of A 3/7, B 2/7, C 2/7, but as from that date the ratios have been 3/7, 3/7, 1/7 respectively. What alterations will this change necessitate in the division of the tax charged for 1937-8?

* The existing division is of course based on an alteration of the gross assessment on the old ratios. In fact the ratios should be those in which the profits have been divided for the year ending April 5 (or, say, March 31), 1938—that is, A 12/28, B 7/28, and C 9/28. When a reallocation of the gross assessment is made on the basis of these figures, and the appropriate deductions are made for each partner and the tax on the respective net amounts calculated, the alterations in the division of the tax assessed on the firm will be apparent.

Change in Partnership—Cash Basis

"CAPITAL" explains that A., B., and C. have been in partnership, and for some years have been assessed on the cash basis. A. is retiring on June 30, but will continue to receive his share of the cash received for work done prior to that date. How will this affect the income tax returns?

* It should be borne in mind that the "cash basis" is merely a convenient way of measuring the gross earnings of a practice. A. will not be chargeable to tax on the cash received after June 30. The sums he then receives will represent the realization of income earned prior to that date, and he will have accounted for tax on those earnings. As regards the period after June 30, B. and C. will presumably have the alternative of (a) departing from the cash basis in favour of bookings less a deduction for bad and doubtful debts, or (b) adhering to the cash basis provided that they include all receipts from the practice work—that is, those taken by A. as well as those shared by B. and C.

LETTERS, NOTES, ETC.

Insulin Therapy in Schizophrenia

Dr. G. W. B. JAMES writes: In the *British Medical Journal* of February 19 you kindly report a joint paper by myself and others on insulin therapy in schizophrenia. Your reporter concluded that the film projected to illustrate the manifestations of schizophrenia was taken by Kodak Ltd. I feel I must write to explain that the film was entirely taken by myself or my co-workers. I would ask you to correct the impression given that this film was taken by Kodak Ltd. and is therefore available in their medical library of films. The Medical Department of Kodak Ltd. has given much assistance in the editing of the film and in advising me in my early days as a film director, and I owe them a deep debt of gratitude. This letter gives me an opportunity of saying that I have long been keen on the cinema as a means of teaching, and I feel very strongly that it can be made to play a useful part in illustrating lectures on psychiatry.

"The Evolutionary Theory"

Colonel G. F. ROWCROFT, D.S.O., writes from Coonoor, S. India: In a review in your issue of November 27, 1937, p. 1071—"Experiments on Animals"—the reviewer says (1) that the Darwinian hypothesis has "abundantly justified itself." Has it? He likewise says (2) that the younger medical man of these days views with a detached interest the arguments of the opponents of evolutionary theory. In many cases, unfortunately, quite true. Why? He also politely states (3) that the logical anti-vivisectionist suffers from pseudo-paranoia, and that he ought to be "an anti-vaccinationist, a vegetarian, and an opponent of the germ theory of disease." Why? And that "many of them are all these things." Are they? Such remarks savour rather of ex-cathedra omniscience, and I venture to think would hardly be sustained by an accurate census. A few such, a very few, there may be; which only shows that you may find all kinds of ideas in any body of even educated men. An anti-vivisectionist need not necessarily subscribe to the above ideas; he is as much entitled to his own opinions as anyone else, and to stress that because he holds such opinions on certain points he must necessarily and logically "go the whole hog" and hold others which may be supposed to arise from them is simply to strain arguments ad absurdum. To answer (2) above: As regards the "evolutionary theory" (which your reviewer very rightly designates a theory, not a fact) I presume this is intended to mean the theory that man, *Homo sapiens*, has been evolved by slow degrees from an ape-like ancestry, this ancestry in its turn having been evolved from some unicellular organism. "Evolution" in the sense of progress and many forms of development all will admit, but not the above "theory." It is not only "younger medical men," but unfortunately the rising generation generally—not to mention their fathers—who largely believe in the theory, for two reasons: (a) they find it believed in by their elders as a proved fact, and (b) the seeming arguments for it are in many schools drilled into them from childhood, its manifest impossibilities being suppressed and the unanswerable arguments against it being withheld. They very naturally accept it. Imagining the theory proved, without any further inquiry they of course look on its opponents as benighted beings. As regards my opening remarks under (1), to say that the "Darwinian hypothesis has abundantly proved itself" is simply an *ipse dixit*. If its upholders really think so they must be remarkably easily satisfied. In a letter already too long it is impossible to argue such a point, but I may remark that Darwin himself saw endless objections to the belief, though he propagated it. Haeckel, a most subtle writer on the subject (but in whose arguments numerous fallacies can be detected by the careful reader), admitted that many of his illustrations were deliberately faked in order to make them fit the theory. In later years he was compelled to write: "Most modern investigators have come to the conclusion that the doctrine of evolution, and particularly Darwinism, is an error and cannot be maintained" (*Fundamentals*, vol. iii, p. 29).

Anxiety State Treated by Hypnosis

Dr. R. W. P. HALL (Windermere) writes: I feel that the following case is of interest in view of the length of time the symptoms had persisted, and also the complete lack of response to previous medical treatment. The patient, a woman of 39, married, no children, had been very nervous and sensitive from childhood. The remainder of the family, including her mother, were very unimaginative people who had no patience with her ailments. She had at various times been treated by means of sedatives and good advice, but in spite of these measures her symptoms became more marked and numerous. I first attended her after she had been carried back from a short walk, having had a "heart attack." On examination she was found to have a rapid irregular pulse, with shortness of breath and slight cyanosis. Other symptoms elicited, and confirmed by her husband, were: (1) insomnia; (2) dysmenorrhoea associated with severe neuralgia; (3) dyspepsia; (4) an overpowering fear of all social life on account of the heart attacks, which were an almost daily occurrence. Her idiosyncrasy towards sedatives was confirmed during the first day or so, and it was then proposed that she should have a course of treatment by hypnotic suggestion, to which she agreed. Beginning with the insomnia, all her symptoms cleared up in the course of fifteen treatments extending over seven weeks. The only drug given was gardenal, half a grain night and morning during the first three weeks, but

In May, when the Dutch Gynaecological Society celebrates its fiftieth anniversary, an international obstetrical and gynaecological congress will be held. The secretary of the congress is Dr. C. F. van Tongeren of Amsterdam. The subjects for discussion are eclampsia, thrombosis and embolism, and hormones.

The King has appointed Dr. Robert William Cooper and Dr. Norman Bennington Watch as Members of the Order of the British Empire (M.B.E.) for services rendered in connexion with the recent volcanic eruptions in the Mandated Territory of New Guinea.

Dr. Nanna Svartz-Malmberg, author of important work on intestinal bacteria and their influence on rheumatic diseases, has been appointed professor of medicine at the Stockholm Caroline Institute. She is the first Swedish woman to be appointed professor.

Professor Ernst Kretschmer, director of the Marburg University Neurological Clinic, has been elected a corresponding member of the Society of Neurology and Psychiatry of Buenos Aires.

A new journal dealing with the physiology and pathology of old age, entitled *Zeitschrift für Altersforschung*, began in January under the editorship of Professor E. Abderhalden and Professor M. Bürger. The journal will appear quarterly, and is published by T. Steinkopff of Dresden and Leipzig.

Dr. Milan Yovanovitch-Batut, doyen of the Yugoslav medical profession and doctor *honoris causa* of the Belgrade faculty of medicine, has recently celebrated his ninetieth birthday.

Sir Ernest Graham-Little, M.P., has been elected an honorary member of the Argentine Dermatological Society.

Dr. Georges Guillaumin, professor of neurology in the Paris faculty of medicine, has been elected president of the Société Médicale des Hôpitaux de Paris.

Professor Fernand Bezançon has succeeded Dr. Martel as president of the Académie de Médecine.

The editorship of the journal entitled *Archiv'o di Anthropologia Criminale, Psichiatria e Medicina Legale*, founded by Cesare Lombroso and subsequently edited by Carrara, has this year been handed over to Professor Leone Lattes, professor of forensic medicine at Bologna.

Dr. L. M. Pierron, general secretary and founder of the Federation of the Latin Medical Press, editor of *Acta Medica Latina* and founder and editor of the *Revue française de Gynécologie*, has been made a Commander of the Crown of Italy by the King of Italy.

The King Edward Hospital Fund for London has bought a special car for conveyance of radium in connexion with the Central Radium Pool which it has established for the benefit of London hospitals.

One of the largest tuberculosis hospitals in the world is shortly to be inaugurated in Buenos Aires. The Government has made a grant of 3,000,000 pesos (about £200,000) for its erection and of 1,000,000 pesos (£66,000) a year for its upkeep. When finished the hospital will stand fourteen stories high on a fifteen-acre site near the centre of the city, which is to be planted with pine, eucalyptus, and other trees with medicinal qualities. It will be equipped for the treatment of 1,200 indoor patients and for research, and will be the headquarters of a national anti-tuberculosis campaign.

A statue of Hippocrates, presented by Dr. Skeros Zervos of Athens, was recently unveiled at the Académie de Médecine.

The Japanese Minister of the Interior has drawn up a Bill for rendering compulsory periodical examination of all the inhabitants up to the age of 40.

According to official statistics for 1937 Belgium possesses 6,311 doctors, or one doctor per 1,315 inhabitants. In the large towns the number of doctors is much higher: Brussels has 1,370 (1 per 605 inhabitants), Antwerp 436 (1 per 1,068), Ghent 242 (1 per 889), and Liège 416 (1 per 605).

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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QUERIES AND ANSWERS

Sulphanilamide and Sulphaemoglobinaemia

Dr. JULIAN KASTELIAN writes from the Westminster Hospital: There appears to be a danger in the indiscriminate use of sulphur-containing barbiturates (for example, pentothal) intravenously for short anaesthetics. If the patient is receiving treatment with *p*-aminobenzenesulphonamide (that is, prontosil and related compounds) and minor surgical intervention becomes necessary, an intravenous barbiturate will often be considered. Should, however, a "thio" group be present, as is the case with pentothal, the patient is possibly in danger of sulphaemoglobinaemia. It would be interesting to learn if any such cases have been recorded.

The "Emergency Bag"

Dr. E. G. HOUSDEN (London, S.W.17), in replying to "Ex-Service" (*Journal*, February 5, p. 320), writes: During the past fifteen years in general practice I have evolved the following "emergency outfit." I use a single case, 15 in. by 10 in. by 5 in., containing: (1) a wooden box, 7½ in. by 6½ in. by 5 in., for dressings, pins, a small kidney dish, a rubber catheter, and strapping; (2) a wooden box, 4½ in. by 6½ in. by 5 in., for sutures, hypodermic syringe in spirit, needles, microscope slides, finger-stalls and vaseline, silver nitrate stick, and drugs (tablets for hypodermic administration: amyl nitrite, ephedrine, calomel, phenacetin, aspirin, Dover's powder; ampoules of coramine, adrenaline, salyrgan, S.U.P., and iodine); (3) diagnostic instruments—electrical set, sphygmomanometer, throat swabs, patella hammer, and tape-measure; (4) wallet containing national health insurance prescriptions and certificates, private prescription pad, and stationery; (5) tube of ethyl chloride and vaccination set; and (6) case of dressing instruments. The case can be so packed as to prevent rattling, and includes all immediate necessities.

Dr. C. C. H. CHAVASSE (London, W.9) also writes: The following is a useful collection: instrument case with scalpel, artery and one pair dissecting forceps, and scissors, preferably in spirit; 5-cm. hypodermic syringe in spirit in a case; cutting needles, staghorn beetle clips (Allen and Hanbury's), and silk and horsehair sutures; vaccination scarifier; eyelid elevator; tablets for hypodermic administration of morphine, atropine, digitalis, ergotin, hyoscine; corpora lutea ampoules, S.U.P. 36 in ampoules, and ampoules of adrenaline and morphine; one three-inch bandage, one elastoplast bandage, and one cellonall bandage, with packets of sterilized wool and gauze; bottles of iodine and of spirit; one tube or container of wool for the application of iodine; sodium bicarbonate, tannafax, insulin, anti-tetanus, gas gangrene, and

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

161 Essential Hyperpiesis

R. STEINERT (*Nord. med. Tidsskr.*, December 11, 1937, p. 2013) has undertaken a study of the vital statistics for the whole of Norway for the ten-year period 1925 to 1934 in a search for information which might throw light on the common assumption that essential hyperpiesis is increasing in frequency as a result of the increasing psychic and physical stress of modern life. His studies were limited to the deaths of persons over the age of 50, as hyperpiesis is seldom fatal under this age. Since apoplexy is a common sequel of hyperpiesis, he argued that the deaths from apoplexy in the period under review would give a clue to the frequency of hyperpiesis in the same period. Indeed the experiences of his hospital in Bergen suggest that this condition is the main cause of most fatal cases of apoplexy, the number of which varied little from year to year during the ten years studied. He believes therefore that hyperpiesis has not grown appreciably in frequency in this period. On the other hand, in the same period there was a remarkable rise in the number of deaths traced to chronic disease of the myocardium, the rise being 48 per cent. for men and 53 per cent. for women. Even after improved methods of diagnosis had been discounted in connexion with this rise a considerable portion of it must be held to be real and in conformity with the increase in chronic heart disease registered in most other civilized countries. The author does not think it legitimate, however, to argue from this rise in the frequency of deaths from chronic heart disease that there has been any corresponding rise in the frequency of hyperpiesis in the same period.

162 Toxicity of Sulphanilamides

M. MATTIOLI (*Rif. med.*, December 11, 1937, p. 1773) states that the use of sulphanilamide preparations has been chiefly reserved for infections of streptococcal origin, such as puerperal septicaemia, erysipelas, tonsillitis and Ludwig's angina, streptococcal septicaemia, streptococcal meningitis, and otogenic infections. Sulphanilamide has also been tried in certain conditions not due to streptococci—namely, cerebrospinal fever, gonorrhoea, and *B. coli* infections of the urinary tract. Toxic effects are usually associated with prolonged use of the drug, and consist in nausea, abdominal colic, morbilliform and maculo-papular eruptions, fever, acidosis, cyanosis, methaemoglobinaemia and sulphaemoglobinaemia, and agranulocytosis. These effects of the drug, which are not common, are often due to its irrational use, its employment for a long period, or its administration in febrile diseases of uncertain nature. Sulphanilamide preparations should be given only to patients in bed and under daily observation by the physician.

163 Mixed Leukaemia

D. SUCIC (*Wien. Arch. inn. Med.*, 1937, 31, 6, 317) refers to a dozen reports from the literature in which the existence of mixed myeloid and lymphatic leukaemia has been claimed, and describes a personal case which he believes to fall within this rare category. A male, aged 37, had severe hypochromic anaemia with moderate enlargement of the liver, spleen, and lymph glands; the white cells rose from 8,000 to 76,000 during the month before death, lymphocytes numbering 60 to 80 per cent., myeloblasts 5 to 35 per cent., and neutrophil myelocytes 1 to 4 per cent. (both giving a positive oxydase reaction), and neutropenia being constant. The diagnosis suggested by examination of an excised inguinal gland was lymphosarcoma; radiological examination of the bones, which, especially

in the pelvis and skull, showed numerous round or oval defects affecting chiefly the spongiosa, seemed rather to indicate a diagnosis of Kahler's multiple myeloma; Bence-Jones proteinuria was absent, however. Naked-eye and microscopical examinations after necropsy showed that the bony lesions were due to leukaemic hyperplasia of the marrow, together with generalized osteosclerosis and osteoporosis, of which the former occurred chiefly in the limbs and skull, the latter in the pelvis and spine. (Bony sclerosis and porosis have been previously described in myeloid more commonly than in lymphatic leukaemia, and even in one case in acute lymphatic leukaemia.) The macroscopic post-mortem diagnosis was leukaemia; from the histological discovery of numerous myeloblasts and myelocytes, chiefly in the lymph glands but also in the spleen, liver, parts of the marrow, kidneys, and tonsils, and of lymphocytes and lymphoblasts in the marrow, kidneys, spleen, and periportal tissue a mixed myeloid and lymphatic leukaemia was inferred, with preponderance of lymphadenosis in the marrow and viscera, and of myelosis in the lymph glands. Most probably, as in the majority of similar cases, this was an instance of the secondary establishment of myelosis in a patient who had suffered for some time from lymphadenosis.

Surgery

164 Gastric Acidity in Cancer of the Stomach

E. ASK-UPMARK (*Acta chir. scand.*, 1937, 80, 1-2, 931) records observations made at the University Hospital in Lund, Sweden, at variance with the statement passed on from one textbook to another that acidity of the gastric juice is a characteristic feature of cancer of the stomach. In the ten-year period 1927 to 1936 the diagnosis of cancer of the stomach in 186 cases at the author's hospital usually depended on operation or a post-mortem examination. In certain inoperable but radiographically characteristic cases no post-mortem examination was made. The gastric juice was examined in 101 cases, in thirty-four of which free hydrochloric acid was found. In seven other cases it was found only after the injection of histamine, and in yet ten other cases hydrochloric acid "might have been present had the fractional test been performed in all instances." It was significant, in the author's opinion, that the frequency with which hydrochloric acid was found varied greatly with the location of the disease. The amount of hydrochloric acid was in most cases moderate, but occasionally it was considerable. No relationship could be established between the patients' age and the frequency with which their gastric juice contained hydrochloric acid. The author concludes that the presence of free hydrochloric acid in the stomach, even in considerable quantities, does not necessarily justify the exclusion of the diagnosis of a malignant growth of the stomach.

165 Vesical Dysfunction following Excision of the Rectum

M. HILL, R. BARNES, and C. COURVILLE (*J. Amer. med. Ass.*, October 9, 1937, p. 1184) give a short survey of the results they obtained in an investigation of urinary symptoms in a series of twenty-two cases. This was undertaken to find out the incidence of vesical dysfunction following abdomino-perineal resection for carcinoma of the rectum. The results are also given of a questionnaire answered by fifty-nine surgeons. The number of patients who suffered from vesical dysfunction after rectal resection varied from 25 per cent. to 100 per cent., with the majority over 50 per cent. Retention of urine may be transitory, may last for several months, or may be permanent, according to the character and extent of damage to the

as she had been given luminal on a previous occasion with no effect one could not put down her improvement to this drug. Before she had the last two treatments she confessed to a great dread of her mother, who was due for a visit lasting ten days, and whose presence on previous occasions had precipitated more acute attacks. Suggestions countering this state of mind were given on the last two occasions, with the result that at the end of the ten days she asked her mother to stay for a further two weeks, and complete harmony reigned throughout the visit. Nine months have elapsed since her last treatment, and she has remained quite well in every respect.

Treatment of Pneumonia

Dr. R. LARKIN (London, S.E.1) writes: It is impossible to believe that the figures given in the leading article in the *Journal* of January 29 (p. 235) for the mortality rates for pneumonia, in this country as compared with America, are correct. If they are correct, and two out of every three pneumonia patients die in England and Wales to one out of every six in America, then it is time the profession learnt to rely on drug therapy instead of on antipneumococcal sera, oxygen, etc. I remember a doctor from Africa saying in the columns of the *Journal* that he found quinine excellent—so do I in Southwark. Here are the prescriptions I am constantly using—disregarding the possibility of tinct. camph. co. being precipitated as benzoic acid—and in practice I find it is nearly always effective in all types of pneumonia, except, of course, in bronchopneumonia:

R. Quin. sulph.	gr. xij
Acid. nit. dil.	gr. xij
Potass. citrat.	gr. xxiv
Tr. camph. co.	3 iij
Tr. scillae	℥ xxx
Salicin	gr. xij
Aq. chloroform.	3 ss
Aqua	ad 3 vj
Sig. One tablespoonful 4-hourly in water after meals.	
Aspirin	gr. v
{ Phenacetin	gr. iv
{ Caffein citrate	gr. i
Mitte 6. One half-tablet of each every four hours after medicine.	

If there is any associated bronchial catarrh, it is convenient to add *vin. ipecac.* and *tinct. senega* in small doses. If on academic grounds the incompatibility of the *tr. camph. co.* is objected to, a way out for the inclusion of the drug in treatment would be to give it in the form of *tinct. scill. opiat.* (B.P.C.) for the associated cough, for I believe it is essential.

Sex Hormone Therapy

Bayer Products, Limited, have just issued a booklet entitled "Sex Hormone Theory in Everyday Practice," which is a handy guide to those wanting easily available information in this difficult field of practice. In twenty-five pages seven chapters are devoted to the menstrual cycle, the cause of menstrual bleeding, treatment of menstrual disorders, treatment of disorders of pregnancy, endocrinology of the mammary glands, treatment of male disorders, and oestrin and cancer respectively. Then follows a list of Bayer hormone preparations and indications for treatment. The booklet can be obtained free on application to Bayer Products Ltd., Africa House, Kingsway, London, W.C.2.

A Medical Shorthand Writer

A familiar figure at meetings of medical societies has passed away in the person of Henry Dickinson, official shorthand writer to the Royal Society of Medicine, the Royal Medico-Psychological Association, the Royal Society of Tropical Medicine and Hygiene, the Medical Society of London, the Ophthalmological Society, the Hunterian Society, the Medico-Legal Society, and many other bodies. About forty years ago, a Pitman enthusiast, Dickinson eschewed a wider field for the employment of his flying pencil (or, rather, his pen, for the pencil he scorned as an unworthy tool) and specialized in the reporting of medical proceedings. It was a narrow line, but he cultivated it assiduously, and, in his prime, medical men would swear by "Dickinson's note." If a speaker had a suspicion that he had not said exactly what was attributed to him, such a suspicion was completely dispelled by the production of those copper-plate pages. There it was, in thick strokes and thin. His longest tenure was his reportership of the Medical Society of London, which went back for thirty-nine years. He was reporter for several of the bodies which amalgamated in

1907 to form the Royal Society of Medicine, and he remained reporter for that body until his death. Many years ago he published a small manual entitled *Medical Reporting in Pitman's Shorthand*, in which he gave the shorthand forms for between three and four thousand medical words and phrases, along with some good advice to those who record medical discussions or act as doctors' amanuenses. The student of the published proceedings of various medical societies in years to come, while he will probably never learn the name of the scribe who set them down in clear and orderly form, will have occasion to be grateful for his patient and skilful work.

Austrian Medical Stamps

Medical stamps are becoming slowly but increasingly popular in different countries. On December 5, her annual "Day of the Stamp," Austria issued an attractive set of nine stamps commemorating her most distinguished medical sons. The likenesses are extremely good, the portraits being effectively set against a dark background. Van Swieten is depicted in the sepia 5 groschen stamp, Auenbrugger on the red-8, and Rokitansky on the grey 12. Skoda looks characteristically pedantic and dull on the green 20 stamp, while Hebra's appearance on the violet 24 is that of a genial *bon-vivant*. The carmine 30 represents von Arlt and the violet-red 64 Theodor Meynert. Perhaps the most striking portraits are those of Joseph Hyrtl, the anatomist (olive green 40), and of Billroth (blue 60).

Magnifiers in Spectacle Frames

Dr. A. J. BALLANTYNE (Glasgow) writes: Dr. F. Oliver Walker's short communication in the *Journal* of February 12 (p. 339) was of interest to me as I have had magnifiers of very similar construction in use for many years. The arrangement was suggested to me by a one-eyed patient, who had fitted a skeleton watchmaker's glass by fixing it to his own spectacle frame. Taking his hint, I got Messrs. John Trotter Ltd., opticians in Glasgow, to make a similar fitting for trial. Since then many patients have used this contrivance with satisfaction. These have mostly been cases of amblyopia, where magnification enabled the patient to read. The lens of the watchmaker's fitting can be made of any convenient strength, and the arrangement has the advantage that, being worn as a spectacle frame, both hands are available for holding a book, and as the watchmaker's fitting folds up the spectacles go into an ordinary flat case.

Medical Books for Surgeons in Spain

The Organizing Secretary of the Spanish Medical Aid Committee (24, New Oxford Street, W.C.1) writes: I have received a request from Spain for the *Annals of Surgery*, 1937 (published by John Wright and Sons Ltd., Bristol), and *Surgery, Gynecology and Obstetrics*, 1937 (published by Baillière, Tindall and Cox). We are anxious to send these out to the surgeons who require them, but are equally anxious not to draw on our funds for this purpose if it can possibly be avoided, and we wonder, therefore, whether any of your readers would be prepared to send us these for use in Spain.

Albuminuria and Bromides

Dr. S. J. HAYLOCK (Southbourne-on-Sea) writes: In cases of albuminuria from whatever cause the intake of bromides in medicinal doses tends to aggravate the condition, and to cause skin eruptions, etc. Patients suffering from albuminuria are advised not to take table salt. I would suggest also that no form of bromide be prescribed for them.

Corrigenda

We are asked to correct an error in the report of the opening of the new premises of the Institute for the Scientific Treatment of Delinquency published at page 416 of our issue for February 19. Dr. E. T. Jensen, chairman of the Institute, in expressing thanks to Lord Roche, said that he envisaged "an international Institute of Criminology," not "a large national" one.

In the Analysis of Cases of Sympathetic Ophthalmia from Schools for Blind Children published last week at page 393, in the fifth line of the second column "ophthalmia neonatorum" should of course have been "sympathetic ophthalmia."

The date in the first line of the second paragraph of the description of Case 1 in Dr. R. Stuart Renton's letter in the *Journal* of February 19 (p. 422) should be December 17 and not December 7 as printed.

disk of a gramophone. After sufficient amplification a telephone was found to reproduce all the tones transmitted to the water by the membrane. The Wever-Bray phenomenon in the inner ear is easily explained with the help of the author's theory. Tinnitus is probably due to harmful currents in the diseased cochlea. A development of Kupfer's theory is the introduction of a form of electrotherapy with the object of neutralizing the harmful currents by currents of opposite direction and of suitable strength.

170 Subglottic Cancer of the Larynx

StCLAIR THOMSON (*J. Laryng.*, December, 1937, p. 803) describes a type of laryngeal cancer which is rare as compared with the more ordinary forms which originate on the surface or along the margin of the vocal cords. Subglottic cancer arises in the space below the vocal cord. The celebrated historical case of the Emperor Frederick belongs to this group. In a series of fifty consecutive cases of intrinsic cancer of the larynx treated by the author, thirteen, or 26 per cent., belonged to the subglottic group. These growths are not seen with the laryngeal mirror until they extend up to the vocal cord from below. Since the voice may remain unaffected until the vocal cord is involved, and the symptoms may be trifling, such lesions are apt to be advanced before they come under notice. A subglottic growth may even run its course without ever extending to a cord. For these reasons the prognosis in all cases of subglottic cancer is much less hopeful than in intrinsic cases limited to the cords. Of the thirteen cases in the series of fifty, seven died of recurrence: six were alive and free from recurrence three years later. When a subglottic growth is suspected it is often necessary to do a preliminary laryngofissure and inspect the neoplasm *en face* before it can be decided whether the condition can be dealt with adequately through the laryngofissure, whether a complete laryngectomy is necessary, or whether no operation should be done. If the subglottic growth has not reached the arytenoid region or spread as low as the cricoid cartilage and has not crossed to the other side, removal by laryngofissure can be quite successful in securing a lasting cure. Invasion of the anterior commissure itself often means spread of the disease through the cricothyroid membrane into the soft tissues of the neck, and the possibility of recurrence of disease in the scar of the wound is increased. For patients whose age or health forbids operation, or who refuse laryngectomy, treatment must be by irradiation.

171 Orbital Suppuration of Nasal Origin

SARGNON and PAUFIQUE (*Ann. Oto-laryng.*, October, 1937, p. 869) subdivide orbital infections of nasal origin into three clinical groups. A first group associated with maxillary sinus suppuration is rare. A second and common group is associated with an infection of the anterior ethmoidal and frontal sinuses. A third group, also rare, is associated with posterior ethmoidal and sphenoidal sinus suppuration. Children are more often affected than adults, and sometimes the diagnosis of meningitis is made until the orbital signs develop. In very young children ethmoid suppuration is the main cause, because the frontal sinus is very little developed and the sphenoidal sinus not at all. The slighter cases resolve spontaneously by a sudden discharge of pus from the nose and the gradual disappearance of the orbital signs. The more serious cases go on to abscess formation and require operation. Grave signs are immobility of the eyeball with dilatation of the pupil, anaesthesia of the cornea, paresis of the ocular muscles, and interference with vision. When an infected tooth is the cause of an orbital suppuration, this occurs practically always by way of a maxillary sinusitis. In children adenoids are a very frequent predisposing cause; rarely, foreign bodies in the nose and rhinoliths. A large proportion of the cases

clear up with conservative treatment—rest in bed, inhalations, sprays, and fomentations. In small children it is best to avoid menthol and to substitute Friar's balsam for inhaling. When an operation is needed a small external incision is made just above the medial palpebral ligament, and the frontal and ethmoidal sinuses can be explored through this incision. This is usually preferable to exploration by the endonasal route. In infants it is often sufficient to detach the periosteum until the point of osteitis is reached. A gauze drain is left in the incision, and neither the orbital contents nor the ethmoid sinuses need be opened. In adults a small opening is made into the frontal sinus, but no curetting of the sinus should be done.

172 Indications for Tonsillectomy

K. VOGEL (*Deutsch. med. Wschr.*, December 24, 1937, p. 1943) reports from the University Nose and Throat Department of the Charité Hospital in Berlin the attitude he and many of his colleagues adopt towards tonsillectomy for the relief of various local conditions, such as chronic tonsillitis, and of more general conditions, such as rheumatism. The figures Professor Vogel quotes are from Frankfurt and have already been published (*Med. Welt*, 1936, No. 49). They showed that tonsillectomy was followed by recovery in 72 per cent. of the cases of articular rheumatism and by improvement in 15 per cent. The recovery rate was as high as 94 per cent. in cases of acute articular rheumatism, whereas in chronic articular rheumatism only 52 per cent. were cured and 30 per cent. were improved after tonsillectomy. After quoting percentages of recoveries and improvements following tonsillectomies performed for other ailments, including rheumatic heart disease, glomerulonephritis, and gastro-intestinal disturbances, etc., Professor Vogel concludes that relapsing sore throats and tonsillar abscesses are effectively prevented by tonsillectomy provided no diseased portion of tonsil is left behind. Less certain are the effects of tonsillectomy on chronic pharyngitis, laryngitis, and bronchitis originally due to infections of the tonsils, for in such cases the secondary foci established are apt to persist after the removal of the primary focus. To be really effective, tonsillectomy should, therefore, be performed as early as possible. By the time rheumatic polyarthritis, nephritis, endocarditis, etc., have become established the chances of their being cured by tonsillectomy are comparatively small.

173 Laryngeal Tuberculosis

N. R. BLEGVAD (*Hospitalstidende*, November 23, 1937, p. 11) bases his observations on 1,773 cases of tuberculosis of the larynx treated at a Danish hospital between 1916 and 1934. Of the 1,369 patients whose subsequent fate was ascertained 74 per cent. were found to have died, while 26 per cent. were still alive. Of the survivors, 60.5 per cent. could be regarded as cured after an observation period of several years. Among those who had died were several in whom the tuberculosis of the larynx had healed before death. The author insists that it is more important to recognize tuberculosis of the larynx as early as possible than to distinguish it from such other diseases as cancer and syphilis. He disagrees with the common textbook statement that acute laryngitis in the subjects of pulmonary tuberculosis predisposes to laryngeal tuberculosis, for practically all his patients suffering from the latter disease had not previously been liable to attacks of hoarseness indicative of acute laryngitis. Occasionally tuberculosis of the larynx presents at the outset the picture of a severe catarrhal laryngitis reminiscent of an acute non-tuberculous laryngitis. The author warns against the too facile assumption that any laryngeal affection in cases of pulmonary tuberculosis must necessarily be tuberculous. A characteristic feature of the ulcerations of acute non-tuberculous laryngitis is the almost invariable symmetry of their distribution. The basic treatment of

nervous elements. Cellules or small diverticula may appear within two weeks. Paralytic atony of the bladder may affect one or both sides. Vesical disturbance may be due to injury to the sympathetic nerves, reflex action, cystitis, or inflammation, or trauma to the bladder itself. It is suggested by one surgeon that the fact that the lower centres for both bladder and rectum are in the same segment of the spinal cord accounts for the urinary symptoms. The technique recommended to avoid this complication consists of drainage of the bladder by an indwelling catheter or repeated catheterizations. It is also suggested that during operation it is important to stay close to the rectal wall in the course of resection, thus avoiding the nerves and hypogastric plexuses. Treatment of retention by an indwelling catheter is indicated as long as there is more than 50 c.cm. of retained urine. If cystitis develops it should be treated by lavage of the bladder with potassium permanganate solution (1 in 6,000) and instillation of silver nitrate (15 c.cm. of 1 in 1,000 solution). Three personal cases are fully described.

166

Asymptomatic Appendicitis

H. J. SHELLEY (*Arch. Surg.*, Chicago, October, 1937, p. 621) presents a series of statistics based on a group of 2,065 appendectomies which were carried out during abdominal operations the indications for which were not associated with the appendix; the patients gave no evidence of past or present appendical disease. Of 1,904 appendices examined microscopically one-third were either normal or relatively normal, less than one-third showed slight to moderate inflammation, and the remainder presented evidence of marked pathological change, such as tuberculosis, tumour, hyperplasia of the mucosa, mucocoele, and oxyuris in the lumen. It was seen that there was a definite increase in inflammatory changes in the appendix when inflammation occurred elsewhere in the abdomen. No evidence was found to indicate that inflammation in the appendix caused cholecystitis. There was an increase in the incidence of atrophic and inflammatory changes in the appendix with increasing age, particularly chronic obliterative appendicitis. Peri-appendicitis was found to occur in early and early middle life. It was clear that acute appendicitis, even with actual suppuration, could exist without any subjective or objective evidence of its presence. As it was shown that the incidence of post-operative complications and the mortality rate were not increased in comparison with a similar series of operations without appendectomy, it is concluded that in properly selected cases the incidental removal of the appendix is a safe procedure of distinct value.

Therapeutics

167

Advances in Insulin Treatment

H. C. HAGEDORN (*Schweiz. med. Wschr.*, January 8, 1938, p. 36) has confirmed the value of protamine-insulin and zinc-protamine-insulin in 300 cases. He finds both preparations useful in severe cases in which the evening dose of ordinary insulin has not an effect sufficiently prolonged to avoid hyperglycaemia until the morning dose, or, if increased to prevent such a happening, leads to hypoglycaemic attacks. Their effect in levelling the large daily variations in blood-sugar concentration is especially valuable in acute complications, and in the occasional cases in which diabetes coexists with hyperthyroidism. Four methods of use are described: (1) ordinary insulin given in the morning and protamine-insulin at night; (2) protamine-insulin twice daily; (3) protamine-insulin or zinc-protamine-insulin once a day; and (4) simultaneous injection at twenty-four-hour intervals, of zinc-protamine-insulin and ordinary insulin—for example, 48 and 8 to 12 units respectively. Zinc-protamine-insulin has a slower effect than protamine-

insulin. Cases show pronounced individual variations in response, but in general some 15 per cent. fewer doses are required with protamine-insulin than with ordinary insulin; and with zinc-protamine-insulin the economy reaches 30 to 40 per cent. With treatment by the zinc preparation there may be an overlapping of the effects of successive doses—a fact calling for special precautions in connexion with hypoglycaemia, of which the first signs may be very severe.

168

Strophanthin Therapy

K. MÜLLER (*Münch. med. Wschr.*, December 24, 1937, p. 2051) discusses the intravenous administration of strophanthin, and claims that it can now advantageously replace digitalis preparations given by mouth, provided great care be taken in dosage. He has given about 10,000 injections with complete success, except in one woman, who started vomiting after even small doses of strophanthin, so that the treatment had to be discontinued. One of his patients has, in the course of the last seven years, received over 1,200 injections, and has been enabled to carry out her household duties. This patient was suffering from chronic auricular fibrillation. Müller lays great stress on the necessity for adopting a correct technique and using only reliable preparations of strophanthin. Strophanthin should never be injected when the patient is already taking digitalis by mouth. Müller has almost given up the use of any adjuvants, such as caffeine, calcium, cardiazol, glucose, etc.; moreover, he states that glucose has the disadvantage of damaging the veins, which is of course to be particularly avoided in patients who may have to receive injections over long periods of time. The only drugs he allows are those which act as analgesics. As regards the indications for strophanthin, Müller gives it in all forms of cardiac insufficiency or failure, whether they be due to valvular or to myocardial disease, in angina pectoris and coronary thrombosis, and in the presence of actual or threatened heart failure in acute infectious diseases, and particularly in pneumonia. In the latter strophanthin is especially valuable, since, in contrast with digitalis, it acts on non-hypertrophied cardiac muscle.

Laryngology

169

Electrochemical Theory of Hearing

E. KUPFER (*J. Laryng.*, January, 1938, p. 16) puts forward a new theory of hearing based on electrokinetic phenomena at the marginal surface of the liquids and of the solid structures in the cochlea, the surfaces in contact carrying opposing electrical charges. When movement takes place in the liquids of the cochlea, started by movements of the stapes, the opposite pairs of charges are displaced and separated, and a potential is set up. The alterations in contact potentials lead to the perception of sound. In the inner ear conditions are present for the development of this difference of potential, the sensory hair cells and other solids dipping into the endolymph. Whenever relative displacement of the endolymph against the hair cells occurs the electric potential of the hair cells is rhythmically disturbed. The author's hypothesis was tested by certain fundamental experiments. Two insulated metal rods were suspended in a liquid, the upper end of one rod being attached to a prong of a tuning fork. The rods were connected by long wires to a four-valve amplifier in another room, the output terminals of the amplifier being attached to head-phones. When the tuning fork was set vibrating a musical tone was heard in the head-phones which had the same frequency as that from the tuning fork. The effect was independent of the electrode material: zinc, copper, or cardboard electrodes acted equally well. In another experiment the liquid was set in motion by a membrane connected with the



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PROC. ROY. SOC. MED., JANUARY, 1937, p.276

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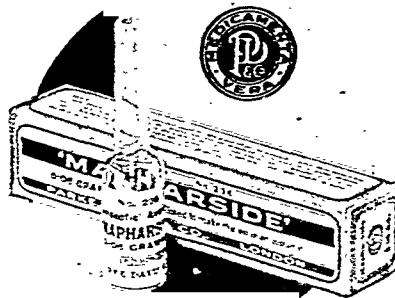
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tuberculosis of the larynx was with universal carbon-arc or quartz-light baths, the latter being preferred when the patients were debilitated and febrile, and yielding as good results as the former. Supplementary treatment in 346 cases consisted of excisions, in 465 of galvano-cauterization, in thirty-four of amputation of the epiglottis, in 114 of injections of alcohol, and in nineteen of resections of the superior laryngeal nerve.

174 Chronic Otitis Media Treated with Urea

P. S. MERTINS (*Arch. Otolaryng.*, Chicago, November, 1937, p. 509) quotes a recent article by Holder and MacKay on the use of urea in the treatment of chronically infected wounds and sloughing cancers. A strong solution of urea through its solvent action on proteins relieves the odour of foul chronic wounds almost at once. Further, it has been shown that urea in solution is bactericidal yet almost totally non-irritating to living tissue. Encouraged by these observations the author tried the effect of urea in chronic middle-ear suppuration. The first patient treated had a radical mastoid cavity from which flowed a foul-smelling discharge, which did not improve in spite of daily cleaning. The cavity was dusted with urea crystals once, and this eradicated all odour within twelve hours. After this large amounts of the crystals were applied twice daily by the patient; this resulted in the cessation of discharge in a few days and a completely healed cavity in five weeks. Further trial with this method in similar cases gave equally good results. The treatment was then tried in chronic otorrhoea. Apparently it is quite safe to insufflate small amounts of the urea crystals in cholesteatomata. Urea absorbs moisture and will not cause any dangerous swelling in the tympanic cavity. In an elderly patient with chronic otorrhoea of twenty years' duration and signs of cholesteatoma the ear became dry and clean within ten days. Eleven other patients with chronic otorrhoea and large perforations were treated with great success by dropping a saturated solution of urea in the ear twice daily. In cases with small perforations the results were much less favourable. A limited trial was made in acute otitis also with indifferent results. Caking of the urea and blocking of small perforations need not be feared. The urea is easily removed by a few drops of sterile water, which readily dissolve the crystals.

Obstetrics and Gynaecology

175 Hysterosalpingography in Ectopic Pregnancy

E. BORTINI (*Ann. Ostet. Ginec.*, November, 1937, p. 1247) discusses at length the place of hysterosalpingography in the diagnosis of ectopic pregnancy. He first reviews the so-called characteristic signs shown by ordinary x-ray examination in the different varieties of extra-uterine gestation, and draws attention to their unreliability. A series of forty-eight radiographs taken after the injection of an opaque substance shows the superiority of this method. Details are given of eleven cases in which a diagnosis made by hysterosalpingography was subsequently confirmed at operation. The author concludes that hysterosalpingography, properly conducted, will indicate even the particular variety of ectopic gestation concerned; but he insists on the necessity for serial radiographs (in some of his cases as many as nine views were taken) and the strictest asepsis, and is of the opinion that it should only be done in doubtful cases and with everything in readiness for immediate operation if necessary.

176 Kraurosis of the Vaginal Cul-de-sac

M. A. LABHARDT (*Gynec. et Obstet.*, October, 1937, p. 302) describes a condition which he calls kraurosis of the vaginal cul-de-sac, and which he has seen on thirteen

occasions during the past few years. It consists of a stenosis of the upper part of the vagina, which is so rigid that dilatation is impossible without the help of instruments. The perivaginal tissues are hardened and inelastic. When examined with a speculum the vaginal walls and the portio vaginalis are seen to be studded with red points, or to be completely red, and, in advanced cases, are covered with granulations which bleed easily and secrete a purulent and blood-stained discharge. The external orifice is always very small, though the lower part of the vagina is normal. The patients complain of a blood-stained purulent discharge, a feeling of weight in the lower abdomen, and sometimes pains in the loins. The age of the patients was from 25 years upwards. All showed signs of ovarian hypofunction. It is considered that the perivaginal stenosis is the primary condition and that the vaginitis is secondary; it may be associated with cancer of the cervix. This was so in two of the author's cases. Diagnosis of the cancer is rendered difficult by the stenosis of the upper vagina. Treatment is by means of ovarian hormones, particularly folliculin. The vaginitis usually responds to this treatment, but the stenosis is not improved. Local treatment with silver nitrate is also used. When the stenosis is extreme incision is indicated to permit secretions to escape and to allow of local applications. In all cases it is imperative to exclude cancer of the cervix.

Pathology

177 Peranal Antidiphtheritic Immunization

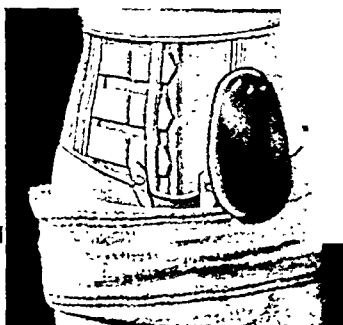
H. HAMADA (*Acta derm.*, Kyoto, 1937, 29, 5-6, 123) reports experiments on rabbits and guinea-pigs to investigate the amount of peranally administered diphtheria antigen or antitoxin that might be absorbed through the lower part of the alimentary tract. The degree of immunity acquired was tested by skin reactions to dilutions of diphtheria toxin. In both rabbits and guinea-pigs there was no development of immunity after the peranal administration of anatoxin or antiserum. When, however, ox bile was given peranally fifteen minutes before the anatoxin or antiserum, some degree of immunity was acquired by some of the animals, but the results varied individually very much among the rabbits and guinea-pigs used.

178 Experimental Aortic Atherosclerosis

F. R. MENNE, J. A. P. BEEMAN, and D. H. LABBY (*Arch. Pathol.*, November, 1937, p. 612) have studied the deposition of cholesterol in the aorta as the result of feeding cholesterol, either dissolved in oil or free, to rabbits. In the aorta of a normal rabbit receiving over 100 grammes of cholesterol they found extensive subintimal deposits of cholesterol distributed according to the usual occurrence of such lesions in man and animals, together with a high blood cholesterol content and the deposition of cholesterol in other organs. In thyroidectomized rabbits and in intact rabbits receiving iodine to depress the thyroid function similar changes were found in less time and with the administration of less cholesterol (up to 92 grammes), along with reduced basal metabolic rates and a high content of cholesterol in the blood. In rabbits receiving up to 147 grammes of cholesterol, but given in addition desiccated thyroid to produce hyperthyroidism and a raised basal metabolic rate, deposition of cholesterol was less frequent and less extensive in the aorta and in other organs, and the blood cholesterol tended to remain normal. The theoretical implications of these results and the possible mechanism of cholesterol deposition in the aorta are discussed. The authors consider that their results support the view that the two primary conditions necessary to the development of atherosclerosis are an excess of cholesterol or its esters in the blood and stress due to mechanical factors affecting the circulation.

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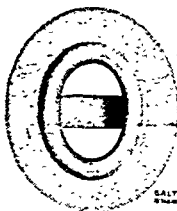


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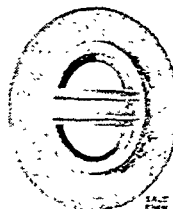
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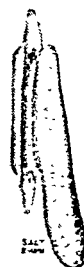
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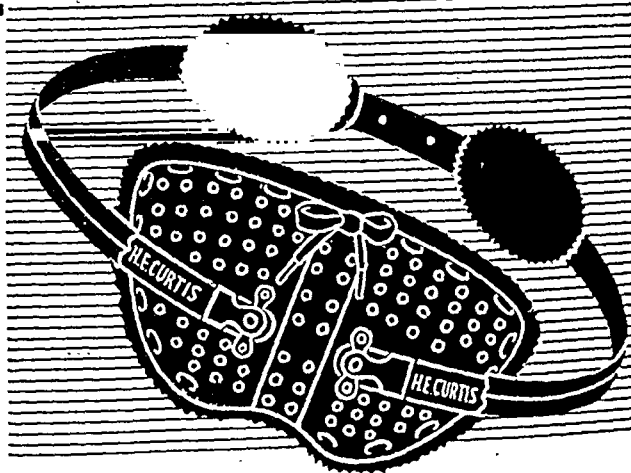


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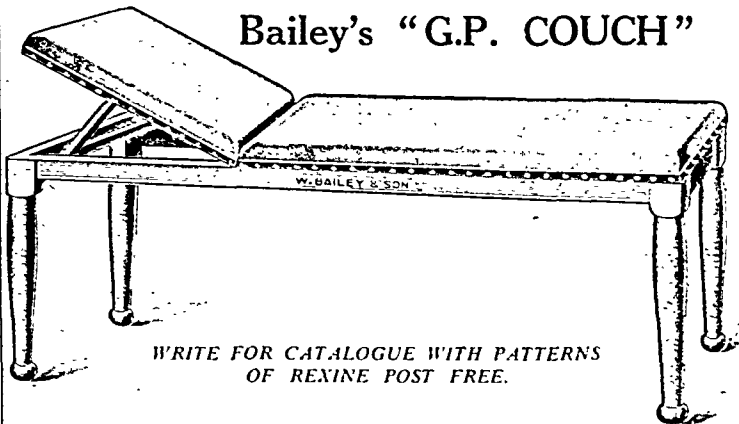
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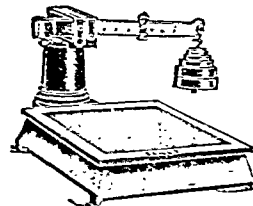
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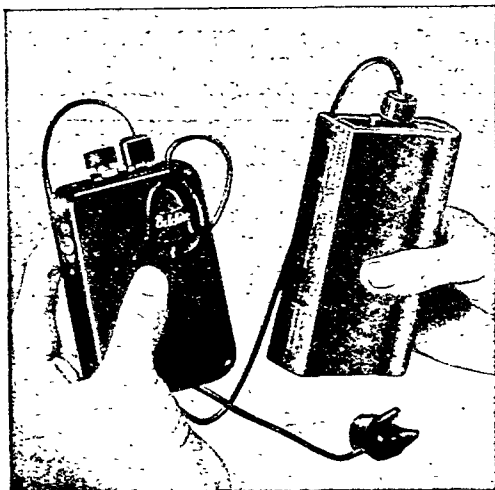
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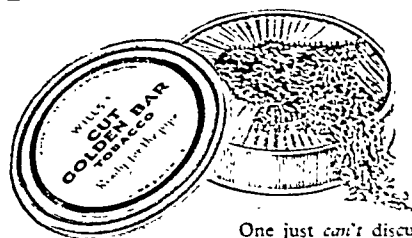
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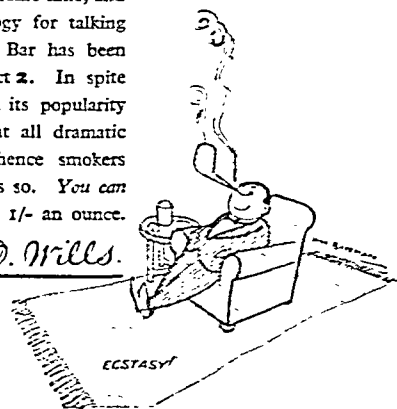
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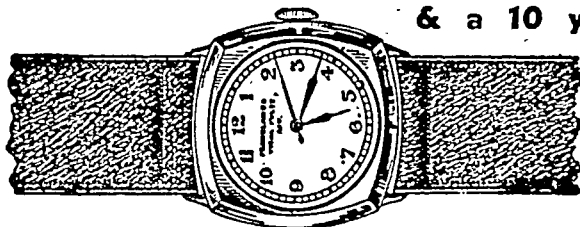
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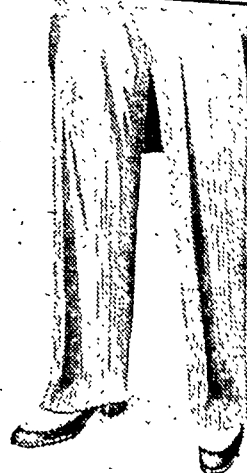


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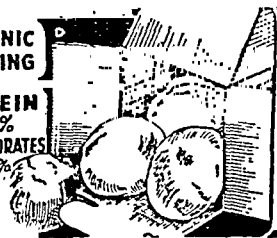
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TANCRED'S STUDENTSHIPS.

Shortly after midsummer next the Governors and Trustees propose to ELECT ONE STUDENT IN PHYSIC at GONVILLE and CAIUS COLLEGE, CAMBRIDGE, ONE STUDENT IN DIVINITY at CHRIST'S COLLEGE, CAMBRIDGE, and ONE STUDENT IN LAW at LINCOLN'S INN.

Candidates must have been born in England, Scotland or Wales and be members of the Church of England, unmarried, and within the ages of 17 and 20 years for Physic and Divinity and 18 and 23 for Law.

After 1938 the Election will take place about Whitsuntide, and the are firm for the Law Studentship (which will be awarded without examination) will be 15 and 23 years.

The annual stipend of each student is £100. The last day for sending in Petitions this year is May 15th.

Applications, stating kind of Studentship and mentioning this paper, should be made to the Clerk, Mr. CHOLMELTON, 28, Lincoln's Inn Fields, London, W.C.2.

THE LONDON SCHOOL OF DERMATOLOGY

THE EXAMINATION for the CHESTERFIELD MEDAL will be held at St. John's Hospital for Diseases of the Skin, 5, Little Street, Leicester Square, W.C.2, on Monday and Tuesday, March 7th and 8th, at 10 a.m.

Open to all qualified practitioners. Full particulars from the Dean.

HOSPITAL FOR CONSUMPTION

AND DISEASES OF THE CHEST, BROMPTON.
and FRIMLEY SANATORIUM.

PAYING PATIENTS RECEIVED.
BOTH MEDICAL and SURGICAL CASES.

5 to 8 guineas per week at the Hospital. 3 to 4 guineas per week at the Sanatorium.
APPLY TO THE SECRETARY:—BROMPTON HOSPITAL, S.W.3.

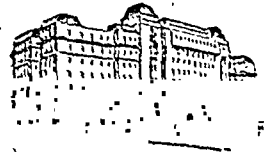
THE CLINIC

**20 Devonshire Place
London, W.1**

Tel.: Welbeck 4444 (20 lines)

**A NURSING HOME FOR SURGICAL, MEDICAL
AND MATERNITY CASES**

Fees 10 gns. to 18 gns. per week (Average—14 gns.).
150 State Registered Nurses.
2 Resident Medical Officers (for emergencies).
8 Operating Theatres.
Patients only received under the supervision of their own Medical Practitioner.
Drugs and Dressings free (other than Proprietary Articles).
Illustrated Brochure on application to Secretary.



CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON."

FOR THE TREATMENT OF MENTAL DISORDERS

Telephone: RODNEY 4242 (2 lines)

Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics, and Dancing Classes. X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre. Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. An illustrated prospectus giving fees, which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

CALDECOTE HALL

NUNEATON

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**Residential treatment of
FUNCTIONAL NERVOUS DISORDERS**

Including Alcoholism and other Addictions
(Certifiable Cases are not received)

This beautiful mansion situated in the heart of the country (less than two hours from London by L.M.S.R.) and surrounded by charming pleasure grounds, in which games and outdoor occupational therapy are available, is devoted to the treatment of Functional Nervous Disorders by psychotherapeutic and ancillary methods.

Illustrated brochure and particulars obtainable from A. E. CARVER, M.D., D.P.M., Resident Medical Superintendent.

CHEADLE ROYAL HOSPITAL

CHEADLE, CHESHIRE

This REGISTERED HOSPITAL, with a SEASIDE BRANCH at Colwyn Bay, N. Wales, is for the treatment and care of those of the Upper and Middle Classes suffering from MENTAL and NERVOUS DISEASES.

The Hospital is governed by a Committee appointed by the TRUSTEES of the Manchester Royal Infirmary. In addition to the Main Building there are separate villas. Extensive grounds. Hard and grass tennis courts, cricket and croquet grounds and a court for badminton. There are also wireless installations. Golf may be had within easy distance. Occupational therapy.

VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS received.

The Hospital is nine miles from Manchester, 50 minutes by rail from Liverpool, and 3½ hours from London.

For terms and further particulars apply to the Medical Superintendent, who may be seen in MANCHESTER by APPOINTMENT.

Telephone: GATLEY 2231 (3 lines).

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearsney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

About the Harrogate CURE

Harrogate specialises in the Treatment of—Disorders of the Liver—congestion, cirrhosis, jaundice, cholecystitis, cholelithiasis, and tropical liver. Also in Diseases of the Skin—eczema, psoriasis, the coccal infections of the skin, etc. The Chronic Rheumatic Diseases—Arthritis, Fibrositis, Neuritis; Gout, Hyperpiesis, Mucous Colitis, Functional Disorders of the Heart, Pelvic Disorders of Women, Convalescence from acute illness.

A wide range of Sulphur and Iron waters is available for dealing with the large group of disorders amenable to Spa treatment. Prescribed diets for Spa patients can be obtained at hotels and boarding houses without extra charge. Complimentary and reduced price facilities for the Cure, Accommodation and Amuse-

ments are available for Members of the Medical Profession.

Full details of Harrogate for Cure and Holiday will be sent free upon application to Spa Manager, Information Bureau, Harrogate, 1. (State if a medical enquiry).

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"IT'S QUICKER BY RAIL"

Cheap monthly return tickets to Harrogate from all stations.
Any train, any day.

THE CORNISH RIVIERA SANATORIUM

ROSEHILL, PENZANCE.

For the treatment of patients suffering from tuberculosis.

The Sanatorium stands in its own grounds of 13 acres of garden, lawn, and woodland, and is well sheltered from cold winds. The climate is mild in winter, cool in summer. Artificial pneumothorax, and other modern forms of treatment are available. Day and night nursing staff. Electric light. Wireless in all rooms.

Medical Supt.: Francis Chown, M.B.Lond., D.P.H., Consulting Physician (late Med. Supt.), Cornwall County Sanatorium.
Terms 5 to 7 guineas weekly.

Phone: Penzance 598.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART

WESTMORELAND STREET, MARYLEBONE, W.1.

LIST OF LECTURES, 1938

These lectures, which are free to all Medical Men and Senior Students, will be delivered at the Hospital as stated below on Tuesdays, at 5.30 p.m. No tickets of admission are required.

MARCH	1st ...	DR. JOHN PARKINSON ...	Difficulties in Cardiac Diagnosis.	APRIL	26th ...	DR. PAUL WOOD ...	Pericarditis.
"	8th ...	DR. D. EVAN BEDFORD ...	Auscultation.	MAY	3rd ...	DR. J. M. H. CAMPBELL ...	Paroxysmal Tachycardia.
"	15th ...	DR. JOHN PARKINSON ...	Myocardial Disease.	"	10th ...	DR. B. T. PARSONS-SMITH ...	Angina Pectoris.
"	22nd ...	DR. PAUL WOOD ...	Congestive Heart Failure.	"	17th ...	DR. D. EVAN BEDFORD ...	Hypertensive Heart Disease.
"	29th ...	DR. J. M. H. CAMPBELL ...	Aortic Disease.	"	24th ...	DR. T. F. COTTON ...	Thyrotoxic Heart Disease and its treatment.
APRIL	5th ...	DR. B. T. PARSONS-SMITH ...	Mitral Disease.				
"	12th ...	DR. T. F. COTTON ...	Rheumatic Heart Disease in Children and its treatment.				

POST-GRADUATE COURSES

Open only to Members.
Annual Subscription £1.1.0

MEDICINE, SURGERY AND GYNAECOLOGY (Royal Waterloo Hospital, all day, Feb. 28th to March 12th); PROCTOLOGY (St. Mark's Hospital, all day, March 7th to 12th); OPHTHALMOLOGY (Royal Eye Hospital, afternoons, March 28th to April 9th); UROLOGY week-end (All Saints' Hospital, all day, Saturday and Sunday, March 19th and 20th); FEVERS week-end (Park Hospital, all day, Saturday and Sunday, April 2nd and 3rd); M.R.C.P. CHEST AND HEART (Royal Chest Hospital, Mons., Weds., Fri., 8-10 p.m., March 14th to April 2nd).

Apply, FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.1. (Langham 4266.)

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

MASTERY OF MIDWIFERY M.C.O.G. D.C.O.G.

Short Intensive Postal and Oral Revision Courses in preparation for these Diplomas.

Apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. C. C. UNGLEY will deliver the GOULSTONIAN LECTURES on March 3rd, 8th and 10th at 5 o'clock at the College, Pall Mall East, S.W.1.

Subject: "Some Deficiencies of Nutrition and their Relation to Disease."

Any Member of the Medical Profession admitted on presentation of card.

By Order of the President,
H. M. BARLOW,
Secretary.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

A VACANCY exists for a MEDICAL OFFICER for SERVICE in GIBRALTAR. Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom and preferably be able to perform major operations, if required. SALARY—£600 a year, rising by annual increments of £30, to £720 a year. Private consulting practice is allowed. FREE QUARTERS and PASSAGES (on first appointment and when taking leave) are provided. The appointment is pensionable.

FURTHER INFORMATION REGARDING THIS VACANCY AND OTHER EXISTING VACANCIES IN THE COLONIAL MEDICAL SERVICE, and forms of application, may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W.1.

THE ROYAL SOCIETY

FOULERTON RESEARCH FELLOWSHIP.

Applications are invited by the Council of the Royal Society for a FOULERTON RESEARCH FELLOWSHIP IN MEDICAL SCIENCE. Candidates, who must be of British nationality and British parentage, should supply the usual personal details and give the names of two referees. Testimonials will not be considered. Applicants and referees at a distance may write direct to the address given below, without first obtaining forms. The subject of the proposed research and the place at which it would be carried out should be given.

The appointment will be for two years in the first instance as from October 1st, 1938, and may be renewed annually up to a total of five years. It will be subject to the conditions governing Royal Society Research Appointments. The stipend will be £600-£800 per annum, with superannuation benefits.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than May 1st, 1938.

February, 1938.

UNIVERSITY OF LONDON

A Lecture on "THE ROLE OF DICARBOXYLIC ACIDS IN METABOLISM" will be given by PROF. DR. P. E. VERKADE (Professor of Chemistry and Chemical Technology in the Nederlandsche Handel-Hoogschool, Rotterdam) at UNIVERSITY COLLEGE LONDON (Gower Street, W.C.1.) on THURSDAY, MARCH 16th, at 5 p.m. The Chair will be taken by Prof. A. C. Chibnall, F.R.S. (Professor of Biochemistry in the University). Lantern illustrations.

ADMISSION FREE. WITHOUT TICKET.

S. J. WORSLEY, Academic Registrar.

BRADFORD CHILDREN'S HOSPITAL.

HOUSE PHYSICIAN (day) required April 1st, fully qualified. Salary £150, with board, residence and laundry.

Applications, with recent testimonials and stating age, not later than March 16th to
J. W. LONGLEY,
Secretary-Genl.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

A VACANCY exists for a GOVERNMENT PATHOLOGIST IN BRITISH GUIANA.

Candidates must be British subjects, preferably under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. They must have had from 1½ to 2 years' experience in a bacteriological laboratory attached to a University College or Teaching Hospital, or to a General Hospital with at least 150 beds, and must be proficient in the preparation of media, vaccines and bio-chemical reagent solutions.

SALARY—£500 a year. Private practice is not allowed, but the officer will be permitted to make bacteriological and other examinations for medical practitioners or private individuals, fees for which average £60 a year.

DUTIES. The selected candidate will be in charge of the Bacteriological and Pathological Departments of the Government Medical Service.

FREE PASSAGES on first appointment for officer, his wife and family not exceeding five persons in all.

FREE QUARTERS are not provided. The appointment is pensionable, subject to two years' probationary service.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W.1.

ROYAL HOSPITAL, RICHMOND, SURREY.

Applications are invited for the following posts, which fall vacant on April 1st, 1938:

RESIDENT MEDICAL OFFICER (male). £250 per annum.

SENIOR HOUSE SURGEON (male). £150 per annum.

JUNIOR HOUSE SURGEON (male). £100 per annum.

In the case of the two Senior appointments, the Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Board, furnished apartments and laundry. Candidates must be fully qualified, registered and single. Form of application can be obtained from the undersigned.

G. M. EDEN,
Secretary-Superintendent.

VALUABLE BOOK FREE

Are you preparing for any Medical or Surgical Examination?

Do you wish to specialise in any Branch of Medicine or Surgery?

Send Coupon below for our valuable publications.

- "Guide to Medical Examinations."
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- "How to Write a Thesis for the M.D. Degree."
- "Guide to the M.D. (London)."
- "Guide to the D.P.M. Examinations."
- "Guide to Dental Examinations."
- "Guide to Higher Examinations for Nurses."

Any of the above will be sent post free on application

Leaflets dealing with the following examinations have also been prepared and will be sent post free on application.

- "Diploma in Child Health."
- "Diploma in Anaesthetics."
- "Diploma in Radiology."
- "Diploma in Laryngology."
- "Diploma in Ophthalmology."
- "Diploma in Bacteriology."

We specialise in COACHING for ALL MEDICAL EXAMINATIONS

Send Coupon below for any booklet and all information relating to your Examination.

The Secretary, MEDICAL CORRESPONDENCE COLLEGE,
19, Welbeck Street, London, W.1.

Sir,—Please send me the following booklets by return.

Name
Address
Examination in which interested
Publications required

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)
CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQ., LONDON, W.C.1.

FOUNDED IN 1882

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POSTAL OR ORAL PREPARATIONS FOR ALL MEDICAL EXAMINATIONS

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D.P.H.	(Various) 1906-36 (Completed Exam.)	342
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Preparation for the above, also for Medical Preliminary, and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.C.H., D.A., D.M.R.E., M.M.S.A., L.M.S.S.A., D.C.O.G., and some exams. of Dominions Universities.

ORAL CLASSES

M.R.C.P., M.D., Primary and Final F.R.C.S., F.R.C.S. (Edin.), also Final M.B., B.S., and M.R.C.S., L.R.C.P. Museum and Microscope Work. Also Private Tuition.

MEDICAL PROSPECTUS (48 pp.)

CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

DIPLOMA IN PUBLIC HEALTH The Royal Institute of Public Health and Hygiene

The Course of Instruction can be commenced at any time. Special provision is made for students who can give only part time to the work.

A prospectus and further particulars can be obtained from the Secretary.

Telephone: Langham 4200
28, Portland Place, London, W.1.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1870. Care non-resident, treated at 39, Earl's Court Sq. S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. "Prominent success in education and treatment of stammering and other speech defects."—"Times." "Thoroughly physiological principles."—"Lancet." "The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

Stammering, Cleft Palate Speech, Lipping.
319 of Miss BEHNKE, 39, Earl's Court Sq., S.W.5

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes—
H.C. ORPIN, F.R.C.S., Surgeon's Hall, Edinburgh.

ROYAL AIR FORCE MEDICAL SERVICE.

Applications are invited from medical men for appointment to commissions in the Medical Branch of the Royal Air Force for entry in May, 1938.

Candidates must be of pure European descent. They must be British Subjects, the sons of British Subjects and registered under the Medical Acts.

Candidates must normally be under 28 *years of age* but as a temporary measure consideration will be given to candidates up to 31 years of age and will be selected after interview by a selection board without competitive examination.

Hospital appointments held since qualifying will, under certain conditions, qualify candidates for antedate of commission up to a maximum of one year; the age on entry may, if necessary, be increased by a period equal to the "antedate."

Selected candidates will be appointed to short service commissions (for three years extendible to five years) followed by four years' service in the Reserve, and will be eligible to be considered for Permanent Commissions after having completed their first year of service and during the whole period of their service on the active list. Officers selected for Permanent Commissions will be allowed to count their service on a short service commission towards retired pay or gratuity to permanent officers. Officers not selected for Permanent Commissions receive gratuity as follows on transferring to the Reserve:—

On completion of three years, £400. On completion of five years, £1,000.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, also form of application, may be obtained on application from:—The Secretary, Air Ministry (D.M.S.), Adastral House, Kingsway, W.C. 2.

Completed applications from intending candidates for the vacancies in May, 1938, must be received in the Air Ministry not later than March 15th, 1938.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in April, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years in the first instance, which may be extended to five years at the discretion of the Admiralty.

At the end of three years' service officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Opportunities are available for officers on the permanent list to specialise, and ample provision is made for Post-Graduate study.

Copies of the regulations for entry and conditions of service, including rates of pay and allowances, may be obtained from the Medical Director-General of the Navy, Admiralty, S.W.1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than February 28th, 1938.

CENTRAL MIDWIVES BOARD.

Applications are invited from registered medical practitioners for appointment as **SUPER-NUMERARY EXAMINERS** for the **BOARD'S EXAMINATIONS** for PUPIL-MIDWIVES at the following centres:

London, Bristol, Liverpool/Manchester. Applicants must hold appointments in connexion with maternity hospitals or departments, and must have had experience in teaching pupil-midwives. Preference will be given to those who are Fellows or Members of the British College of Obstetricians and Gynaecologists.

Applications by letter should be sent by not later than March 21st, 1938, to the Secretary, Central Midwives Board, 23, Great Peter Street, Westminster, London, S.W.1, from whom further information can be obtained.

UMTATA HOSPITAL BOARD.**SIR HENRY ELLIOT HOSPITAL.****APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.**

Applications are invited from qualified Registered Medical Practitioners for the above-mentioned post. The salary attached to this position, which is whole-time, is at the rate of £600 per annum, plus free house, water, light and sanitation. A double-storied dwelling-house is shortly to be erected in which the successful applicant will be required to reside, but pending its completion he will be allowed an amount of £10 per month in lieu of quarters and incidental costs.

The successful applicant is to assume duty on July 1st 1938, and to enter into contract of service for three years (which may be renewed), the first year to be on probation.

The Hospital has 154 beds (22 European, 132 Native), but this accommodation will be increased by approximately 60 beds in the near future. Duties include assisting at operations, anaesthetics, radiology, the general ward work of a resident medical officer, lecturing to nurses and the general superintendence of the whole Hospital.

Applicants to state full particulars of:

(1) Their Medical and, in particular, Radiological and Surgical experience.

(2) Nationality, age, and whether married or single.

(3) Whether fully conversant with both English and Afrikaans.

Applications, with copies of three recent testimonials and health certificate, must be lodged with the undersigned not later than noon on March 15th, 1938.

Umtata, C. E. BEVAN, Secretary
Cape Province, South Africa.

COUNTY BOROUGH OF BOLTON.**RESIDENT ASSISTANT MEDICAL OFFICER.****BOROUGH ISOLATION HOSPITAL.**

Applications are invited from duly qualified medical men (or the position of Resident Assistant Medical Officer).

Candidates must have had experience in the treatment of cases of infectious disease in an Isolation Hospital. The duties will include the medical care of patients in the Isolation Hospital, assisting at the male Venereal Diseases Clinics, and such other work as the Medical Officer of Health may direct.

The person appointed will be required to reside at the Isolation Hospital. The salary will be £450 per annum, together with board and residence, valued at £150 per annum. Married quarters are not available. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the selected candidate passing a medical examination.

Forms of application, with particulars of the duties, may be obtained from the Medical Officer of Health, Howell Croft, North, Bolton, and completed applications, with copies of three recent testimonials, should be sent to the undersigned not later than March 7th, 1938. Canvassing, either directly or indirectly, will be a disqualification.

Town Hall, HAROLD B. ASHFORD, Town Clerk.
Bolton.

February 18th, 1938.

RADIUM BEAM THERAPY RESEARCH,
at the Radium Institute,
1, Riding House Street, London, W.1.

ASSISTANT MEDICAL OFFICER, resident, salary £150. Six months' appointment from March 18th, 1938. Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be sent to the Secretary, Radium Beam Therapy Research, not later than March 7th.

The selected candidate will assist with the working of two five-gramme Radium units, and will have the opportunity of combining post-graduate studies with this appointment.

COUNTY OF DORSET.**MEDICAL OFFICER OF HEALTH**
for Shaftesbury Borough, Shaftesbury, Sturminster and Sherborne Rural Districts and Sherborne Urban District and
ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from medical practitioners not exceeding forty years of age for the joint whole-time appointment of Assistant County Medical Officer and Medical Officer of Health for the Shaftesbury Borough, Shaftesbury, Sturminster and Sherborne Rural Districts and the Sherborne Urban District (population about 31,000). The appointment as Medical Officer of Health will, in the first instance, be in respect of the first three named districts only and in respect of the last two named districts when vacancies occur.

The salary for the combined appointment will be £800 per annum, together with a travelling allowance of £100 per annum, an office allowance of £50 per annum, and necessary out-of-pocket expenses according to the scales now in force.

Applicants must be qualified in accordance with Article 8 of the Sanitary Officers' (Outside London) Regulations, 1935, and hold the Diploma in Public Health or similar qualification.

The candidate appointed will, as regards his duties as Assistant County Medical Officer, come under the direction of the County Medical Officer of Health, and will be required to perform such duties as may be from time to time prescribed. As regards his duties as Medical Officer of Health, he will be subject to the control and direction of the District Councils concerned.

The post will be designated 'under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination. He will also be required to reside within the area for which he is Medical Officer of Health, and to take up his appointment on July 1st, 1938.

Candidates must apply on the prescribed form, to be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than Saturday, March 12th, 1938.

Canvassing in any form will be a disqualification. County Offices, C. P. DRUTON,
Dorchester, Clerk of the County Council.
February 15th, 1938.

LANCASHIRE COUNTY COUNCIL.**BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.**

Applications are invited from duly qualified and registered Medical Practitioners for the following posts at the above Hospital, which contains 88 beds:

SENIOR HOUSE SURGEON (duties to commence May 1st).—Salary £250 per annum, together with board, residence and laundry. Candidates must have had experience in a general hospital. Preference will be given to candidates who have had orthopaedic experience.

JUNIOR HOUSE SURGEON (duties to commence April 1st).—Salary £200 per annum, together with board, residence and laundry. Preference will be given to candidates who have held resident hospital appointments, and who are competent anaesthetists.

Both appointments will be for a period of six months in the first instance, and for a further six months at the option of the Council, but will not be renewable after that time.

Applications, with copies of two recent testimonials, should be sent, not later than March 3rd, 1938, to Dr. F. HALL, School Medical and Child Welfare Department, County Offices, Preston. County Offices, GEORGE EHTERTON,
Preston, Clerk of the County Council.
February, 1938.

THE URBAN DISTRICT COUNCIL OF DAGENHAM.**DEPUTY MEDICAL OFFICER OF HEALTH (Male).**

Applications are invited from duly qualified medical men for the post of Deputy Medical Officer of Health. Preference will be given to candidates possessing the Diploma of Public Health or an equivalent qualification.

Commencing salary £600 per annum, rising by annual increments of £25 to £750, subject to superannuation deductions. The gentleman appointed will be required to devote the whole of his time to the duties of the office, which consist mainly of work in the Maternity and Child Welfare Department, but may also include duty in any section of the health services of the district.

Experience in ante-natal and maternity and child welfare work is essential. Opportunities will be available for acquiring experience in Public Health administration.

Application forms and further particulars obtainable from the Medical Officer of Health at the under-mentioned address upon receipt of a stamped addressed foolscap envelope. Closing date, March 14th, 1938. Canvassing disqualifies.

Civic Centre, Essex, F. W. ALLEN, Clerk of the Council.
Dagenham, Essex.
February 15th, 1938.

MONMOUTHSHIRE COUNTY COUNCIL.**ASSISTANT MEDICAL OFFICERS (female).**
(1 permanent and 1 temporary.)

The Council invite APPLICATIONS from duly qualified and registered Medical Practitioners (females) not exceeding 35 years of age, holding a Diploma in Public Health and State Medicine, for the appointment of ASSISTANT MEDICAL OFFICER, to undertake mainly the Medical Inspection and Treatment of School Children and, in addition, Maternity and Child Welfare work, and the investigation of Sanitary Conditions generally.

Experience in the correction of errors of refraction and the administration of anaesthetics will be essential.

There are two appointments, one Permanent and one Temporary.

The salary for the Permanent Post will be £500 per annum, rising by annual increments of £25 to £750, and for the Temporary Appointment £400 per annum, with third-class rail fares and subsistence allowance according to the Council's scale.

The successful candidate will be required to act under the direction and supervision of the County Medical Officer, to devote whole time to the service of the County Council, and to reside in such place as the Council may determine.

The Permanent Post will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

A schedule of the Duties to be performed, together with Conditions of Appointment and a Form of Application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by March 1th, 1938.

D. ROCYN JONES,
The County Hall, County Medical Officer,
Newport, Mon.
February 14th 1938.

CITY OF ABERDEEN.**REGIONAL MEDICAL OFFICER FOR MATERNITY AND CHILD WELFARE.**

The Town Council of Aberdeen are prepared to receive applications for the appointment of Regional Medical Officer for Maternity and Child Welfare for the City of Aberdeen and for the Counties of Aberdeen and Kincardine.

Applicants must be registered Medical Practitioners and must hold a Diploma in Public Health or equivalent qualification. They must also possess qualifications enabling them to act as Supervisor of Midwives in terms of the Maternity Services (Scotland) Act, 1937.

The successful applicant will act as Assistant to the present Medical Officer for Maternity and Child Welfare until the retire of that Officer on June 30th next. On appointment, the salary will be £850 per annum and will be increased to £900 per annum on the retire of the present Medical Officer, rising to £1,000 per annum by annual increments of £50, with placing on the scale according to qualifications and experience. The office is an established post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination. Applications will be entertained from candidates up to the age of 48 years.

Applications, stating age, qualifications and experience, together with one copy of three recent testimonials, should be lodged with the undersigned not later than March 14th, 1938, from whom also can be obtained details regarding duties, terms of service, etc.

Town House, G. S. FRASER, Town Clerk.
Aberdeen.
February 14th 1938

BARRY URBAN DISTRICT COUNCIL.**ACCIDENT AND SURGICAL HOSPITAL.**

Applications are invited for the post of **RESIDENT SURGICAL OFFICER**, to commence duties as soon as possible. Salary at the rate of £350 per annum, rising by two increments of £50 per annum to £450, together with board and lodging; the appointment to be terminated by three months' notice on either side.

Candidates must be capable of performing major surgical operations. Preference will be given to applicants holding higher surgical qualifications and able to assist in carrying out the X-ray work of the Hospital. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

The successful candidate will act under the direction of the Medical Superintendent and the Surgeon.

Applications, stating age and full particulars with regard to experience, with copies of three recent testimonials, to be sent to Dr. E. J. DAVIS, Medical Officer of Health, Public Health Office, Barry, Glam., so as to reach him not later than March 4th, 1938.

Council Offices, T. D. HOWTILLS, Clerk to the Council.
Barry.
February 14th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from MEDICAL PRACTITIONERS of at least one year's standing to undermentioned positions. Experience in a general hospital for at least six months desirable. Married quarters not available.

ASSISTANT MEDICAL OFFICER (Grade I).
—Salary £350-£25-£425, with board, lodging and washing.

(a) **ST. LUKE'S HOSPITAL, LOWESTOFT, SUFFOLK.**—Experience in the treatment of non-pulmonary tuberculosis desirable.

There is no accommodation for a woman officer.

ASSISTANT MEDICAL OFFICER (Grade II)
—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(b) **HIGH WOOD HOSPITAL FOR CHILDREN, Brentwood, Essex.**—Experience in children essential and in tuberculosis desirable.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2a, County Hall, S.E.1, returnable by March 14th. Canvassing disqualifies.

COUNTY BOROUGH OF CROYDON.

ASSISTANT DENTAL SURGEON.

Applications are invited from licentiates in dental surgery for the post of whole-time Assistant Dental Surgeon at a salary of £450 per annum, rising by annual increments of £25 to £550. The duties will consist chiefly in the inspection, reporting and treatment of children attending elementary schools, and also dental work under the Council's Maternity and Child Welfare and Tuberculosis Schemes, and instruction in dental hygiene as required.

Applicants should have had at least one year's previous experience in the dental treatment of children, and the successful applicant will work under the supervision of the Medical Officer of Health and the Senior Dental Officer.

The post is designated as an established post under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, on forms to be obtained from the Medical Officer of Health, and accompanied by copies of not more than three recent testimonials, must be received by me not later than 11 a.m. on Monday, March 14th, 1938, in envelope endorsed "Assistant Dental Surgeon."

Town Hall, Croydon.
E. TABERNER, Town Clerk
February 15th, 1938.

CITY AND COUNTY OF BRISTOL.

ASSISTANT MEDICAL OFFICER OF HEALTH FOR AIR-RAID PRECAUTIONS.

The Corporation of Bristol invite applications for the post of Assistant Medical Officer of Health for Air-raid Precautions.

The gentleman appointed must have received training in Air-raid Precautions and have knowledge of anti-gas work. He will be required to devote the whole of his time to his duties and will not be allowed to engage in private practice. He will work under the direction of the Medical Officer of Health.

The appointment will be temporary in the first instance and will be subject to two months' notice on either side, and the selected candidate will be required to pass a medical examination.

The salary will be £500 to £700 per annum, according to experience.

Applications must be made on a prescribed form which may be obtained from the undersigned, and must be delivered at the Council House, Bristol, 1, not later than March 12th, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Canvassing of members of the Council, either directly or indirectly, will disqualify.

The Council House, BRISTOL.
JOSIAH GREEN, Town Clerk.
February, 1938.

THE GUEST HOSPITAL, DUDLEY.

(General Hospital—135 Beds.)

The Resident Staff consists of a Resident Surgical Officer and two House Surgeons.

TWO HOUSE SURGEONS (Male) required. One to enter upon his duties on April 1st, and the other to commence on May 2nd. Salary at the rate of £100-£130, according to experience, with furnished apartments, board and laundry. Candidates must be fully qualified and registered. Duties include Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological work, etc. Applications, stating age, qualifications and experience, accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST, House Governor and Secretary.
February 22nd, 1938.

SURREY COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant Medical Officer (Male). Applicants must possess a qualification in Public Health, and should have had experience in the Medical Inspection of School Children and in Maternity and Child Welfare work.

The officer appointed will be required to undertake such other Public Health duties as may be allocated to him. He will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote his whole time to the work.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Staffing Regulations of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for receipt of applications, Wednesday, March 9th, 1938.

Canvassing, directly or indirectly, will disqualify. DUDLEY AUKLAND, Clerk of the County Council
February 21st, 1938.

EAST SUSSEX COUNTY COUNCIL.

SOUTHLANDS HOSPITAL, SHOREHAM-BY-SEA.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from fully qualified male registered Medical Practitioners (unmarried) for the post of Assistant Resident Medical Officer at Southlands Hospital, Shoreham-by-Sea, near Brighton. The appointment is for one year. Salary £300 per annum, with board, residence and laundry. The Hospital (350 Beds) is a general hospital under the administration of the East Sussex County Council. The duties of the post will be mainly concerned with surgical cases (including children) and the administration of anaesthetics, but there are also opportunities for medical and obstetrical experience.

Applications should be made on a form obtainable from the undersigned at the County Hall, Lewes, and must be returned to him by Tuesday, March 8th, 1938.

HUGH J. T. McILVEEN, Clerk of the County Council
County Hall, Lewes
February, 1938.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL.

(220 Surgical and Medical Beds.)

CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.

Applications are invited from fully qualified men for the above post to commence as soon as possible.

The appointment is for six months, salary at the rate of £200 per annum with board, apartments and laundry. The duties include the post of House Surgeon to the Director of the Fracture Clinic, under whose care the whole of the fractures, both In- and Out-Patients, are treated, and deputy to the Resident Surgical Officer.

Candidates for this post should have had special fracture experience.

Application, stating age, together with copies of three recent testimonials, should be sent to the undersigned as early as possible.

M. H. BOONE, Superintendent and Secretary
February 8th, 1938.

PRINCESS ELIZABETH ORTHOPAEDIC HOSPITAL, EXETER.

Applications are invited for the post of RESIDENT HOUSE SURGEON. Salary £150 per annum, with board, residence and laundry. The appointment is for six months, commencing April, with the option of extension for a period not exceeding a further six months.

Applications, stating age and experience, with copies of three recent testimonials, to be sent to: P. MELHUISE, Secretary.

ROCHDALE INFIRMARY AND DISPENSARY.

(110 Beds. Three Residents.)

The Board of Management invites applications for the appointment of **HOUSE PHYSICIAN (Male)**. The salary attached to the appointment is at the rate of £150 per annum, with board, residence, laundry. The duties include work in the Out-patient, Aural, Ophthalmic, etc., Departments, as well as in the wards. The Hospital covers a large industrial area and affords excellent opportunity for experience.

Applications, stating age, nationality, etc., with three recent testimonials, to be sent to the Secretary, Rochdale Infirmary.
Infirmary Office, W. WYNNE, Secretary.
Rochdale.

SWANSEA GENERAL AND EYE HOSPITAL.

(336 Beds.)

Applications are invited for the appointment of whole-time **ASSISTANT PATHOLOGIST (male or female)**, non-resident. Salary £200, rising to £600 per annum.

Candidates must be graduates in medicine of a recognized British University or members of a College of Physicians of the British Isles.

Duties to commence April 4th, 1938. Applications, stating age, nationality, qualifications and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before February 25th.
O. C. HOWELLS, Secretary-Superintendent.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

CASUALTY OFFICER (with some HOUSE SURGEON duty). Male, British nationality, required to commence duty immediately. Salary £120 per annum, and additional fees, with board, lodging and washing. The appointment is tenable for six months, and candidates must be retested according to the provisions of the Medical Act. Applications, stating place of birth, and age, with copies of three testimonials, to be sent immediately to the undersigned. Women and married men are ineligible.

GORDON M. SAUL, Secretary.
February 21st, 1938.

ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH.

The Board of Management will, after the expiration of one month, proceed to appoint an **HONORARY SURGEON**.

Applicants must be Fellows of a Royal College of Surgeons.

Applications, stating qualifications, age and experience, should be sent to the undersigned by March 21st, 1938. Canvassing, personally or otherwise, will disqualify.

By Order of the Board of Management, GORDON M. SAUL, Secretary.
February 21st, 1938.

ROYAL SURREY COUNTY HOSPITAL.

Gatford (216 Beds.)

Applications are invited for the following resident posts for six months as from April 1st, 1938:

(1) **HOUSE SURGEON (male)**. Appointment recognized for the F.R.C.S. examination.

(2) **HOUSE PHYSICIAN AND CASUALTY OFFICER (male)**.

Salary in each case £150 per annum, with board, residence and laundry.

Applications, stating age and essential particulars, with copies of not more than three testimonials, should reach the Secretary-Superintendent not later than March 8th.

SALFORD ROYAL HOSPITAL.

(256 Beds.)

Applications are invited from duly tested candidates (Male) for the post of **HOUSE PHYSICIAN, HOUSE SURGEONS (Three), CASUALTY HOUSE SURGEON**, for six months from April 1st. Salary £125 per annum.

Forms of application, obtainable from the undersigned, should be delivered on or before March 8th. By Order of the Board, H. B. SHELSWELL, General Superintendent and Secretary.

ROYAL ASYLUM, MONTROSE.

Applicants are invited for the post of **THIRD ASSISTANT MEDICAL OFFICER (male)**. Salary commencing at £200 per annum, from which there are no deductions, with board, apartments, and laundry. Opportunity will be given to take the course for the Diploma of Psychiatry. Applications should be sent to the Medical Superintendent before 7th March.

CITY OF BIRMINGHAM. COLESHILL HALL.

DEPUTY MEDICAL SUPERINTENDENT.

Coleshill Hall, a colony for Mental Defectives of all ages and both sexes, consists of two divisions, five miles apart, situated at Coleshill and Marston Green respectively, each about ten miles from Birmingham.

Applications are invited for the whole-time appointment of Deputy Medical Superintendent for the Colony, aged 40 to 45, with experience in institutional administration. Salary according to experience (Scale £500-£700 per annum), subject to satisfactory service, plus emoluments consisting of unfurnished house, fuel, light and laundry, valued for superannuation purposes at £200 per annum. An additional £50 per annum will be granted if holding a recognized qualification in psychological medicine. All fees, allowances and remunerations received other than the foregoing must be repaid to the City Council.

The candidate appointed will be required to pass satisfactorily a medical examination and to be subject to the provisions of the Asylums Officers' Superannuation Act, 1909, as modified by the Asylums and Certified Institutions (Officers' Pensions) Act, 1918. The appointment will be subject to one month's notice on either side.

Application forms may be obtained from the Medical Superintendent, Coleshill Hall, Coleshill, near Birmingham, and must be returned to him not later than Monday, March 7th, 1938.

Council House, F. H. C. WILTSHIRE,
Birmingham, 1. Town Clerk.

CITY OF BIRMINGHAM. MATERNITY AND CHILD WELFARE DEPARTMENT.

TEMPORARY MEDICAL OFFICER.

A Temporary Medical Officer is required for a period of six months from April 1st. The work includes attendance at ante-natal and children's clinics. Applicants should have had considerable experience in work with mothers and children, including resident posts in a maternity hospital and in a children's hospital. The salary offered is £10 per week. The appointment cannot be terminated within the period named except for health reasons.

Applications, endorsed "Temporary Medical Officer for Maternity and Child Welfare," and accompanied by copies of three recent testimonials, to be made on a form obtainable from the Medical Officer of Health, Council House, Birmingham, 3, and returned to him on or before March 5th.

COUNTY COUNCIL OF MIDDLESEX.

THE COUNTY (TUBERCULOSIS) SANATORIUM, HAREFIELD, MIDDLESEX.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment. Candidates must be registered Medical Practitioners who have held resident appointments in a General Hospital. Experience in the diagnosis and treatment of tuberculosis will be an additional qualification. Salary £250 per annum, with board, lodging and laundry.

The officer appointed will work under the direction of the Medical Superintendent, and will devote his whole time to official duties.

The appointment (which does not at present carry any superannuation rights, will be subject to medical examination and is terminable by one month's notice on either side) is for a period of six months in the first instance, and may be extended for an additional six months.

Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 5th. Relationship to any member or officer of the Council must be disclosed in the application.

Application forms are not provided. Envelopes must be endorsed "Junior Assistant Medical Officer, Harefield Sanatorium." and sent, directly or indirectly,

C. W. Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1.
February 9th, 1938.

CITY OF BRADFORD. MUNICIPAL GENERAL HOSPITAL, St. Luke's.

HOUSE PHYSICIANS AND HOUSE SURGEONS required. Salary in each case £150 per annum, plus board and lodgings. These appointments are for six months, renewable for a further period of six months.

Application forms may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned not later than March 4th, 1938.

Town Hall, N. L. FLEMING,
Bradford. Town Clerk.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

SENIOR ASSISTANT MEDICAL OFFICER (RESIDENT).

A vacancy as Senior Assistant Medical Officer (male) will occur, at the beginning of April, at the above Hospital of 300 beds for the treatment of acute medical and surgical cases, obstetrics and children's diseases, etc., and applications are invited for the post.

Candidates, who must be registered in Medicine and in Surgery and have held resident appointments in a General Hospital, must not exceed 40 years of age. The Officer appointed will work under the control of the Medical Superintendent, and will devote his whole time to the official duties, which may include acting as deputy to the Medical Superintendent.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450, with board and residence.

The appointment (determinable by two months' notice on either side) is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and previous experience, and accompanied by copies of three recent testimonials, should be sent to the undersigned as soon as possible.

Public Health Department, GORDON LILICO,
1, Derwent Street, Medical Officer of Health.
Derby.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICERS.

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above hospital of 300 beds. This hospital provides treatment for acute medical and surgical cases, obstetrics and children's diseases, etc. Vacancies will occur near the end of March and the end of April, and applicants should state when they are free to commence duties.

Candidates must be registered in Medicine and Surgery. The appointment is for a period of six months; two months' notice of termination of duties may be given on either side.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

Public Health Department, GORDON LILICO,
1, Derwent Street, Medical Officer of Health.
Derby.

CITY OF MANCHESTER.

BOOTH HALL HOSPITAL FOR CHILDREN. (760 Beds.)

The Public Health Committee invites applications from registered medical men for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Sunlight House, Quay Street, Manchester, 3, and applications for the post must be received by him not later than March 5th, 1938.

Town Hall, F. E. WARRECK HOWELL,
Manchester, 2. Town Clerk.
February 2nd, 1938.

CITY OF MANCHESTER.

CRUMPSALL HOSPITAL. (1,543 Beds.)

The Public Health Committee invites applications from registered medical men for the post of RESIDENT ASSISTANT MEDICAL OFFICER at the above-named hospital.

The salary for the appointment is £200 per annum, with board, residence and laundry in addition, subject to the Manchester Corporation conditions of service.

The appointment will be made in the first instance for a period of six months, renewable for a further six months, but not renewable thereafter.

Full information and forms of application may be obtained from the Medical Officer of Health, Sunlight House, Quay Street, Manchester, 3, and applications for the post must be received by him not later than March 8th, 1938.

Town Hall, F. E. WARRECK HOWELL,
Manchester, 2. Town Clerk.
February 15th, 1938.

DERBYSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Assistant County Medical Officer of Health. Candidates must possess a qualification in Public Health, have had both practical and administrative experience of the medical inspection of school children, the organization of school clinics and infant welfare centres, and have a sound knowledge of the provisions of the Midwives Acts and the rules of the Central Midwives Board.

The Officer appointed will be required to devote the whole of his time to the duties of the office, and to work under the direction of the County Medical Officer.

The salary will be £700, rising by annual increments of £25 to £800 a year, and the appointment will be subject to the approval of the Minister of Health and the Board of Education.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, qualifications and previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th, 1938. Application forms are not provided.

County Offices, W. M. ASH,
Derby. County Medical Officer of Health
February 18th, 1938.

DERBYSHIRE - COUNTY COUNCIL.

BRETBY HALL ORTHOPAEDIC HOSPITAL. (147 Beds.)

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Junior Resident Assistant Medical Officer at the above Institution. Preference will be given to candidates who have held resident Hospital appointments, and who are competent anaesthetists. Orthopaedic experience is not essential, but will be considered an additional qualification. Married quarters are not provided.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, with board, residence and laundry.

The successful candidate will devote the whole of his time to the duties of his office.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before March 16th, 1938.

New County Offices, W. M. ASH,
Derby. County Medical Officer.
February 18th, 1938.

THE ROYAL EASTERN COUNTIES' INSTITUTION FOR THE MENTALLY DEFECTIVE, Colchester.

ASSISTANT MEDICAL OFFICER (Male)

Applications are invited for the above post from unmarried male Medical Practitioners, not over 36 years of age. Total beds over 1,700.

The medical man appointed will be stationed at the new Extension, Turner Village, and will be required gradually to assume responsibility for administrative work connected with that extension, which has at present over 400 beds. For that reason the commencing salary has been fixed at £400 per annum, together with furnished apartments, board, laundry and attendance. No deductions. Previous specialization in Mental Deficiency is not essential.

A Research Department, with a Medical Director and other staff, working under the Medical Research Council and the Rockefeller Foundation, is attached to the Institution. New laboratories are completed, and there is every facility for research work.

Apply before March 9th, giving age, nationality, full details of qualifications, and copies of testimonials, to the Medical Superintendent, Royal Institution, Colchester.

PUBLIC HEALTH DEPARTMENT. CITY OF CHESTER.

CITY HOSPITAL.

JUNIOR RESIDENT MEDICAL OFFICER required for the above general hospital. Salary will be £200 per annum, with full residential emoluments. The appointment will be for one year. Applications, stating age, qualifications and previous experience, together with copies of three recent testimonials, should be sent to the Medical Officer of Health, Town Hall, Chester, by March 7th, 1938.

J. H. DICKSON,
Town Clerk.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL. Gray's Inn Road, W.C.1. REGISTRAR AND CLINICAL TUTOR.

Applications are invited for the post of Registrar and Clinical Tutor, who will be required to give the whole of his time to the office and to commence duty on April 1st next. The successful candidate should hold one of the higher qualifications in Surgery.

Salary at the rate of £300 per annum, payable jointly by the Hospital and Post-graduate School. Further particulars of the appointment may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, should be sent on or before March 7th next.

JOHN H. YOUNG,
Secretary-Superintendent.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL. Gray's Inn Road, W.C.1. RESIDENT HOUSE SURGEON (male).

There is a vacancy for a Third Resident House Surgeon to enter on duty immediately.

The appointment will be for a period of ten months; four months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon.

Remuneration at the rate of £75 per annum. Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned immediately.

JOHN H. YOUNG,
Secretary-Superintendent.

DREADNOUGHT HOSPITAL. Greenwich, S.E.10. (Seamen's Hospital Society).

HOUSE SURGEON required for six months from April 1st. Salary £110 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male and single. Duties include attendance once a week at V.D. Clinic and charge of V.D. beds, for which there is a special honorarium of £25.

Applications, with copies of three testimonials, to be sent in on or before March 2nd to the undersigned.

F. A. LYON, Secretary.
February 11th, 1938.

DREADNOUGHT HOSPITAL. Greenwich, S.E.10. (Seamen's Hospital Society).

HOUSE PHYSICIAN required for six months from April 1st. Salary £100 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male and single.

Applications, with copies of three testimonials, to be sent in on or before March 2nd to the undersigned.

F. A. LYON, Secretary.
February 11th, 1938.

CHARING CROSS HOSPITAL SURGICAL REGISTRAR.

The Council invite applications from candidates, who must be registered Medical Practitioners (Male), for the post of Second Surgical Registrar. Honorarium £150 per annum.

A copy of the regulations can be obtained from the undersigned, to whom applications, together with copies of three recent testimonials, must be submitted not later than Monday, February 25th, 1938.

GEORGE J. JONES,
Charing Cross Hospital, Secretary.
London, W.C.2.

ALBERT DOCK HOSPITAL. Connaught Road, E.16 (Seamen's Hospital Society)

RESIDENT MEDICAL OFFICER required for six months from April 1st. Salary £110 per annum and a proportion of fees, with board, residence and laundry. Candidates must be male.

Applications, with copies of three testimonials, to be sent in on or before March 22nd to the undersigned.

F. A. LYON, Secretary.
February 11th, 1938. Seamen's Hospital Society.

ROYAL EYE HOSPITAL. St. George's Circus, Southwark, S.E.1.

RESEARCH UNIT.

Applications are invited for the newly created posts of RESEARCH ASSISTANTS (unpaid). Further particulars can be obtained from the Dean. Applications should be sent to the Dean not later than March 14th.

A. SORSBY,
Dean.

ST. BARTHOLOMEW'S HOSPITAL. RESIDENT ASSISTANT PHYSICIAN-ACCOCHEUR AND DEMONSTRATOR OF PRACTICAL MIDWIFERY.

Applications are invited for the post of Resident Assistant Physician-Accoucheur and Demonstrator of Practical Midwifery.

Candidates must be Fellows of the Royal College of Surgeons of England.

The salary attached to the Office is fifty guineas per annum, with residence in the Hospital, plus £1,000 per annum payable by the Medical College.

Appointment will be made for one year as from July 1st, 1938, with eligibility for re-election.

Applications, with testimonials (copies only), should reach the undersigned not later than Saturday, March 5th, 1938.

C. C. CARUS-WILSON,
Acting Clerk to the Governors.

February 14th, 1938.

EVELINA HOSPITAL FOR SICK CHILDREN. Southwark, S.E.

Applications are invited for the post of FOURTH PHYSICIAN (male) to the Hospital. Candidates must be Graduates in Medicine, Members of the Royal College of Physicians, London, or shall proceed to obtain that Diploma, and must not be engaged in general practice. The successful candidate will have charge of beds and will do two Out-patient Clinics per week, and there is an honorarium of fifty guineas attached to the post.

Applications, with copies of not more than four testimonials, should reach the House Governor not later than March 11th.

Candidates will be required to call upon Members of the Medical Staff, whose names, together with the Standing Orders relating to the post, will be forwarded by the House Governor.

W. H. SIDNELL

February 21st, 1938. House Governor.

ELIZABETH GARRETT ANDERSON HOSPITAL, Euston Road, N.W.1.

Ophthalmic Department—Out-patients.

Applications are invited from fully qualified medical women for the two posts of CLINICAL ASSISTANTS (one clinic each per week; honorarium £50 per annum).

Further particulars of the post may be obtained from the undersigned, to whom applications, with copies of three testimonials, should be sent not later than March 4th, 1938.

JEAN R. MURRAY,

Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Applications are invited for the post of CLINICAL ASSISTANT to the Skin Department of the above Hospital.

Applications, accompanied by copies of recent testimonials indicating experience, from candidates who must be duly Registered Practitioners, should be lodged with the undersigned not later than Wednesday, March 16th, 1938.

Attendance will be required weekly, namely, on Wednesday mornings at 9 p.m.

RAPHAEL JACKSON (Male),

Secretary.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

Applications are invited for the posts of HOUSE SURGEONS (two, male, unmarried), for a period of six months commencing April 1st, renewable for a further period of six months, on the recommendation of the Medical Board. £150 per annum, with full board, quarters and laundry. Applicants should be registered medical practitioners.

Applications, with copies of testimonials, should be sent to the House Governor, 234, Great Portland Street, W.1, not later than March 11th.

ROYAL NORTHERN HOLLOWAY, N.7 HOSPITAL.

Applications are invited for the post of PATHOLOGICAL REGISTRAR. The appointment is for one year, with eligibility for re-election. Times of attendance on application. Honorarium £200 per annum, with lunch and tea provided.

Applications, with copies of testimonials, should be sent by March 4th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER, Secretary.

ROYAL NORTHERN HOLLOWAY, N.7 HOSPITAL.

A vacancy occurs for a CLINICAL ASSISTANT in the Ear, Nose and Throat Department. Applications should be addressed to the Secretary.

THE LONDON HOMOEOPATHIC HOSPITAL (Incorporated by Royal Charter). Great Ormond Street, Bloomsbury, W.C.1. (A General Hospital—270 Beds.)

APPOINTMENT OF HOUSE PHYSICIAN

Applications are invited for the appointment of House Physician, vacant April 1st, 1938.

The appointment is one of four Resident Medical posts which occur periodically during the year, and is for a period of six months, with salary at the rate of £100 per annum, and board, apartments and laundry.

Candidates must be legally qualified and registered.

Selected candidates will be required to attend a meeting of the Medical Committee for interview on March 6th.

Applications, stamped, with copies of testimonials, to be sent to the undersigned not later than March 7th.

L. I. KNOWLES,
Secretary.

ST. PETER'S HOSPITAL FOR STONE, ETC. Henrietta Street, Covent Garden, W.C.2.

The Office of HOUSE SURGEON will fall vacant on April 1st, 1938, and applications are invited from male candidates with previous experience in a similar office at a General Hospital. The salary offered is at the rate of £75 per annum, with board, lodging and laundry.

At the expiration of six months' term of office, and subject to the recommendation of the Medical Committee, the House Surgeon is appointed Resident Surgical Officer for a further similar period. Candidates should therefore be prepared, if successful, to remain at the Hospital for twelve months in all.

Applications, accompanied by copies of testimonials, should be forwarded to reach the undersigned not later than the first post on Tuesday, March 8th, 1938.

BEECHY ROGERS,
Secretary.

ST. JOHN'S HOSPITAL, LEWISHAM, S.E.13.

Applications are invited for the appointment of RESIDENT SURGICAL OFFICER (Male), which becomes vacant on April 1st next. Candidates should have been qualified as General Practitioners, and should have had one year's experience of hospital appointments. Preference will be given to those holding a senior surgical qualification. The appointment is for twelve months at a remuneration of £200 p.a., with the addition of Resident Staff Panel Fees. Applications, with copies of testimonials, should reach the undersigned not later than Tuesday, March 8th.

J. C. GILBERT,
Secretary-Superintendent.

THE NATIONAL TEMPERANCE HOSPITAL. Hampstead Road, N.W.1.

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER (Male). Salary £175 per annum, board, residence and laundry allowance.

CASUALTY OFFICER (Male). Salary £120 per annum, board, residence and laundry allowance.

The appointment is for a period of six months in each case, as from April 1st. Preference will be given to those who have held resident posts. Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, March 7th, addressed to the Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN. Hackney Road, London, E.2.

HOUSE PHYSICIAN required April 1st, 1938. EAR, NOSE AND THROAT HOUSE SURGEON required April 1st, 1938.

Six months' appointments. Salary at the rate of £100 per year, with board, lodging, and laundry in each case.

Applications must be made on forms to be obtained from the undersigned, and must be sent in, with copies of not more than four testimonials, on or before March 7th, 1938.

CHARLES H. BESSELL,
February 10th, 1938. Secretary.

THE QUEEN'S HOSPITAL FOR CHILDREN. Hackney Road, E.2. (204 Beds.)

The Committee have applications for the post of ASSISTANT PHYSICIAN, with charge of Ear, Nose and Throat, from candidates who must be Fellows or Members of the Royal College of Physicians of London.

Attendance in the Out-patient Department required at present on Saturday morning, but possibly also on another day, to be arranged later.

An honorarium to cover travelling expenses will be paid.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom further particulars may be obtained.

CHARLES H. BESSELL,
February 21st, 1938. Secretary.

DEVONSHIRE ROYAL HOSPITAL, Buxton, Derbyshire. (300 Beds.) (A National Hospital for Rheumatism and Allied Diseases.)

RESIDENT MEDICAL OFFICER (male), salary £200 per annum, or **HOUSE PHYSICIAN (male),** salary £150, rising to £175 after three months' service (and prospects of promotion to Resident Medical Officer), with fully qualified and registered. Candidates must be for a minimum period of six months. The appointments are for a minimum period of six months.

Applications, endorsed "Medical Appointments," stating age, experience and qualifications, and whether application is made for one or either post, together with copies of three recent testimonials, must be forwarded without delay to the undersigned, from whom any further particulars may be obtained.

Considerable orthopaedic experience is available, and the appointments offer special facilities for gentlemen preparing a thesis or wishing to undertake special work, as the Hospital contains all the necessary laboratory and other facilities for research. Canvassing will disqualify.

By Order of the Committee of Management,
A. PRESTON TURNER,
General Superintendent and Secretary.

BRIGHTON COUNTY BOROUGH MENTAL HOSPITAL, Haywards Heath, Sussex.

Appointment of **SECOND ASSISTANT MEDICAL OFFICER.** Applications are invited for the above post. Salary £500 per annum, increasing by £50 per annum on approved service to £600 per annum with an addition of £50 per annum for holding or becoming the holder of the D.P.M. The age of the candidate should not exceed 35 years. A cash allowance of £75 per annum will be given until a house is provided, during which time a charge will be made for meals taken in the Hospital when on duty. A similar allowance will be made to an officer desirous of having full board and lodging in the Hospital, but in that event the charge will be at the rate of £100 per annum.

The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, with copies (not originals) of three recent testimonials, stating General Hospital, Mental Hospital and Laboratory experience, and to be sent to the Medical Superintendent and to be received by Thursday, March 3rd, 1938.

COVENTRY AND WARWICKSHIRE HOSPITAL. (347 Beds.)

Applications are invited for the post of **HOUSE SURGEON** to the Ear, Nose and Throat Dept., and also a **HOUSE SURGEON** to the Ophthalmic Dept.

The salaries for each post are at the rate of £150 per annum, together with board, quarters and laundry.

These appointments are recognized for the D.L.O. and the D.O.M.S. respectively.

Applications, stating qualifications, and accompanied by copies of recent testimonials, should be addressed to the House Governor and Secretary, Coventry and Warwickshire Hospital, Coventry.

DERBYSHIRE ROYAL INFIRMARY, DERBY. (General Hospital, 362 Beds.)

Applications are invited for the post of **HOUSE SURGEON FOR EAR, THROAT AND NOSE DEPARTMENT**, who must be a male of British nationality and unmarried.

Candidates must be qualified and registered under the Medical Acts. Salary will be £150 per annum, with apartments, board, etc.

Applications, with copies of testimonials, to be sent to the undersigned.

State earliest date duties could be commenced.

ARTHUR TAYLOR,
Superintendent and Secretary.

COSSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

A vacancy will occur at the end of March for a **JUNIOR RESIDENT MEDICAL OFFICER.** Salary £100 per annum, with board and laundry; to remain for six months in the first instance. Applicants (male) should be of British nationality, fully qualified and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

BURTON-ON-TRENT GENERAL INFIRMARY.

Applications are invited for the post of **SENIOR HOUSE SURGEON (male).** Salary at the rate of £200 per annum, with board, residence and laundry.

Applications, stating age, qualifications, experience and nationality, together with copies of testimonials, to be sent to:

E. W. THORNLEY,
The General Infirmary, Burton-on-Trent.
Secretary.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (109 Beds.)

Applications are invited for the post of **HOUSE SURGEON** to the Ear, Nose and Throat Department, which post will be vacant on April 1st.

Candidates must be duly qualified and registered Medical Practitioners, single, and of British birth and nationality, and should have had some experience in the treatment of diseases of the Ear, Nose and Throat. The post offers facilities for wide clinical experience and by the Examining Board for the D.L.O. The appointment is for six months, but may be renewed for a second six months, salary at the rate of £250 per annum, with board, residence and laundry.

Applications, stating age, together with copies of three recent testimonials, should be sent not more than three testimonials, should be sent to the undersigned by Saturday, March 12th.

JOHN W. STRICKLAND,
Secretary.

ANCOATS HOSPITAL.

CASUALTY OFFICER, twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. Salary £175 per annum, with board, apartments, washing, etc. The successful applicant will do duty for the Resident Surgical Officer at alternate week-ends and other scheduled times.

HOUSE SURGEON (General)—required. Appointment for six months, from April 1st, salary £100 per annum, with board, apartments, washing, etc.

Applications for the above posts, stating age, qualifications, experience and full particulars, to be forwarded to the undersigned on or before Wednesday, March 9th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. and Secretary.

JERSEY GENERAL HOSPITAL AND POOR LAW INFIRMARY.

Applications are invited for the following posts (vacant April 1st, 1938).

(a) **HOUSE SURGEON (male).**

(b) **CASUALTY OFFICER AND HOUSE PHYSICIAN (male).**

The appointments are for six months, subject to reappointment.

Salaries £175 per annum. Board, residence and laundry are provided.

Applications, stating age, nationality and qualifications, with recent testimonials, to be addressed to the undersigned, on or before Saturday, March 19th.

H. S. PLYMEN,
Secretary-Accountant.

NEWARK GENERAL HOSPITAL. (66 Beds.)

Applications are invited for the post of **RESIDENT HOUSE SURGEON (Male).** Salary at the rate of £175 per annum, with board, residence and laundry. The appointment is for six months, and may be renewed for a further term of six months. Duties to commence on or about April 1st, 1938.

Applications, stating age and hospital experience, together with copies of three recent testimonials, should be forwarded to the undersigned immediately.

B. C. DION,
Joint Secretary.

EAR AND THROAT HOSPITAL, Birmingham, 3.

THIRD HOUSE SURGEON wanted (non-resident). Must be qualified and with clinical experience. Salary at the rate of £150 per annum, with lunch on six week-days and an allowance of £50 per annum in lieu of board and lodging.

Appointment for six months, to commence April 1st.

Candidates are eligible for election to senior posts. Facilities for training for D.L.O.

Applications and testimonials to be forwarded to the undersigned.

W. H. LOMAS,
Secretary.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

Applications are invited for the post of **FRACTURE HOUSE SURGEON**, who will be required to carry out his duties under the direction of an Honorary Orthopaedic Surgeon. The resident Medical Staff of the Hospital numbers six, and this appointment will be considered the senior.

Minimum salary £200 p.a. or according to experience.

Applications, accompanied by copies of three recent testimonials, to be forwarded to the undersigned.

R. LANCASTER,
Secretary-Superintendent.

NORTHAMPTON GENERAL HOSPITAL. (351 Beds.)

There will be the following seven vacancies for Resident Medical Officers:

On March 1st. 1 **HOUSE SURGEON** to the Ear, Nose and Throat Department.

On April 1st. 1 **HOUSE PHYSICIAN**, 3 **HOUSE SURGEONS**, 2 **CASUALTY OFFICERS**.

Salaries will be at the rate of £150 per annum, with board, residence and laundry. Candidates, who must be duly qualified and registered, must be males, and of British nationality.

The successful candidates will be elected for a period of six months (House Surgeon to the Ear, Nose and Throat Department 7 months), and will be eligible for re-election for a further period of 6 months.

Applications, stating age, qualifications, etc., with copies of three testimonials, must reach the undersigned not later than the first post on Wednesday, March 2nd, 1938.

GORDON S. STURTRIDGE, M.B.
Superintendent.

February 14th, 1938.

PEMBROKE COUNTY WAR MEMORIAL HOSPITAL. Haverfordwest, Pembrokeshire. (64 Beds, to be increased to 100 Beds.)

RESIDENT HOUSE SURGEON.

Applications are invited for the post of Resident House Surgeon, Male (unmarried), from duly qualified registered Medical Practitioners, with previous resident experience. Salary £200 per annum, with residence (private bungalow), board and laundry.

Applications, stating age, and accompanied by copies of not more than three recent testimonials, to be sent to the undersigned at the above address not later than first post Monday, March 7th, 1938.

F. W. BARNETT,
House Governor and Secretary.

THE GENERAL INFIRMARY AT LEEDS. (673 Beds.)

Applications are invited for the post of **RESIDENT OPHTHALMIC OFFICER.** Salary £140 p.a. with board, residence and laundry.

The appointment is for twelve months, subject to renewal. Candidates must be legally qualified and registered and have held a Resident Surgical post and had special experience in Ophthalmic work.

Applications, with copies of testimonials, should be received by the undersigned not later than March 1st, 1938.

S. CLAYTON FRYERS,
House Governor and Secretary.

ROYAL LIVERPOOL UNITED HOSPITAL. DAVID LEWIS NORTHERN HOSPITAL. (University of Liverpool Clinical School.)

The Committee of the David Lewis Northern Hospital, Liverpool, invites applications for the post of **CASUALTY OFFICER (male)** tenable for six months from April 1st next.

Salary at the rate of £120 per annum. Board, residence and laundry are provided.

Applications, accompanied by copies of three recent testimonials, should be addressed to the undersigned immediately.

THORNBURROW GIBSON,
Superintendent.

PRESTON HALL SANATORIUM, Near Maidstone, Kent (300 Beds.)

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER (male).** Salary at the rate of £250 per annum, with board, residence and laundry.

Candidates, who must be unmarried, are requested to forward their applications as soon as possible to the Medical Director, stating age, qualifications, etc., together with copies of not more than three testimonials.

JENNY LIND HOSPITAL FOR CHILDREN, NORWICH.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER.** Salary £120, with board, residence and laundry. Candidates (Male or Female), who must possess registered qualifications, should forward applications, stating age, experience, etc., together with copies of testimonials, to the undersigned, not later than the first post on Wednesday, March 9th, 1938.

FRANK INCH,
Secretary.

MEDICAL OFFICER required for the INFANT WELFARE CENTRE, GENERAL LYING-IN HOSPITAL, York Road, Lambeth, S.E.1.

Candidates must be experienced in the care of children from one to five years of age, and will be required to attend one session per week. Applications, stating age, qualifications, and experience, with three copies of testimonials, to be forwarded by March 11th, 1938, to the Secretary, from whom further particulars can be obtained.

APPOINTMENTS—Important Notice

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshugga Gardens, Edinburgh).

(a) British Islands

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY. (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer.)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.)	NEATH AND DISTRICT. (Medical Aid Association.)	PUBLIC HEALTH
LLWYNPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme.)	SALOP MENTAL HOSPITAL, SHREWSBURY (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract and Lodge Practices.)	The Hon. Sec., Western Australian Branch, British Medical Association, "Sefti House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B 17.				

February 23, 1938.

By Order of the Council.

G. C. ANDERSON, Secretary.

THE CHILDREN'S HOSPITAL (King Edward VII. Memorial), Birmingham, 16.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post. Candidates must be qualified and registered, and have held a responsible Resident appointment at a teaching Hospital. The salary is at the rate of £175 per annum, with board, residence and laundry. The appointment is tenable for one year, and the Officer is eligible for re-election for a second year. Candidates should forward their applications, with Certificate of Registration, and any credentials which they may desire to offer, to the undersigned on or before March 5th, 1938.

Owing to the resignation of the present holder of the office, the duties will commence forthwith.

HAROLD F. SHRIMPTON,
February 14th, 1938. House Governor.

WEST KENT GENERAL HOSPITAL (Incorporated), Maidstone. (136 Beds.)

Applications are invited for the post of HOUSE SURGEON, who must be a male of British nationality, and unmarried.

Salary, the rate of £175 per annum, with board, apartments and laundry. Candidates must possess registered qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before March 1st, 1938. The successful candidate will be required to take up residence on March 10th, 1938.

EDWARD J. GREGG,
House Governor and Secretary

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.

JUNIOR HOUSE SURGEON, woman, wanted for April 1st, unmarried. Salary at the rate of £120 yearly, with board, residence and laundry. Apply, stating age and nationality, with copies of testimonials, to the Secretary before Tuesday, March 8th.

A. S. GORDON, Secretary.

ROYAL DEVON AND EXETER HOSPITAL, Exeter. (250 Beds.)

RESIDENT SURGICAL OFFICER HOUSE SURGEON, HOUSE SURGEON to the Ear, Nose and Throat Department.

The above resident posts (male only) will become vacant on April 1st, 1938.

The appointment of Resident Surgical Officer (salary £250) is for one year; the other appointments (salary £150) for six months, with eligibility for re-election.

Candidates must possess registered qualifications. Applications, stating age, qualifications, and copies of three recent testimonials, should be sent to the undersigned on or before Tuesday, March 1st, 1938.

S. S. COLE,
Secretary and Manager.

ROYAL EYE HOSPITAL, Pevensey Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith. Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications and Ophthalmic experience, together with recent testimonials, should reach the undersigned as soon as possible.

Before engagement, candidates have to be interviewed by appointment by the Hon. Surgeon, from whom further particulars could be obtained in person.

H. BYGRAVE,
Secretary.

LEIGH INFIRMARY, LANCASHIRE.

Wanted, JUNIOR HOUSE SURGEON immediately. Salary £150 per annum. The appointment is for six months, with eligibility for re-election. Must be good Anaesthetist. Exceptional opportunities for Surgery.

Applications to be addressed to Mr. J. A. SMITH, Secretary, 5, Silk Street, Leigh, Lancashire.

LEICESTER ROYAL INFIRMARY, (500 Beds.)

VACANCIES FOR APRIL 1st 1938

HOUSE SURGEON

Salary £125 per annum. Applicants must have held a resident Hospital post, or had similar experience of Hospital work.

HOUSE PHYSICIAN.

Salary £125 per annum. Applicants must have held a resident Hospital post, or had similar experience of Hospital work.

JUNIOR CASUALTY OFFICER.

Junior Casualty Officer. Salary £100 per annum. Applications, giving full details, to be forwarded to the Secretary not later than February 28th, 1938, together with copies of three testimonials. Appointments will be made on March 9th, 1938. February 11th, 1938.

BRISTOL EYE HOSPITAL 1937.

80 Beds. (12 Private Patients) 1017 In-patients
17,794 Out-patients

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum. Senior post available after six months' Vacant April 1st, 1938.

Suitable experience for D.O.M.S. Applicants, stating age and qualifications, etc., with three recent testimonials, to reach the undersigned by March 11th.

D. M. EABER,
Secretary and House Governor

HERTFORD COUNTY HOSPITAL (169 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) (Three Residencies). Salary £200 per annum, with board, residence and laundry. The appointment is for six months in the first instance.

Applications, with three recent testimonials, should be sent to the undersigned not later than Tuesday, March 1st, 1938.

FERCY G. BROOKS,
Secretary.

(Appointments continued on p. 61.)

THE BRITISH MEDICAL JOURNAL

56

WEST LONDON HOSPITAL,
Hammersmith Road, W.6 (239 Beds).

Required, one **HOUSE PHYSICIAN** and one **HOUSE SURGEON**. The duties of the House Physician include some work in the Children's Department, and the House Surgeon will have some work in the Genito-Urinary Department. These appointments (males) are tenable for six months from April 1st next, subject to one month's notice on either side. Salary at the rate of £100 per annum, with board, lodgings and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Wednesday, March 16th. Selected candidates will be required to call upon such Members of the Medical Council meeting as be in attendance at the Medical Council meeting on Friday, March 25th, at 4.30 p.m., and the House Committee meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL,
Gray's Inn Road, W.C.1.**RESIDENT HOUSE SURGEON (Male).**

There is a vacancy for a Third Resident House Surgeon to enter on duty immediately. The appointment will be for a period of ten months, four months as Third House Surgeon, three months as Second House Surgeon, and three months as First House Surgeon. Remuneration at the rate of £75 per annum.

Applications, accompanied by copies of not more than three testimonials, should be sent to the undersigned immediately.

JOHN H. YOUNG,
Secretary-Superintendent.**KING EDWARD MEMORIAL HOSPITAL,**
Ealing, W.13. (145 Beds.)

Applications are invited for the post of **CASUALTY HOUSE SURGEON**, male (with which is combined the duty of deputising for the House Physician). Eight months' appointment from April 1st with possibility of re-election for a further period. Salary £150 per annum with usual residential emoluments.

Applications, stating age, experience and qualifications, accompanied by copies of two recent testimonials, to be sent to the undersigned immediately.

R. A. MICKELWRIGHT,
House Governor.**THE ROYAL CANCER HOSPITAL (FREE)**
(Incorporated under Royal Charter),
Fulham Road, London, S.W.3.

Applications are invited for the post of **HOUSE SURGEON**, to commence duties on April 1st, 1938. Salary at the rate of £100 per annum. The appointment is for six months and subject to rules; a copy of which may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with three (copies only) testimonials, to be sent to the undersigned not later than first post on Friday, March 11th, 1938.

CLEMENT COBBOLD, Secretary.

THE ROYAL CANCER HOSPITAL (FREE)
(Incorporated under Royal Charter),
Fulham Road, London, S.W.3.

Applications are invited for the post of **SECOND ASSISTANT PATHOLOGIST**, to commence duties on April 4th, 1938. Salary £250 per annum. The appointment is for twelve months and subject to rules, a copy of which may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with three (copies only) testimonials, to be sent to the Secretary not later than the first post on Friday, March 11th, 1938.

CLEMENT COBBOLD, Secretary.

THE SALVATION ARMY.
THE MOTHERS' HOSPITAL,
Lower Clapton Road, Clapton, E.5.

Applications are invited from Medical Women for the post of **JUNIOR RESIDENT MEDICAL OFFICER**, vacant April 1st, 1938. Salary £80 per annum with board, residence and laundry. The appointment is for six months, must be sent to the Secretary, with testimonials, must be sent to the Secretary on or before Saturday, March 5th, 1938.

FRED HAMMOND,
Secretary.**SOUTH LONDON HOSPITAL FOR WOMEN.**
Clapham Common, S.W.4

Applications are invited from medical women as **CLINICAL ASSISTANTS** for Gynaecological out-patients to attend on Monday afternoons. Applications, with testimonials, to be sent to the secretary at the Hospital.

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN,
Shadwell, London, E.1.
(Formerly East London Hospital for Children.)
(135 Beds.)

A-HOUSE PHYSICIAN is required on April 1st, 1938, by the above Hospital. Candidates are invited to send in their applications, addressed to the Secretary, not later than the first post on Tuesday, March 8th, 1938, accompanied by copies of not more than three recent testimonials and evidence of not having held a responsible hospital appointment. The appointment is for six months. Salary at the rate of £125 per annum, with board, residence and laundry.

Candidates must be properly registered in this country. Forms of application and copies of the rules can be obtained from the Secretary-Superintendent.

ROYAL NORTHERN HOSPITAL,
Holloway, N.7.

Applications are invited for the following appointment:

HOUSE PHYSICIAN, vacant March 21st. The appointment is for nine months (three months as Out-Patient Medical Officer and Anaesthetist and six months as House Physician). Salary at the rate of £70 per annum, with board, residence and laundry.

Applications, with copies of testimonials, should be sent by March 4th to the undersigned, from whom forms of application and rules can be obtained.

GILBERT G. PANTER,
Secretary.**KING GEORGE HOSPITAL, ILFORD,**
(Near London. 207 Beds.)

RESIDENT ANAESTHETIST AND HOUSE PHYSICIAN (male) required, for six months from April 1st. Salary £150 p.a. Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, not later than March 14th.

G. AUSTIN HEPWORTH,
Secretary and Superintendent.**THE RADCLIFFE INFIRMARY, OXFORD.**

Applications are invited for the following posts, which will become vacant on April 1st, 1938:

TWO HOUSE PHYSICIANS.
ONE OBSTETRIC HOUSE PHYSICIAN to Senior will also act as House Physician to Senior Physician.
ONE HOUSE SURGEON TO EAR, NOSE AND THROAT DEPARTMENT. (Previous experience desired—recognized for degree of D.L.O.)
FOUR HOUSE SURGEONS.
All Resident Medical Officers will have certain anaesthetic duties to perform.

The five House Surgeons will also be responsible for Casualty.

Appointments for six months, with salaries at the rate of £120 per annum, with board, etc. Candidates must be male and qualified.

Applications, with four copies of three testimonials, to be sent to the undersigned on or before March 5th, 1938.

A. G. E. SANCTUARY,
Administrator.**THE ROYAL CRIPPLES HOSPITAL,**
BIRMINGHAM.
(306 Beds and large Out-Patient Department.)

Applications are invited for the post of **RESIDENT HOUSE SURGEON (Male)**, vacant April 1st next. Salary £200 per annum, plus car allowance. The appointment, which is for a period of six months, is renewable on the discretion of the Medical Board, and is terminable by one month's notice on either side.

Candidates must be unmarried, and preference will be given to those with previous experience in General and Orthopaedic Hospitals.

Applications, with copies of three recent testimonials, to be sent on or before March 5th, 1938, to the General Secretary, Royal Cripples Hospital, 80, Broad Street, Birmingham 15.

WORCESTER ROYAL INFIRMARY.
(165 Beds.)

Applications are invited for the posts of:
SENIOR HOUSE SURGEON. Salary at the rate of £150 per annum, with board, residence and laundry. The Hospital is approved by the Royal College of Surgeons for candidates for the Fellowship.

JUNIOR HOUSE SURGEON. Salary at the rate of £120 per annum, with board, residence and laundry.

Applications, stating full particulars as to age, whether married or single, qualifications, etc., and accompanied by copies of three recent testimonials, should be sent to the undersigned by March 7th, 1938.

A. R. WISE,
Superintendent-Secretary.**WORCESTER COUNTY AND CITY MEN'S HOSPITAL,**
Powick near Worcester.

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER.** Applicants must be male, single, under thirty-five years of age, and duly qualified in medicine and surgery. Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartments, board, laundry and attendance. A further £50 per annum will be paid if the selected candidate holds a Diploma in Psychological Medicine. Experience in anaesthetics will be a recommendation. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, stating age, and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Saturday, March 5th, 1938.

THE PRINCE OF WALES'S HOSPITAL,
Greenbank Road, Plymouth.
(Formerly South Devon and East Cornwall Hospital.) (264 Beds.)

Applications are invited for the post of **HOUSE SURGEON.** Salary £120 per annum, with board, residence and laundry. Appointment is tenable for six months and is subject to renewal. Duties to commence March 22nd.

The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by March 11th.

ARTHUR R. CASH,
Gen. Supt. and Secretary.**WEST BROMWICH AND DISTRICT GENERAL HOSPITAL (INCORPORATED),**
APPOINTMENT OF CASUALTY HOUSE SURGEON.

Applications are invited for the post of Casualty House Surgeon. Candidates (Male) must be doubly qualified and unmarried. Salary at the rate of £200 per annum, with board, residence and laundry. Appointment is for six months, and the successful candidate will be required to take up his duties on March 31st next.

Applications, stating age and qualifications, with copies of recent testimonials, should be sent to the undersigned at once.

C. J. ADAMS,
House Governor and Secretary

February 21st, 1938.

THE ROBERT JONES AND AGNES HUNT ORTHOPAEDIC HOSPITAL,
Oswestry. Children 130.)

HOUSE SURGEON required immediately. Appointment for six months, with possibility of extension. Salary at the rate of £200 per annum, with board, residence and laundry. Two weeks' holiday for each six months' service.

Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be received not later than February 28th, 1938.

J. C. MENZIES,
Secretary-Superintendent.**THE CHILDREN'S HOSPITAL, SHEFFIELD.**
(140 Beds.)

Applications are invited for the post of **HOUSE SURGEON**, vacant April 1st, 1938. Salary £160 per annum, with board, residence and laundry.

The appointment is for six months. Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials, to the undersigned.

T. H. G. GARTLAND,
Superintendent and Secretary.**THE BUCHANAN HOSPITAL,**
ST. LEONARDS-ON-SEA.
(103 Beds.)

JUNIOR HOUSE SURGEON (female) required to commence duties immediately. Salary at the rate of £125 per annum. Candidate must be duly registered Medical Practitioner, and applications should include copies of three recent testimonials.

FRANK HART,
Secretary.**ECCLES AND PATRICROFT HOSPITAL,**
near Manchester.

JUNIOR RESIDENT SURGEON required to commence duties immediately. Salary at the rate of £125 per annum, plus medical emoluments. Apply with references to Secretary.

ASSISTANTSHIP (PREFERABLY WITH VIEW) required in Birmingham of vicinity by young married doctor. Three years' hospital and G.P. experience. Own car. Nice house essential. Address, No. 3831, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WANTED BY EXPERIENCED G.P. (Temporary or Permanent) 10 years' Panel and General. Take up duty at once. No. 3954, B.M.A. House, Tavistock Square, W.C.1.

BIRMINGHAM—YOUNG, ACTIVE, PRACTITIONER, own car, desires to ASSIST (PART-TIME) busy panel practitioner or elderly doctor, extensive midwifery experience; would do night work. Salary as agreed—Address, No. 3819, B.M.A. House, Tavistock Square, W.C.1.

M.D., 47, MARRIED, SEEKS ASSISTANTSHIP with view £400 p.a. London or South. Free now—Address, No. 3885, B.M.A. House, Tavistock Square, W.C.1.

MONMOUTHSHIRE—MARRIED ASSISTANT required immediately. Salary £500, including car allowance, unfurnished house. State area, nationality and fullest particulars. Usual bond. Address, No. 3829, B.M.A. House, Tavistock Square, W.C.1.

NEAR NEWPORT, MON.—YOUNG OUTDOOR ASSISTANT wanted at once. Salary £475, including car allowance, furnished rooms. State fullest particulars, married or single. Usual bond—Address, No. 3830, B.M.A. House, Tavistock Square, W.C.1.

OUTDOOR ASSISTANTSHIP OR PART-TIME WORK wanted in London by woman doctor M.B., Ch.B., D.P.H. Experienced hospital, general practice, and public health—Address, No. 3611, B.M.A. House, Tavistock Square, W.C.1.

PHYSICIAN, AGE 29, EXPERIENCED IN GENERAL PRACTICE, reading for higher examination, desires PART-TIME ASSISTANTSHIP in London, or would do odd surgery and night work. Rises Wel. 1270, 10-12 or 2.30-4.30—Address, No. 3959, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED IN MID-APRIL BY YOUNG ENGLISH L.R.C.P., M.R.C.S., ASSISTANTSHIP, indoor or outdoor. Three years' hospital and G.P. experience. Own car. Permanency preferred—Address, No. 3827, B.M.A. House, Tavistock Square, W.C.1.

S. WALES SEAPORT—WANTED, EXPERIENCED ASSISTANT. English, Scotch or Welsh. Mixed practice. Another assistant and dispenser kept. Good Hospital. Car provided. £350 indoor or £400 and rooms outdoor. Partnership to suitable man if desired—Address, No. 3832, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS

WANTED, FULLY QUALIFIED MASSEUSE ELECTRO THERAPEUTIST. Must be experienced and used to good-class private practice. To work exclusively for firm of five doctors in Provinces. Reply, stating salary, qualifications and experience—Address, No. 3505, B.M.A. House, Tavistock Square, W.C.1.

A LADY DISPENSER BOOKKEEPER supplied immediately on request, qualified with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations—Write, wire, or phone (Bayswater 0962)—Secretary, 7, Westbourne Park Road, W.6.

A Course of Training in Dispensing and Pharmacy is given at **ORDON HALL SCHOOL OF PHARMACY** and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: Euston 3930.

DISPENSER (LADY), MANY YEARS' EXPERIENCE, desires POST in London. Good testimonials—Address, No. 3951, B.M.A. House, Tavistock Square, W.C.1.

DISPENSER (QUALIFIED), SECRETARIAL DUTIES, and minor dressings if required, seeks POST, London or easy distance—Address, No. 3953, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER-SECRETARY DESIRES POST with Doctor in or near Leicester—Address, No. 3817, B.M.A. House, Tavistock Square, W.C.1.

LABORATORY TECHNICIAN DESIRES POST. Bacteriology, Biochemical Analysis of Specimens. Expert in Hematology, Photomicrography. Qualified X-ray operator. Can bring full laboratory equipment if necessary—No. 3512, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER (QUALIFIED) SEEKS position in Hospital, Institute or Private Practice, excellent testimonials, 9 years' experience in General Practice, Locum, and Hospital Dispensing—V. Lewis, 184, Westmount Road, Eltham, S.E.9.

OPHTHALMOLOGIST WITH EXPERIENCE required for formation of a masonic poly-clinic of specialists for the near East. For information and data apply—THE SECRETARY, Masonic Poly-clinic, The Vicarage, Bowdington, Epsom, Surrey.

POST AS SECRETARY TO NURSING HOME or Doctor required by young man with three years' experience. London or Home Counties. Excellent medical references—Address, No. 3952, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 7222), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Officers, Dental Clerk, Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

LOCUMS

LOCUM WORK WANTED FOR 1938 by experienced G.P. who has disposed of own practice. Englishman, highest testimonials, abstainer. London hospital well received, rows downgraded. Own car—Address, No. 3815, B.M.A. House, Tavistock Square, W.C.1.

M.B., CH.B., DESIRES IMMEDIATE LOCUM or ASSISTANT WORK. Drives car. Willing to go anywhere. Ex-H.P. and H.S.—Address, No. 3806, B.M.A. House, Tavistock Square, W.C.1.

WOMAN DOCTOR, M.B., B.Ch., REQUIRES LOCUMS or ASSISTANTSHIP outdoor. Ex-H.S., H.P. Experience in general practice. Panel and private—Address, No. 3933, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS

DEVONSHIRE—PARTNERSHIP, QUARTER SHARE at two years' purchase in practice, average gross taking last two years £4,331 for sale. Increasing. Good scope for enterprise man. Experienced, married man preferred—Address, No. 3822, B.M.A. House, Tavistock Square, W.C.1.

D.M.R.E. DESIRES PARTNERSHIP IN X-ray practice. Replies will be treated in strict confidence—Address, No. 3826, B.M.A. House, Tavistock Square, W.C.1.

KENT, NEAR LONDON—THIRD PARTNER wanted. Old-established practice, quarter share, about £1,000 to commence. Two years' purchase, short preliminary assistance preferred—Address, No. 3791, B.M.A. House, Tavistock Square, W.C.1.

M.S., LOND., F.R.C.S., ENG. WITH extensive surgical experience and good knowledge of general practice requires PARTNERSHIP in good class practice with surgical scope and prospective Hospital appointment. Near London or South Coast preferred—Address, No. 3735, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P. ED., 29, MARRIED, DESIRES PARTNERSHIP in good-class practice. Capital available. Near London preferred—Address, No. 3961, B.M.A. House, Tavistock Square, W.C.1.

NEAR HARLESDEN, N.W.—HALF SHARE of well-established practice. Receipts average £1,600 p.a., panel 2,500. Nice home available. Premium £1,600—Apply, BAYCOCK and HADLEY, Ltd., 67-68, Chancery Street, Strand, W.C.2.

ONE-HALF SHARE IN GOOD-CLASS MIXED practice in South of England. Two years' purchase at £3,000. Panel 1,200. Good hospital. House to rent or purchase, immediate entry, full introduction—Address, No. 3909, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIP—THIRD PARTNER, ONE-FIFTH SHARE, increasing to quarter, of £450 p.a. Panel 4,000. Preliminary Assn. House to suit requirements built in new area (6,000 houses). South Yorkshire large town—Address, No. 3824, B.M.A. House, Tavistock Square, W.C.1.

SUSSEX, COAST TOWN—PARTNERSHIP, mixed practice, approx. £200 p.a. Panel over 2,000. Good Hospital. Semi-detached house, good garden for sale or rent. Scope for surgery. Premium half-share two years' purchase—Address, No. 3957, B.M.A. House, Tavistock Square, W.C.1.

THIRD PARTNER REQUIRED IN OLD established good-class Private and Panel Practice. Midlands. Six months' preliminary assistance desirable. Share over £1,500—Address, No. 3913, B.M.A. House, Tavistock Square, W.C.1.

WOMAN'S PRACTICE, NORTH LONDON, HALF SHARE offered 5 years' experience. Modern house with garden and garage can be rented £65—Address, No. 3838, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED, COUNTRY OR COUNTRY TOWN PRACTICE or PARTNERSHIP by M.B., Ch.B., M.R.C.S., L.R.C.P., aged 42, who has recently disposed of his own large industrial practice. Income to produce about £2,000. Ample capital. Free July—Address, No. 3769, B.M.A. House, Tavistock Square, W.C.1.

WANTED, BY M.D., F.R.C.S.E., AGED 40, PRACTICE OR PARTNERSHIP, with some surgical scope or hospital appointment. Income £1,000 upwards—Address, No. 3837, B.M.A. House, Tavistock Square, W.C.1.

WANTED—PRACTICE DOING £300 TO £400 p.a. Or a Partnership bringing in good income. Genuine buyer with capital—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22479), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2512).

WANTED, AFTER MARCH, COUNTRY PRACTICE, £1,000 to £1,500, including panel, south of Leicester—Address, No. 3802, B.M.A. House, Tavistock Square, W.C.1.

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WANTED, SMALL PRACTICE, PRIVATE OR Panel, on or near North-West or Welsh Coast. Cash available—Address, 3807, B.M.A. House, Tavistock Square, W.C.1.

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DISPLAYED

Whole page £20, and pro rata to one-eighth page. (On March 1st and thereafter the rate will be £24 per page.) A few special positions facing matter at £25 and £30 per page.

Every effort is made to ensure the accuracy of advertisements appearing in the Journal. No recommendation is implied by acceptance and the British Medical Association reserves the right to refuse or interrupt the insertion of any advertisement.

ADVERTISEMENT MANAGER, BRITISH MEDICAL JOURNAL,
B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1
EUSion 2111

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WANTED.—ASSISTANT WITH VIEW TO Partnership in good mixed Practice in Midland country town. One-fifth share at two years' purchase to suitable man. House and garden available at moderate rental. A knowledge of eye work would be a recommendation but not a necessity; but candidate should have Fellowship in Surgery to secure Hospital appointment. Further details on request.—Address, No. 3605, B.M.A. House, Tavistock Sq., W.C.1.

WANTED IMMEDIATELY, MALE OR female ASSISTANT, one recently qualified, with some experience but not essential, for good-class general practice. Commencing salary £300 per annum, live in, motor car provided.—Apply, DAY, JOHNSON AND BOOT, Solicitors, Park Row, Nottingham.

WANTED IMMEDIATELY—INDOOR AND outdoor ASSISTANTS for town and country practices, with and without view to partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED, MARCH 23rd, ASSISTANT, indoor, single. Panel and private practice. Cambridge. Some experience, able cycle, own car advantage. Full particulars, copies testimonials. £300, all found.—Address, No. 3935, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, SCOTS OR English, for Private and Panel Practice in country town in Midlands. Outdoor. Salary £400, plus £50 car allowance.—Address, No. 3816, B.M.A. House, Tavistock Square, W.C.1.

WANTED, FOR APRIL 1st, YOUNG MALE ASSISTANT in compact practice in small Midlands town. View to partnership. Salary £150 per annum, indoor. Car supplied. Applications should state age, height, religion; recent photograph if possible. Scot preferred.—Address, No. 3821, B.M.A. House, Tavistock Square, W.C.1.

WANTED NOW FOR TWO MONTHS, single, young male ASSISTANT, York, N.R., country adjoining seaside town. Must have car. Indoor £300 p.a. plus £50 car allowance.—Address, No. 3818, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT FOR MIXED Practice near Birmingham. Salary £400 p.a. with car allowance and very good house. Excellent prospects for suitable man. Reply, stating age, nationality and religion. Photo if possible.—Address, No. 3723, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT (BRITISH) for Practice in North of England. Salary £300 to £350 per annum, indoor, according to experience. Car with all running expenses provided.—Address, No. 3956, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, MALE, BRITISH, young, for Panel and Private Practice, London. Suitable postgraduate, residential. State all essential particulars.—Address, No. 3955, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT (MALE), MIXED general practice, S.W. London. Knowledge panel work. £8 8s. 6d. weekly, all found.—Address, No. 3803, B.M.A. House, Tavistock Square, W.C.1.

WANTED.—MALE ASSISTANT WITH view to partnership, residential village, Midlands. Salary £400 including car allowance. Outdoor. British. Protestant. Abstainer. Reply, stating age, experience, etc., to—Address, No. 3729, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN INDOOR ASSISTANT IN A South Wales colliery practice. A dispenser kept. Salary £350 per annum. Apply, stating age, references, etc., to—Address, No. 3811, B.M.A. House, Tavistock Square, W.C.1.

WANTED, UNMARRIED MALE ASSISTANT, Welsh, English or Scot, for South Wales colliery practice. Outdoor. Salary £350 p.a., with furnished rooms. Must be able to drive car. Apply, stating age and experience. Usual bond.—Address, No. 3725, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT (MALE) MARRIED, mixed general practice, S.W. London. Knowledge panel work. £8 8s. 6d. weekly, free house, light, etc.—Address, No. 3804, B.M.A. House, Tavistock Square, W.C.1.

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EDWARD L. WIRGMAN,
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Applications, stating age and qualifications,
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By Order,
HENRY L. BOOT.

Superintendent and Secretary.
February 22nd, 1938.

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MIDLANDS.—Old-established mixed Panel and Private PRACTICE. Cash receipts approximately £2,055 p.a. Panel 2,000. Scope. Excellent house, with nice garden, garage, etc. Premium—£2,000—2 years' purchase—No. 913.

YORKSHIRE (W.R.).—Old-established mixed PRACTICE, averaging £840 p.a. Panel 701. Scope for increase. Good house, with excellent garden, to rent at £30 p.a. Premium—£1,350 to include dress and furniture—No. 1010.

MIDLAND HEALTH RESORT.—PARTNERSHIP (after preliminary Assistantship of two months) in very old-established mixed-class PRACTICE. Cash receipts last year £3,774. Panel 1,500. Fees 3 to 10 6. Incoming partner should be Protestant, and may choose own residence. Possibility of Hospital appointments. Premium—1 share—2 years' purchase. Further share in three years—No. 1069.

REDFORD PRACTICE.—Small Country PRACTICE, capable of great increase. Cash receipts £550 £500 p.a. Panel 120. Good house, with ample accommodation, garage and garden. Rent £56 p.a. or would sell for £500. Premium—£300—No. 1065.

ASSISTANTS WANTED.—OUTDOOR.—MIDLANDS, LANCS AND YORKS TOWNS.—£400 £500 p.a., with House and Car allowance. INDOOR.—LANCS, YORKS, MIDLANDS AND N.E. COAST.—£550 £350 p.a., ad found. Many vacancies. Details on request. LOCUMS ALSO REQUIRED.

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Practices and Partnerships for Disposal (continued).

26 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £5,000 p.a., in county town. Panel over 5,000. Main surgery premises (4 bedrooms, etc.), garage and garden, to rent. Premium one-fifth share two years' purchase. Further share in seven years. Short Assistantship.

27 HOME COUNTIES.—PARTNERSHIP in sound old-established Practice, averaging about £4,800, in beautifully situated country town. Panel about 2,000. Visits 3/6 to £1 1s. Incoming partner should preferably be a graduate of Oxford or Cambridge, must have held hospital appointments and be experienced in surgery. Excellent hospital. Share worth about £1,000 (or more) at two years' purchase with good prospects of increase.

28 LONDON, S.E.—Old-established PRACTICE in growing suburban district. Receipts average over £1,500 p.a. (appointments worth about £100 and panel over 1,000). Visits 3/6 to 6/-. Semi-detached corner house (3 bedrooms), with separate surgery accommodation, garage and small garden, for sale. Premium two years' purchase.

29 HOME COUNTIES.—PARTNERSHIP in good-class Practice, about £3,000 p.a., in favourite market town. Small select panel. Visits 5/- to £1 1s. Charming modern labour-saving residence (5 bedrooms, etc.), garage and beautifully stocked garden. Price £3,000. Very good society. Scope. Premium one-half share two years' purchase.

30 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-. Majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.

31 MIDDLESEX.—Medical Woman's PRACTICE in rapidly growing residential district within 15 miles of London. Cash receipts, 1937, £528. Panel 69. Excellently situated modern house (5 bedrooms), with large garage and garden. Rent £125 p.a., or might be sold. Ample scope. District rapidly increasing. Premium £750.

32 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.

33 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,800 p.a. Panel 4,600. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.

34 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.

35 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.

36 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of

London. Receipts last year just over £700. Panel 60/70. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.

37 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, panel or midwifery. Premises to rent at £135 p.a. Premium £500.

38 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third share at two years' purchase.

39 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house about 6 bedrooms, in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

40 DEATH VACANCY.—CUMBERLAND.—Old-established good-class non-dispensing PRACTICE, over £700 p.a., in rapidly growing town. No panel. Large house for sale or rent. Good scope.

41 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30/35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,600 p.a. at first at two years' purchase.

42 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,900. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

43 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

44 LONDON, N.W.—Old-established PRACTICE doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 300. House (5 bedrooms), with large garden and garage. Price freehold, £2,750, or rent £150 p.a. Scope. Premium £2,000.

45 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year, £2,277. Expenses light. Premium £2,460 cash or £2,600 terms (English currency). Purchaser should be at least 30 years of age with experience.

46 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 450 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

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C. NORTHANTS.—Country ASSISTANTSHIP with view to Partnership. Receipts £2,100. Ample scope for increase.

D. SOUTH OF SCOTLAND or ENGLAND.—MIXED GENERAL COUNTRY PRACTICE required about end of March. Returning approximately £1,500 p.a. Capital available.

E. EDINBURGH.—Receipts £800. Panel 1,020. House for sale. Premium for Practice and house, £2,300.

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ASSISTANTS ARE URGENTLY REQUIRED.

Terms on which the business of the Branch is transacted will be submitted on application to the Branch Manager, to whom all communications should be addressed.

British Medical Bureau

(THE SCHOLASTIC, CLERICAL & MEDICAL ASSOCIATION LTD.)
(FOUNDED 1880.)

Tele. Address:
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FULL TERMS ON APPLICATION

Practices and Partnerships for Disposal.

Full Particulars sent free.

1 DEATH VACANCY.—NORTHANTS.—Well-established PRACTICE in progressive town. Receipts, 1937, £800. Panel 780. Detached house (5 bedrooms), garage and small garden, for sale or rent.

2 S. OF ENGLAND.—First-rate Residential Town. —Good-class non-dispensing PRACTICE about £1,200 p.a. Consultations and visits 10/6, sometimes 7/-. No midwifery. Good house (6 bedrooms), in best part. Price £1,500. Good scope. Premium two years' purchase. Suitable to a physician.

3 SURREY.—PARTNERSHIP in well-established and rapidly growing middle-class Practice, doing about £3,750, in developing residential neighbourhood. Panel 750. Visits 5/- to 10/6. House (4 bedrooms), garage and small garden. Price £1,250. One-fourth share at first at two years' purchase.

4 DEVON AND CORNWALL BORDER.—Very old-established and steadily increasing country PRACTICE, £1,325 p.a. Panel 413. Visits 5/- to 15/6, medicine extra. Very nice detached house (6 bedrooms, 2 dressing-rooms, etc.), garages and garden, about one acre, with fine orchard. Price freehold £1,800. Ample scope for increase. Ill-health cause of sale. Reasonable premium accepted for quick sale.

5 S.E. COAST.—PARTNERSHIP in old-established middle and working-class Practice in growing resort. Receipts, 1937, £4,350. Panel about 3,000. House (5 bedrooms), garage, etc., to rent at £120 p.a. Premium one-third share two years' purchase.

6 S. OF ENGLAND.—Steadily increasing middle and working-class PRACTICE in seaport town. Receipts past year, £800 (appointment worth £45, panel 660 and P.M.S. 295). Detached house with garage and garden. Rent £85 p.a. Premium £1,220, to include drugs and fittings.

7 MIDDLESEX.—Well-established and steadily increasing PRACTICE in growing neighbourhood, about eight miles from Marble Arch. Receipts, 1937, £1,275. Panel 1,720. House (4 bedrooms), garage and small garden. Price £1,200. Scope. Premium £2,400.

8 SEASIDE TOWN WITHIN HOUR OF LONDON.—Very old-established PRACTICE, about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), large garage and garden, for sale or rent. Good scope. Premium £1,000.

9 W. OF ENGLAND.—PARTNERSHIP in non-—PRACTICE of £1,800 in first-rate residential town. flat available at £105 p.a. inclusive. share two years' purchase (short

Assistantship).

10 S. OF ENGLAND.—Well-established SANATORIUM for the Open-Air Treatment. Profit last ten months, £470. Premium £1,000, to include furniture, etc. Further details on application.

11 ESSEX.—Medical Woman's PRACTICE, averaging £1,075 a year, in outlying suburban district. Panel 780. House to rent at £100 p.a. Premium £1,650.

12 EAST ANGLIA.—Upper and middle-class PRACTICE in progressive town. Receipts last three years average nearly £1,100 p.a. No appointments or panel. Visits 5/- to £1 11s. 6d. Semi-detached house (7 bedrooms, etc.), with good garden, for sale. Scope. Premium one and a-half years' purchase.

13 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant outlying residential district. Visits 3/6 to £1 1s. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.

14 S. OF ENGLAND.—Experienced SURGEON required for purely EAR, NOSE and THROAT WORK in good-class Practice. Must hold Fellowship and have good experience. Further details on application.

15 DEATH VACANCY.—Residential town S. of England.—Good-class PRACTICE with some special work (Cardiology). Receipts January/October, 1937, about £1,700. House could be purchased.

16 N. MIDLANDS.—PARTNERSHIP in steadily increasing middle-class Practice, averaging £5,500 p.a., in county town. Panel 4,900. House with 5 bedrooms, garage and good garden, to rent. One-fifth or one-fourth share at two years' purchase.

17 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £1,000 p.a., in rapidly developing district. Panel about 517. Visits generally 5/-, 7/6. Modern two-storied house with ample accommodation and separate entrance to professional parts, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.

18 LONDON, S.W.—Good-class PRACTICE, about £1,900 p.a., in excellent residential area. Panel 650. Good semi-detached house (6 bedrooms), garage, to rent on lease. Premium £3,800.

19 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £2,000 in very pleasant agricultural district. Moderate panel. Pleasantly situated house with ample accommodation. Rent £100 p.a. on lease. Extra grass land available if needed. Good scope for increase by young energetic man. Premium one-half share two years' purchase.

20 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10s., medicine extra. House (5 bedrooms), electric light and gas, garage and garden. Welsh not necessary, but an asset. Premium one-half share, to include remainder of lease, £2,500.

21 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-room), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.

22 S. MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,800. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

23 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.

24 LONDON, S.E.—PARTNERSHIP in rapidly growing district, 20 minutes from Charing Cross. Receipts average £4,275 p.a. Panel about 3,000. Specially designed modern labour-saving house (4 bedrooms), garage and good garden. Rent £110 p.a. Hospital facilities. Premium one-fourth share £2,250, to include drugs, etc. Possible further share in about 12 months.

25 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 0d. Good house, containing 14 rooms, with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.

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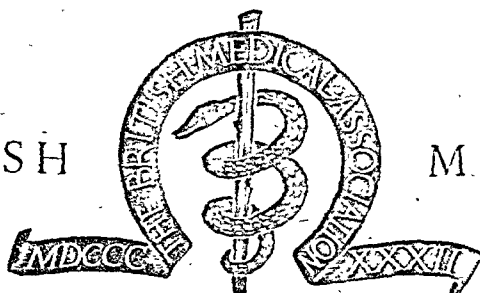
- EASY REACH OF CENTRAL LONDON.**—Old-established mainly working-class PRACTICE held by vendor (who is now retiring) many years. Average gross cash receipts for last 3 years over £1,700 p.a. (last year over £1,800). Large panel. Suitable house with 2 sitting, 3 or 4 bedrooms, professional accommodation. Can be rented on lease.
- SUSSEX.—FAVOURITE RESIDENTIAL TOWN.—PARTNERSHIP.—A ONE-HALF SHARE.**—Practice situated in very attractive district, built modern house. Ingoing partner must be experienced, accustomed to better-class work, and preferably between 30 and 40.
- WEST OF ENGLAND.—COUNTY TOWN.—PRACTICE** is good-class residential and consulting one established many years and now for disposal owing to vendor's retirement. Gross cash receipts about £1,200 p.a. Fees 7/6, 10/6, upwards. Suitable house available. Premium 2 years' purchase. Successor should hold M.D. or M.R.C.P.
- INLAND SPA.—A ONE-THIRD SHARE** is offered in well-established good-class practice. Average fees 7/6. Ingoing partner should be about 30, to deal with Works' accidents. No major share.
- HANTS.**—Well-established good-class country PRACTICE. Gross cash receipts about £1,120 p.a. Panel of about 500. Substantial house with ample accommodation and good garden. Freehold £3,000. Premium 2 years' purchase.
- DEATH VACANCY.—BORDERS OF CAMBS. AND NORFOLK.**—Old established country PRACTICE producing between £1,250 and £1,300 p.a. including panel of about 800. Good house in nearly an acre of garden (3 reception garages). Premium 13 years' purchase, or near offer.
- HOME LONDON.**—PRACTICE WITHIN 30 MILES OF LONDON. Average gross cash receipts approximately £1,000 p.a., of which £533 p.a. is from panel. Scope for increase. Appointments worth about £50 p.a. Very low expenses. Good house in an acre of ground with 2 reception, 6 bedrooms, etc. Freehold for sale or might be rented. Premium 2 years' purchase.
- WITHIN 130 MILES NORTH OF LONDON.—COUNTY TOWN.**—Old-established chiefly non-panel better-class PRACTICE averaging over £2,000 p.a. Fees 5/- to 21/-. Good house with ample accommodation. Premium 2 years' purchase.
- EAST ANGLIA.—PLEASANT COUNTY AND MARKET TOWN.**—Old-established non-panel PRACTICE producing nearly £1,000 p.a. with good scope. Suitable house with ample accommodation on rental. Premium 1 year's purchase.
- COUNTY TOWN WITHIN 50 MILES OF LONDON.—A ONE-FIFTH SHARE** (after short preliminary assistantship) is offered in well-established practice producing nearly £5,400 p.a. with large panel. Suitable house on rental. Premium 2 years' purchase.
- NORTH LONDON.**—Well-established PRACTICE producing nearly £2,000 p.a. including panel and appointments. Suitable house available.
- LADY DOCTOR'S PRACTICE.—OUTLYING EASTERN SUBURB.**—Producing at present £1,070 p.a. including panel of 'temem 2 years' purchase.
- DISTRICT.**—Old-established PRACTICE held by vendor 12 years. Gross cash receipts last year £2,338, this year at rate of about £2,700 p.a. Panel of 1,450 to 1,500. House in good position on rental. Premium 2 years' purchase.
- SOUTH DEVON.—COAST TOWN.**—Well-established PRACTICE producing last year over £1,000 (this year at rate of about £1,200 p.a.). Freehold house with 2 reception, 6 bedrooms, etc. For sale or might rent. Premium 2 years' purchase.
- A ONE-SIXTH SHARE** is offered in old-nearly £7,000 p.a. Ingoing partner must have one and preferably hold the M.R.C.P. or have Short preliminary assistantship. Suitable years' purchase.
- PARTNERSHIP.—A ONE-HALF SHARE** in old-established Practice producing over £3,000 p.a. Large panel. Very good house. Freehold for sale. Premium 2 years' purchase.
- EASTERN COUNTIES.—A QUARTER SHARE** (with increase later) after preliminary assistantship of about 3 months is offered in old-established Practice producing over £4,600 p.a. With substantial Panel and good appointments. Very nice house available on rental at £50 p.a. Premium 2 years' purchase.
- LONDON, EAST.**—Exceptionally sound chiefly working-class PRACTICE producing about £1,060 p.a., over £1,000 from Panel and appointments. Suitable house, rent £100 p.a.
- NEAR BIRMINGHAM.—A ONE-THIRD SHARE** (after preliminary assistantship) is offered in sound steadily increasing mixed-class Practice producing £3,700 p.a. Panel of nearly 5,000. Premium 2 years' purchase.
- LONDON, SOUTH-WEST.**—Middle and working-class PRACTICE. Receipts last year £705 p.a. Panel of 940. Suitable house, rent £75 p.a. Premium 2 years' purchase or near offer.
- PARTNERSHIP.—A TWO-FIFTHS SHARE**, with increase to one-half later, is offered in old-established good country Practice within about 70 miles of London. Gross cash receipts for past 12 months approximately £5,500 p.a., including large panel. Moderate expenses. Very nice house with ample accommodation and all modern conveniences. Freehold for sale or might be rented. Premium 2 years' purchase.
- NORTH WALES.**—(Welsh not essential.)—Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £285 from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price of freehold, £1,500. Premium £3,600. Partnership introduction will be given.
- lished PRACTICE** producing about £1,500 p.a. and appointments worth about £170 p.a. Good Premium for Practice and house £3,500 (or house might be rented).
- SURREY.—DEVELOPING TOWN.**—Increasing PRACTICE producing for last year £655 and believed to offer considerable scope. Panel of about 450. Well-built semi-detached house with 6 bedrooms, etc., or smaller increase.
- TOWN.—A ONE-HALF** producing over £1,400 p.a. with the aid of an energetic increase.
- 4 bedrooms, etc., and all modern conveniences.** Garden of about 1 acre. Premium for share and house, £2,500.
- NORTHERN OUTSKIRTS OF LONDON.—PARTNERSHIP.—A NINE-TWENTIETHS' share** (after preliminary assistantship) is offered in well-established Practice. Receipts for last year stated to be £2,165 p.a. Panel of 1,900 patients, and appointments worth about £200 p.a. Suitable Premium £1,800.
- NORTH LONDON.**—Mixed-class PRACTICE, averaging 10/- p.a. per seat about £2,800 p.a. Panel of over 2,600. Suitable house with 2 reception, 4 bedrooms, small garden. Rent on lease £104 p.a. Premium 2 years' purchase.
- SCOTLAND.—UNIVERSITY CITY.**—Old-established non-dispensing PRACTICE producing about £820 p.a., including £540 from Panel and £70 from appointments. Suitable house, 2 reception, 6 bedrooms, etc. Freehold £900, part on mortgage. Premium 14 years' purchase or near offer.
- LONDON.—Residential district.**—Long-established good general class PRACTICE producing over £3,000 p.a., with a full panel. Good house with ample accommodation, garden and garage. Freehold for sale or might be rented. A good introduction will be given.
- WITHIN 12 MILES OF CHARING CROSS.**—Steadily increasing PRACTICE producing last year over £1,650. Panel of over 1,000. Fully worked. Low expenses. Compact house, garden and garage. Premium 2 years' purchase.
- SOUTH COAST SEAPORT.**—Old-established mixed-class PRACTICE producing for past year over £3,800. Panel about 1,600. Various appointments. Well situated modern house, 3 reception, 3 bedrooms. Central surgery, rented at £60 p.a., part sublet. Premium 6 years' purchase.
- SOUTH COAST.—FAVOURITE TOWN.**—Old-established PRACTICE producing over £1,700 p.a. Panel of about 1,500. Appointments about £300 p.a. Scope for surgery. Prospect of hospital appointment. Low expenses. Suitable house with garden and garage on lease. Premium 2 years' purchase, to include book debts and drugs.
- DORSET COAST.—PARTNERSHIP.—A ONE-THIRD SHARE** with increase later in a well-established Practice averaging about £1,000 p.a. Panel over 2,700 and P.M.S. about 1,000. Various appointments producing £250-£300 p.a. Low expenses. Suitable house with 5 bedrooms, etc., can be purchased or rented. Premium 2 years' purchase.
- NORTH LONDON.**—Well-established, middle and working-class PRACTICE producing about £600 p.a., but offering considerable scope, especially for Panel, which has only recently been started. Suitable accommodation available on rental. Reasonable offer for quick sale, vendor taking up appointment.
- NORTH LONDON SUBURB.**—Recently established PRACTICE in fast developing area. Receipts last year about £720, including Panel of about 200 patients. Architect-built modern house with ample accommodation. Freehold for sale. Premium £850 or near offer.
- GLOS.—Sound old-established PRACTICE** in beautiful country district averaging for past 4 years about £1,100 p.a. Panel over 1,100. Appointments about £80 p.a. Good house in own grounds. Freehold for sale. Premium 2 years' purchase.
- LANCS.—SEASIDE RESIDENTIAL TOWN.**—Easily worked, mostly non-dispensing PRACTICE producing about £1,000 p.a., including Panel of about 325. Low expenses. Suitable house available with consulting and waiting rooms, 2 reception, 3 bedrooms, maid's room, etc. Large garden. Garage. For sale or can be rented. Premium 12 years' purchase.
- WEST OF ENGLAND.—Good-class residential town.—A ONE-THIRD SHARE** with increase up to one-half is offered in a better middle-class Practice. Receipts last year £1,200 p.a. Appointments worth about £150. Panel 21/-. Flat available in vendor's house for single issue of rates.
- EAST ANGLIA.**—Within 10 miles of two good towns. Old-established unopposed Country PRACTICE averaging over £1,000 p.a., including Panel producing over £450 p.a. Low expenses. Detached house with 2 sitting and 5 bedrooms, etc. Rent £90 p.a. Premium £1,750.
- WITHIN 25 MILES OF LONDON.—PARTNERSHIP**, with surgical scope. A one-fourth share, with increase later, is for disposal in an old-established Practice, producing about £4,800 p.a. Fees 3/6 to 21/-. A suitable house can be secured. Ingoing partner must have a Fellowship, be experienced and not over 35 years of age. A prelim. assistantship is offered.
- WEST COAST.**—Well-established PRACTICE, producing about £1,900 p.a. including Panel of 1,450. Suitable house on rental at £50 p.a. Premium 12 years' purchase.
- SURGICAL PARTNERSHIP** in delightful district within easy reach of London. A fifth partner is required in an old-established Practice. There is little visiting done under 10/6, although the patients come from all classes. Ingoing partner, who must hold the Fellowship, would do all the surgery for the firm, but must be prepared to do general practice as well. Choice of houses.

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SATURDAY MARCH 5 1938

PRINCIPAL CONTENTS

Pregnancy and Lactation Changes in Fibro-adenoma of Breast ..	p. 499	Leading Articles	p. 522
Pneumonitis	504	Correspondence	537
Spontaneous Disappearance of Carcinoma	508	Surgery in General Practice: Sprains and Strains	527
The Plantar Wart	509	Plymouth Annual Meeting ..	518
Intrathecal Alcohol for Relief of Pain	510	Reviews	515
Effect of Iron in Subnutrition ..	512	Table of Infectious Diseases ..	548
		Photogravure Plate at Middle Opening	

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

- Pregnancy and Lactation Changes in Fibro-adenoma of the Breast. CHARLES F. GESCHICKTER, M.D., and DEAN LEWIS, M.D.499
- Pneumonitis. A. MORTON GILL, M.D., M.R.C.P.504
- Spontaneous Disappearance of Carcinoma. DIGBY CHAMBERLAIN, Ch.M., F.R.C.S.508
- The Plantar Wart. R. M. B. MACKENNA, M.D., M.R.C.P.509
- Intra-thecal Alcohol Injection for Relief of Pain: A Review. CONSTANCE OTTLEY, F.R.C.S.510
- Effect of Iron Administration in Subnutrition. E. BLACKSTOCK, M.D., and J. M. RITCHIE, M.D.512

SURGICAL SERIES

- Treatment of Joint Sprains and Strains. R. C. ELSLIE, M.S., F.R.C.S. 527

CLINICAL MEMORANDA

- Block Anaesthesia for Insertion of Radium to Epithelioma of Lip. PHYLLIS F. L. DAPLYN, M.R.C.S.513
- Foreign Bodies in the Intestinal Tract. J. E. BOWEN, M.B., G. CHAMBERS, M.B., W. R. JOHNSTON, M.D.514

REVIEWS

- Electrocardiography515
- Archives of Neurology and Psychiatry515
- National Education515
- Experimental Pharmacology516
- Tuberculosis of Alimentary Tract...516
- Duke-Elder's Ophthalmology516
- Notes on Books.....517

GENERAL ARTICLES AND NEWS

- Annual Meeting, Plymouth, 1938. Hospitals of Plymouth (Illustrated) 518
- Diabetes and its Treatment: The Lettsomian Lectures. No. 1.....529
- Croydon Typhoid Report: The Minister's Views530
- CONTROL OF RABIES IN PALESTINE...521
- MEDICAL NOTES IN PARLIAMENT—Health and Medical Services in the West Indies.....547
- Dental Health.....547
- Scottish Voluntary Hospitals.....547
- Nutrition of the South African Native547
- PREPARATIONS AND APPLIANCES517
- UNIVERSITIES AND COLLEGES.....546
- MEDICAL NEWS.....549

LEADING ARTICLES

- Mechanism of the New Chemotherapy522
- Health at the Universities523

ANNOTATIONS

- Endocrine Factors in Breast Tumours524
- Spontaneous Recovery from Cancer525
- Pharmacological Research.....525
- Unusual Factors in Rickets.....525
- Poliomyelitis in New Zealand.....526
- Urinary Iodine in Hyperthyroidism526

SUPPLEMENT

- Findings of Eye Examinations. N. BISHOP HARMAN, F.R.C.S.

- INSURANCE MEDICAL SERVICE
- MATERNITY SERVICES IN SCOTLAND
- PUBLIC HEALTH NOTES
- GENERAL MEDICAL SERVICE FOR THE NATION
- NAVAL, MILITARY, AND AIR FORCE APPOINTMENTS
- POSTGRADUATE NEWS
- DIARY OF SOCIETIES
- MEETINGS OF BRANCHES AND DIVISIONS
- Association Notices; Vacancies and Appointments; Diary

REPORTS OF SOCIETIES

- ROYAL SOCIETY OF MEDICINE: Mineral Salts in Therapy.....531
- Measles: Epidemiology and Prophylaxis533
- NORTH OF ENGLAND OBSTETRICAL SOCIETY: Masculine Female Pelves.....535
- MEDICAL SUPERINTENDENTS SOCIETY: Diabetic Out-patients535

OBITUARY

- A. Douglas Bigland, M.D., F.R.C.P. 545
- Denis A. Sheahan, M.D., M.Ch.545
- J. F. Walker, M.B.546

EPIDEMIOLOGY SECTION

- TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS548
- EPIDEMIOLOGICAL NOTES549

CORRESPONDENCE

- Raw or Pasteurized Milk. BERNARD MYERS, M.D.537
- Insulin-tannic-acid-zinc Suspension. R. D. LAWRENCE, M.D.538
- After-effects of Modern Treatment of Carcinoma. JAMES PHILLIPS, F.R.C.S.Ed.538
- Infantile Pyloric Stenosis. LEONARD FINDLAY, M.D.538
- Excision of the Patella. HUGH WHITELOCKE, F.R.C.S.; P. W. HAMPTON, M.D.539
- Contraceptives and Fertility. MARGARET C. N. JACKSON, M.B.; Secretary, National Birth Control Association; G. H. ALABASTER, M.D.; MARIE C. STOKES, D.S.C. 539
- Co-operation. HORACE A. NATHAN, M.R.C.S.; F. GRAY, M.B.540
- Abortion and the Law. L. A. PARRY, F.R.C.S.541
- Oblique Osteotomy for Fracture of Neck of Femur. KENNETH H. PRIDIE, F.R.C.S.541
- Ascorbic Acid in Urine. F. T. THORPE, M.R.C.S.; R. HARDY, M.B.542
- Hyperventilation Attacks. R. N. C. SMITH, M.B.543
- Bug Destruction. J. M. HOLBORN, B.Sc.543
- Otitis Externa. J. C. MACGOWN, M.D.544
- Correct Footwear. MARGARET ELSLIE, M.B.544
- Early Diagnosis of Tuberculosis. D. G. MITLAND, M.B.544
- Pure English. D. T. BARRY, M.D.544

LOCAL NEWS

- SCOTLAND—Edinburgh M.O.H.536
- Royal Medical Society.....536
- Glasgow Rheumatic Clinic.....536
- ENGLAND AND WALES—Rheumatism Research in Leeds...536
- Co-operation in Health Services...536
- Epsom College537
- Appropriation of London Public Health Institutions537

THE SERVICES

- The Keogh Banner.....546
- Mentions in Dispatches.....546
- (For Naval, Military, and Air Force Appointments see SUPPLEMENT)

LETTERS AND ANSWERS

- Treatment of Ascites550
- Primary Vaccination at Age 12.....550
- "The Evolutionary Theory"550
- Corrigendum550



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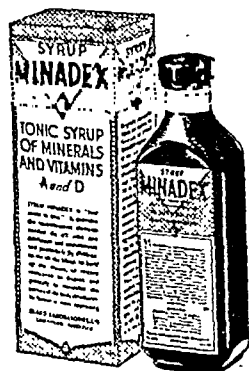
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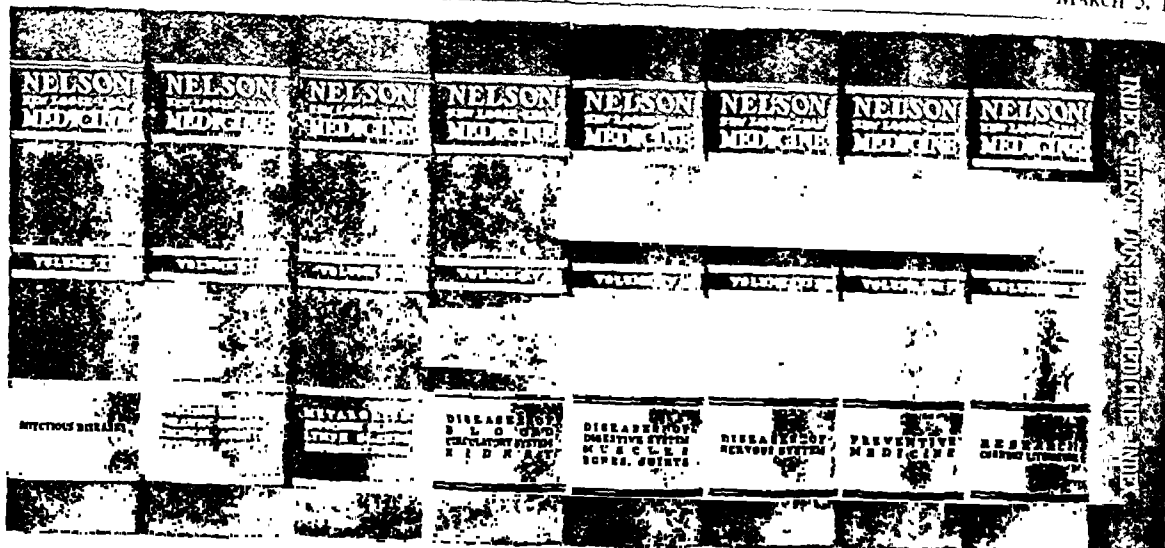
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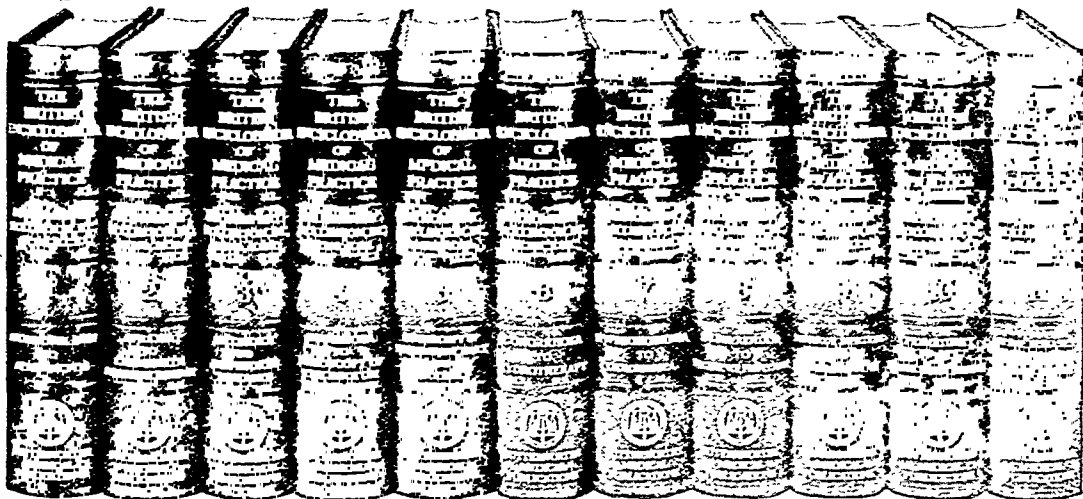
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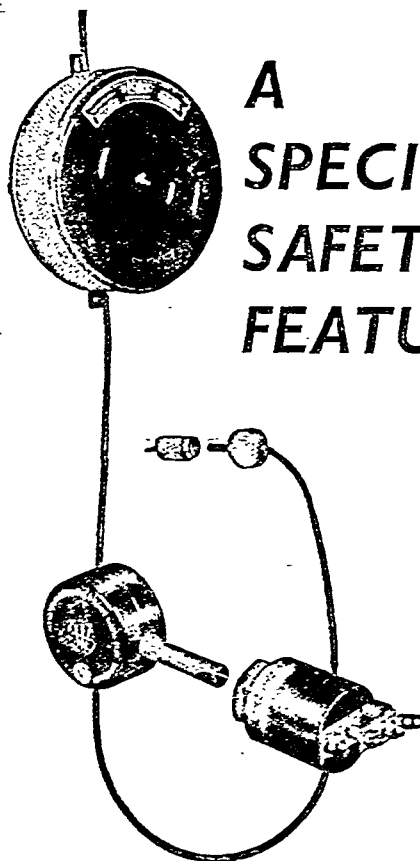
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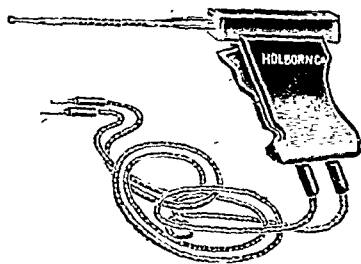
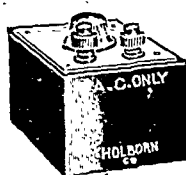
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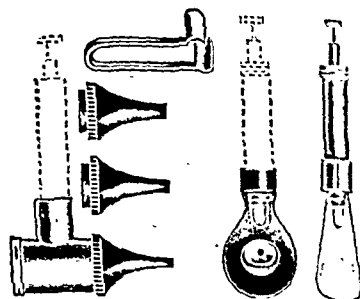


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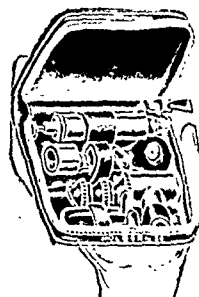
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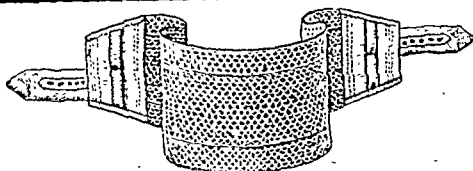
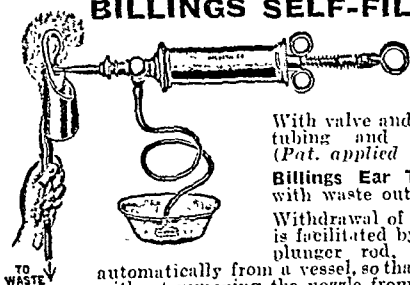
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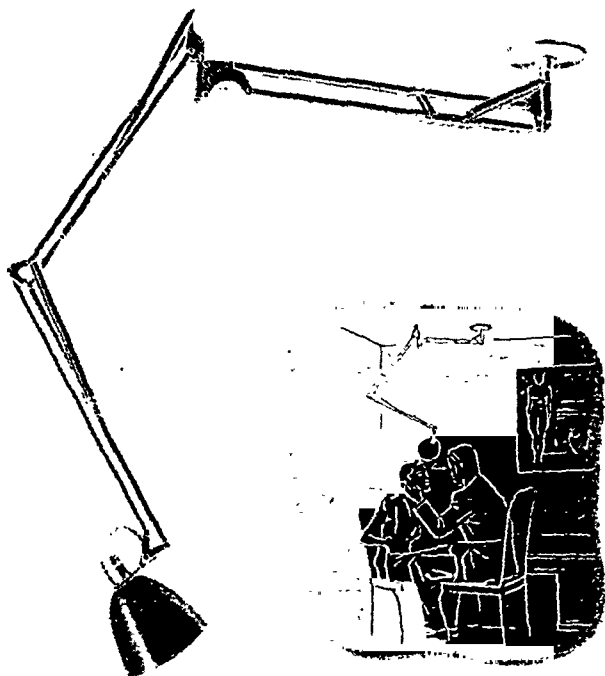
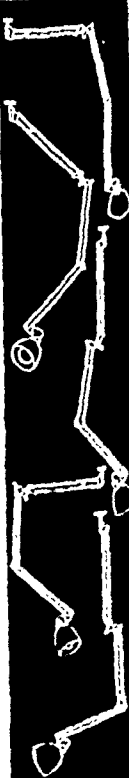
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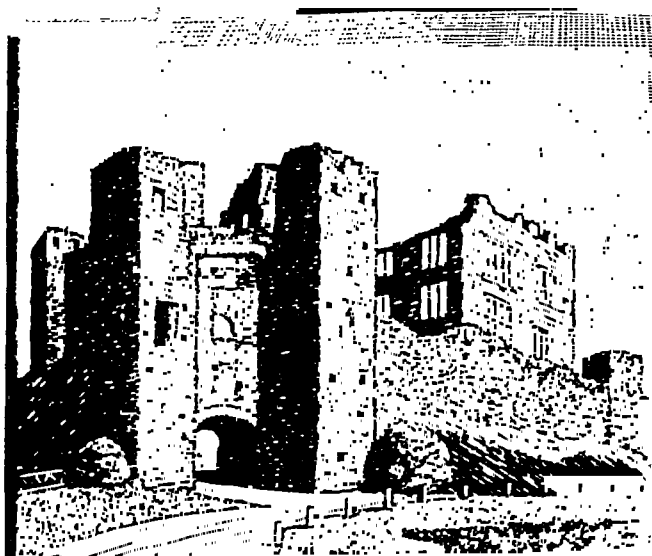
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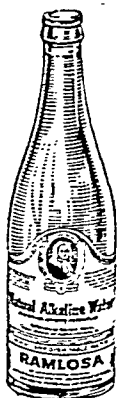
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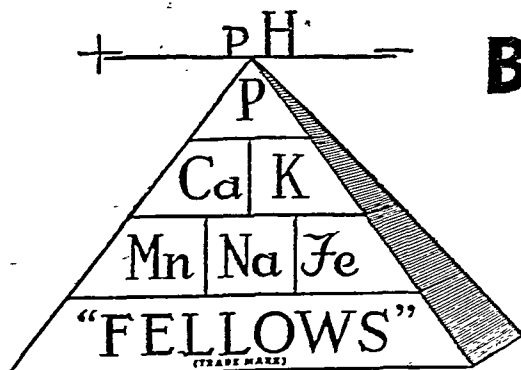
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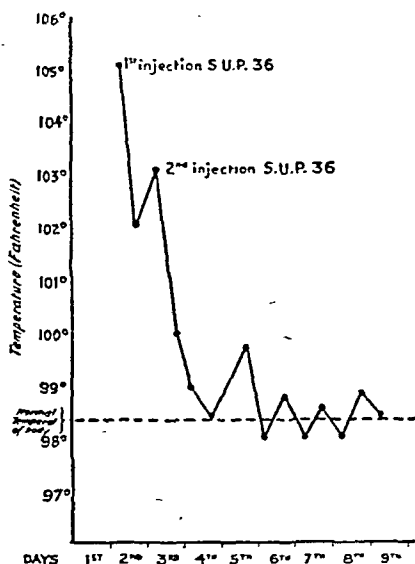
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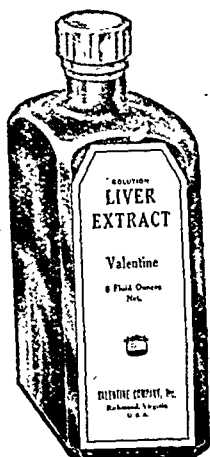


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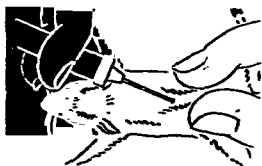
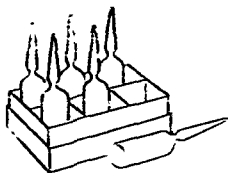
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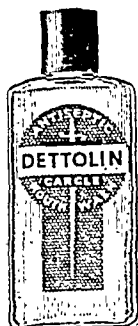
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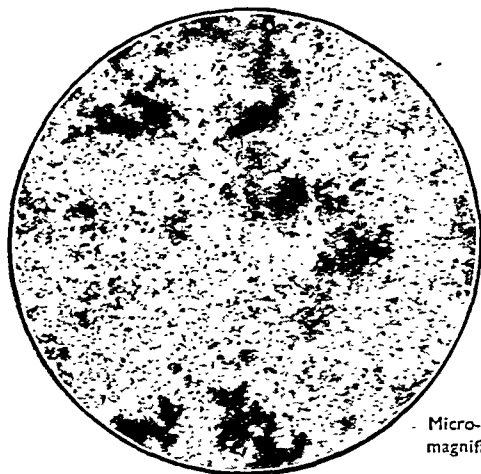
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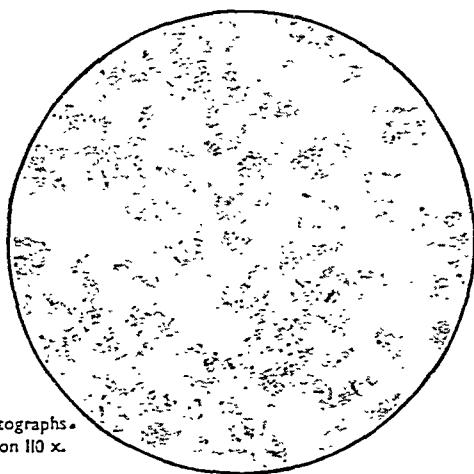
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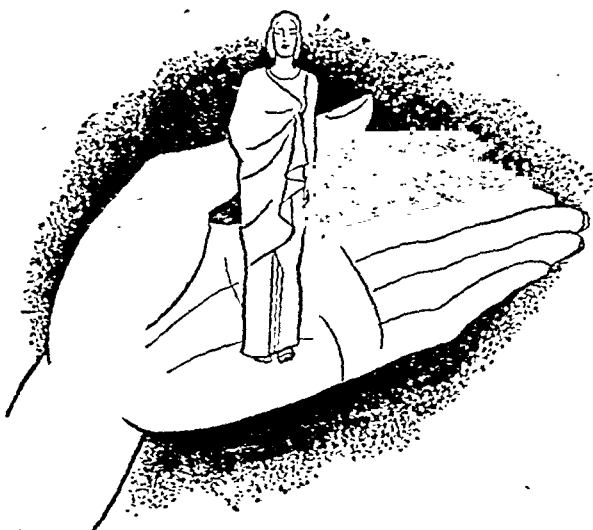
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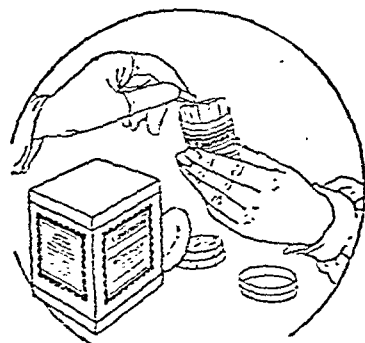
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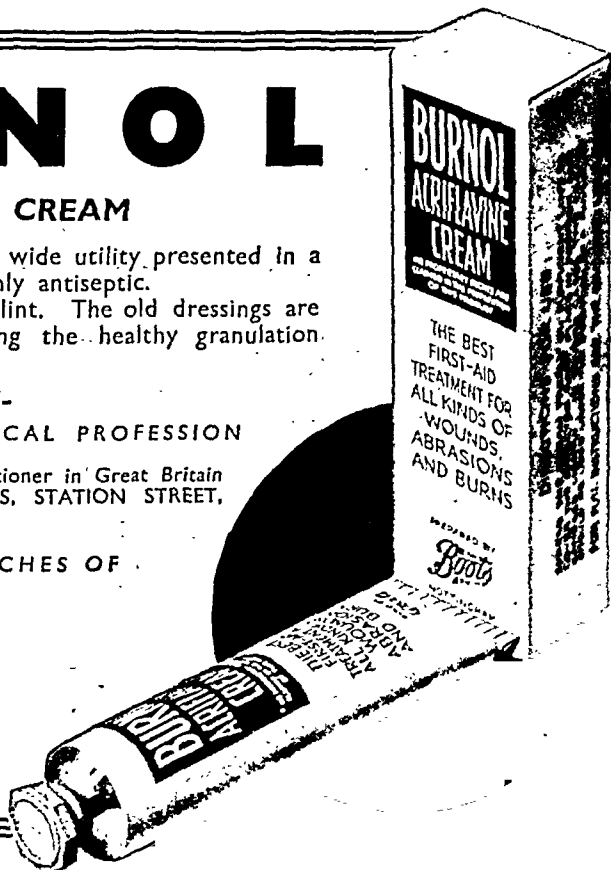
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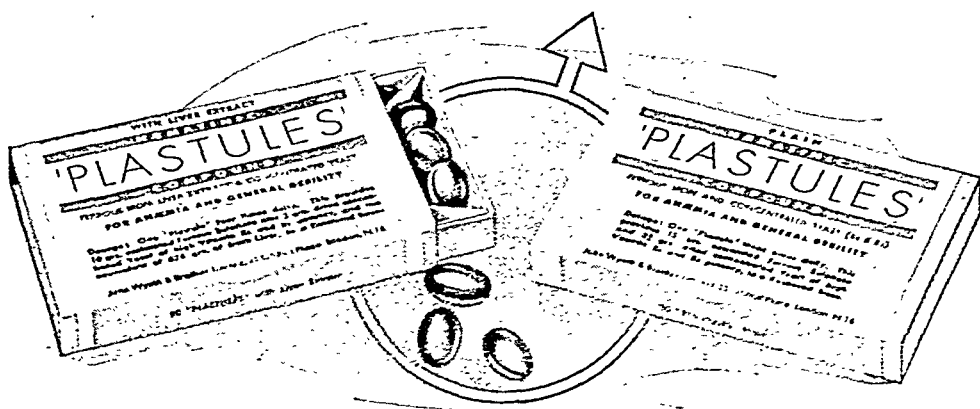


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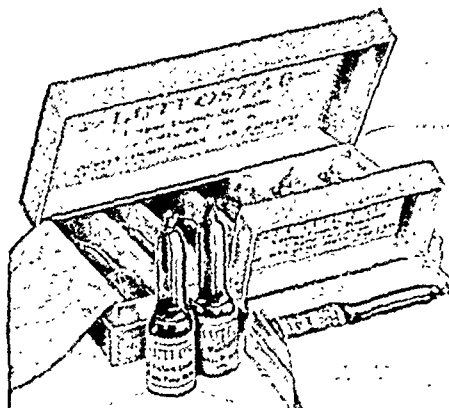
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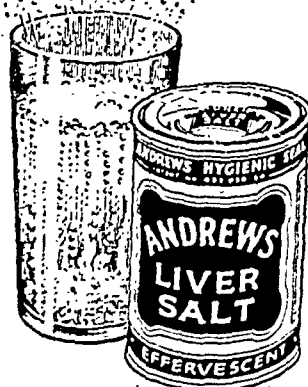
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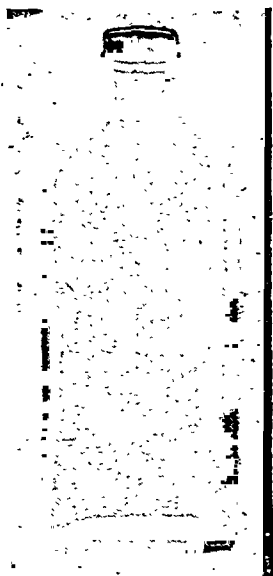


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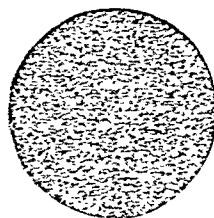


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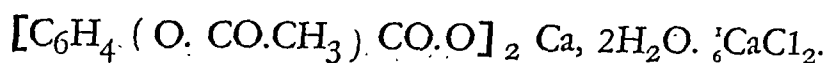


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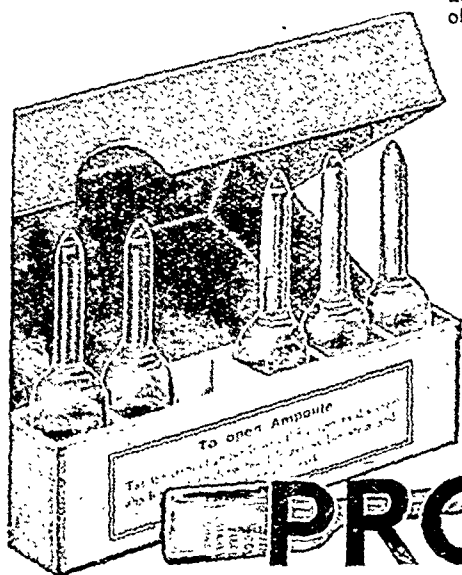
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¹British Medical Journal, 1935, November 16th, p. 938.

²British Medical Journal, 1938, January 15th, p. 105.

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 5 1938

PREGNANCY AND LACTATION CHANGES IN FIBRO-ADENOMA OF THE BREAST*

BY

CHARLES F. GESCHICKTER, M.D., and DEAN LEWIS, M.D.
Baltimore, Maryland

(WITH SPECIAL PLATE)

The fibro-adenoma is the most common tumour of the breast occurring in young women in the child-bearing period. The firm character of the lesion, the definite encapsulation, and the slow growth over a period of years make the clinical diagnosis relatively easy. The rapid growth of fibro-adenoma during pregnancy and the cystic enlargement during lactation are less well-known features. These and the variety of microscopical changes which may be observed when the tumours respond to the hormonal influences of pregnancy and lactation may lead to some difficulties in diagnosis, and as a result mutilating operations may be performed needlessly.

Moran (1935) reviewed the literature on fibro-adenomas of the breast excised during pregnancy or lactation and the cases recorded to that date in the surgical pathological laboratory of the Johns Hopkins Hospital. He was able to find records in the literature of only nineteen cases verified by microscopical examination. The outstanding clinical features of the cases reviewed by this author were the definite enlargement of the growth during pregnancy or lactation, the history of the patient's awareness of the tumour for a period of two or more years before pregnancy, and the absence of changes in the overlying skin, in the nipple, or in the axilla during the period of rapid growth. Moran concluded that the changes produced in these growths by pregnancy and lactation were like those occurring simultaneously in the surrounding normal breast tissue and bore no relation to malignancy. He recommended that the growths be removed during pregnancy rather than during lactation if discovered in time, since the tumour before lactation is smaller, is less vascular, and is free from marked secretory activity.

The present study is based upon thirteen cases of fibro-adenomas removed during pregnancy, ten excised during lactation, and ten operated upon at varying intervals after the cessation of lactation. Every phase of pregnancy, lactation, and post-lactation involution is represented in this series. The study of the specimens permits a comparison of the microscopical changes in these tumours with those occurring simultaneously in the surrounding breast tissue. It likewise affords an opportunity for correlation of these changes with those produced experimentally in the breast of humans and other mammals by the injection of the various sex hormones.

* From the Laboratory of Surgical Pathology, Department of Surgery, Johns Hopkins Hospital and University.

Pregnancy Changes in Fibro-adenomas and in Normal Mammary Tissue

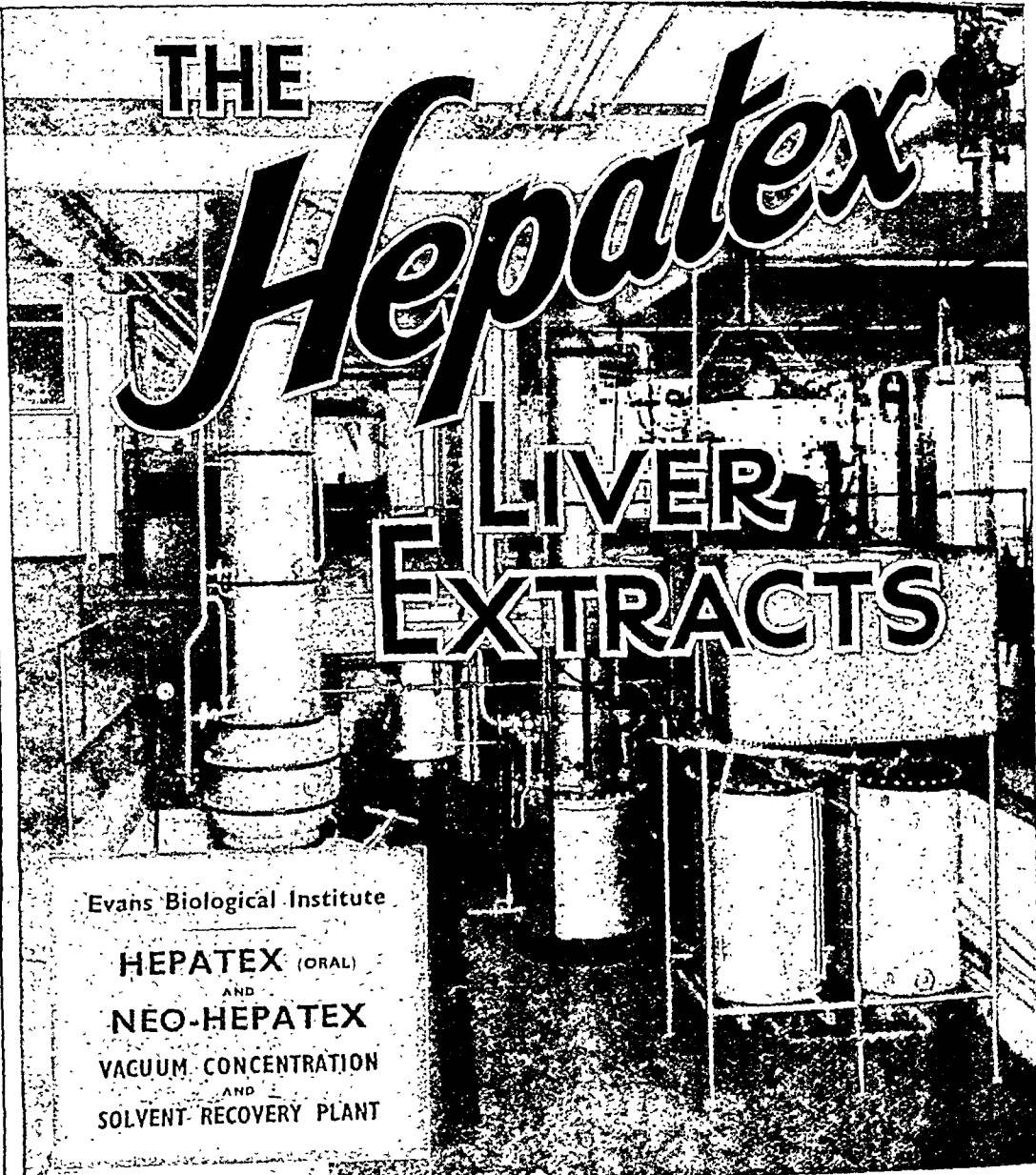
In the thirteen cases of fibro-adenomas removed during pregnancy all but one gave a history of rapid enlargement. In the case in which the patient had been unaware of any increase in size of the lesion the tumour was removed in the fourth month of pregnancy, but microscopically evidence of recent growth and of pregnancy was found. The tumour removed earliest in the course of gestation was excised in the fifth week. The nodule had doubled its size within four weeks. Two in which rapid enlargement was noted were removed in the sixth week and one at the end of the second month respectively. Nine out of thirteen were removed before the end of the first half of pregnancy (Table I). This corresponds to the period of

TABLE I.—Fibro-adenoma in Pregnancy

Case	Age	Duration	Symptoms	Size	Site	Month of Pregnancy	Treatment	Microscopic	Result
1	W 25	2 y.	Lump	cm. 1	UOQ*	5 wks.	Excision	Fibro-matous	Well 9 m.
2	W 32	2 y.	"	1	UOQ	6 wks.	"	"	" 7 y.
3	W 29	3 m.	"	1.5	UIQ	2nd	"	Fibro-matous Schimmelbusch	" 10 y.
4	W 20	3 w.	"	—	—	3rd	"	Fibro-matous	Lost
5	W 24	2 m.	Lump Pain	3	UOQ	3rd	"	Myxo-matous	Well 3 y.
6	W 23	2 m.	"	1	LOQ	3rd	"	Fibro-matous	Lost
7	W 23	18 m.	"	2.5	—	3rd	"	Myxo-matous	Well 4 y.
8	W 26	6 m.	Lump	3	—	4th	"	"	Lost
9	W 19	6 m.	"	3	UIQ	4th	"	"	Well 6 y.
10	W 29	2 y.	"	3	LOQ	5th	"	Carcino-matous	Dead 31 y later
11	W —	—	"	2.5	—	6th	"	Fibro-matous	Well 11 y.
12	W 31	3 m.	"	3	UIQ	7th	"	"	" 1 y.
13	W 22	2 m.	Lumps (2)	9	LOQ	8th	Amputation	"	" 6 m.

* UOQ = Upper Outer Quadrant; UIQ = Upper Inner Quadrant; LOQ = Lower Outer Quadrant.

maximum growth in the pregnancy breast normally, which occurs between the end of the first and beginning of the fourth month. In the remaining cases the tumours were removed in the fifth, sixth, seventh, and at the beginning of the eighth month.



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portion, as well as one near the nipple of the left breast. When examined in January, 1932, the lump in the upper portion of the right breast had definitely increased in size, and the tumour in the left breast had disappeared. The patient at this time was five and a half months pregnant. An excision of the tumour in the right breast was performed on January 5, 1932. The breast was vascular and the tumour was not encapsulated. Dr. Bloodgood made the note that "it cuts and scrapes like cancer, and on frozen section the cells are morphologically cancer," but it was decided not to do the complete operation because the changes were attributed to pregnancy rather than to malignancy. In February, 1932, post-operative irradiation was given because of the resemblance of the tumour to malignancy (Figs. 3, 4A, and 4B). In June, 1933, both breasts seemed normal on palpation, and there was no induration of the scar in the right breast. Soon after this

rounding breast tissue removed with these tumours the characteristic changes of late pregnancy are observed. The reduplicated terminal tubules are grouped into large lobules. Most of the periductal fibroblasts have disappeared and are replaced by capillaries engorged with red blood cells. The terminal tubules are dilated into acini, and many are lined by a single row of low cuboidal cells with secretion vacuoles. A few small nests of proliferating epithelial cells may still be seen, and also an occasional duct plugged with epithelial cells. Some acini are greatly dilated, suggesting the beginning of lactation.

The fibro-adenomatous tissue in this period presents interesting irregularities. Some of the tumour tissue

LEGENDS FOR THE SPECIAL PLATE

Fig. 1 (Case 13).—Bisected specimen of a fibro-adenoma removed at the beginning of the eighth month of pregnancy. The cut surface is fleshy and red in appearance. The tumour had not been noted before the beginning of pregnancy. Between the sixth week of gestation and the time of its removal the tumour had grown from a pea-sized nodule to a mass 9 cm. in diameter. The microscopical appearance of the tumour is shown in Figs. 5A and 5B.

Figs. 2A and 2B (Case 3).—Photomicrographs comparing A, normal breast tissue in the third month of pregnancy, with B, a growing fibro-adenoma removed from the same breast. The normal tissue (A) shows ramifying tubules surrounded by young connective tissue and numerous lymphocytes. A similar growth of tubules and connective tissue is seen in the tumour (B). The tumour tissue, however, shows a more marked proliferation of epithelium, some of which is forming small duct adenomas.

Fig. 3 (Case 10).—Gross specimen of a rapidly growing fibro-adenoma removed in the fifth month of pregnancy from a woman aged 29. The mass was not encapsulated, and on section cut like cancer.

Figs. 4A and 4B (Case 10).—Photomicrographs comparing A, normal breast tissue, with B, rapidly growing fibro-adenoma, both from the case shown in Fig. 3. The lobules of normal mammary tissue (A) contain large numbers of recently formed tubules. In some the remains of epithelial proliferation are seen. Others are dilated to form acini, which do not yet show secretory changes. The tumour tissue (B) shows proliferating masses of epithelium at the end of the mammary tubules. Under high power many of these cells have a malignant morphology. The epithelium is surrounded by rapidly growing connective tissue. The epithelium of the tumour invaded the surrounding fat. The patient died with metastases to the liver three years and ten months following the excision.

Figs. 5A and 5B (Case 13).—Photomicrographs of tissue obtained from the tumour shown in Fig. 1. The tumour was removed at the beginning of the eighth month of pregnancy. At A is shown the tendency for lobule formation with small cysts at the margin of the tumour and the absence of pregnancy changes in the more central portions: B shows another portion of the tumour in which the mammary lobules are in the pre-lactation state. The lobules are separated by large amounts of fibrous tissue.

Fig. 6 (Case 14).—Photomicrograph of a fibro-adenoma removed during the sixth week of lactation. The fibro-adenoma at the bottom shows lactation changes. The lobules,

however, contain a more dense supporting stroma and their acini are widely dilated. The normal lactating lobules in the surrounding breast tissue are shown above.

Fig. 7 (Case 17).—Gross specimen of a fibro-adenoma removed in the third month of lactation from a coloured girl aged 17. Milk exuded from the cut surface about the margins of the tumour.

Figs. 8A and 8B (Case 17).—Photomicrographs comparing A, normal lactating breast, with B, quiescent fibro-adenomatous tissue removed from the same patient. The gross specimen is illustrated in Fig. 7. At A is shown the normal lactating mammary tissue; B shows the quiescent lobules of the central portions of the fibro-adenoma surrounded by dense hyalinized connective tissue.

Fig. 9 (Case 15).—Photomicrograph showing subinvolution in a lactating fibro-adenoma. The tumour was excised from a coloured female, aged 36, who had had two pregnancies in successive years. She had been nursing the second child for six weeks at the time of excision. At A are shown the lactating lobules; at B are seen the fibro-adenomatous areas which have failed to lactate but are instead undergoing cystic change.

Figs. 10A and 10B (Case 20).—Gross specimen of a fibro-adenoma removed following nine months of lactation in a woman aged 34. The tumour grew rapidly in the first half of pregnancy and enlarged slowly thereafter. Its cut surface (10B) had the appearance of sarcoma.

Fig. 11.—Photomicrograph of the tissue removed from the margin of the tumour shown in Figs. 10A and 10B. Both the connective tissue and the epithelium show marked proliferation and resemble malignancy.

Fig. 12.—Whole mount of a female rat breast. The rat was castrated at 21 days and injected with 100 rat units (1,000 international units) of oestrone daily for 20 days thereafter. The dense epithelial buds seen on the ramifying tubules are the result of overstimulation with oestrone and do not occur if the rat is injected with doses up to 20 rat units daily for this period.

Fig. 13.—Photomicrograph of a female rat breast treated with 50 rat units of oestrone daily for 100 days following castration on the 32nd day. The dilated mammary tubules showed the remains of secretory activity and are lined by irregular epithelium, some of which is proliferating but most of which is atrophic. The outstanding feature is the amount of periductal connective tissue seen in the upper portion of the picture.

examination the patient again became pregnant. Towards the end of the second pregnancy two small tumours appeared in the region of the scar, but following the birth of the second child in February, 1934, one of them disappeared. In March, 1935, three years after the first operation, one small nodule remained in the region of the scar. This lump was stationary in size, and there was no enlargement of the axillary nodes. The patient complained of indigestion and the liver was enlarged. In October, 1935, the patient died with metastases to the liver, three years and ten months following the operation. No metastases were ever felt in the axillary nodes.

LAST THIRD OF PREGNANCY

The changes occurring in the last third of pregnancy are represented by three tumours, one removed during the sixth month, another during the seventh month, and the last at the beginning of the eighth month. In the sur-

rounding breast tissue removed with these tumours the characteristic changes of late pregnancy are observed. The reduplicated terminal tubules are grouped into large lobules. Most of the periductal fibroblasts have disappeared and are replaced by capillaries engorged with red blood cells. The terminal tubules are dilated into acini, and many are lined by a single row of low cuboidal cells with secretion vacuoles. A few small nests of proliferating epithelial cells may still be seen, and also an occasional duct plugged with epithelial cells. Some acini are greatly dilated, suggesting the beginning of lactation. The fibro-adenomas removed early in pregnancy, while in occasional areas pronounced epithelial proliferation with the formation of duct adenomas is found. In the fibro-adenoma removed just before the eighth month the changes of later pregnancy were observed at the periphery of the tumour, but only moderately increased growth of the connective tissue and of duct epithelium was noted in the central portions. The history and findings in this case are given below.

Case 13.—The patient is a white woman aged 22 who about six weeks after the onset of gestation noticed two small swellings in the lower half of the right breast, each slightly

The consistency of the tumours removed ranges from hard to rubbery firmness, and they were all freely movable without retraction of the nipple or dimpling of the skin. No enlargement of the axillary lymph nodes could be made out. In two instances (tumours removed at four and seven months) two tumours were found in the breast at operation. All the growths were apparently encapsulated. In spite of this and the absence of clinical signs of malignancy on inspection and palpation, malignancy was often suspected because of the rapid growth of the lesion and the firm nodular character. In the gross, six tumours showed macroscopic pregnancy changes. Five were observed to be granular on section, and one removed at the onset of the eighth month was soft and red (Plate, Fig. 1). Microscopically, marked epithelial proliferation, non-encapsulation at one or more points, with invasion of fat and many mitotic figures, were observed in the tumours removed during the first half of pregnancy. In these cases the infiltrating epithelium with mitotic figures may easily be mistaken for cancer by one unfamiliar with such pregnancy changes. In one instance cancer developed, and death from hepatic metastases occurred.

In general the microscopical changes occurring in fibro-adenomas during pregnancy correspond to those occurring in the surrounding normal breast tissue. The changes in the tumour, however, are more irregular—most pronounced at the margins—and there is a tendency for the tumour at first to exceed and later to lag behind the physiological development in the surrounding mammary tissue. Tumours of long standing with a considerable amount of hyalinization of the connective tissue may remain refractory to pregnancy changes, and those which have responded to a previous pregnancy may remain unchanged during subsequent gestations. Multiple fibro-adenomas in the same breast may show varying degrees of response. McFarland (1922) has reported a case in which the patient had three fibro-adenomas in the same breast removed during pregnancy. The largest tumour showed marked response, the medium-sized tumour showed some change, but practically no hypertrophy was observed in the smallest nodule.

FIRST THIRD OF PREGNANCY

The changes occurring in the first third of pregnancy are represented by seven tumours, one removed at the end of the first month, one at six weeks, another at the end of two months, and the remainder at the end of three months. The specimen removed earliest in pregnancy was a small fibro-adenoma excised at the end of the fifth week. The history of this case is given below.

Case 1.—The patient is a married woman aged 25. A small nodule had been present in the left breast for two years. At the first examination, October 1, 1936, a pea-sized nodule was palpated by her physician. On the second examination, one month later, the mass was twice this size and very painful. The lesion was excised on November 2, 1936. The diagnosis of cystic mastitis was made, pregnancy not having been suspected. The tissue and patient were then referred to us in order to rule out the possibility of malignancy and to investigate the cause of digestive upsets. From the tissue excised, and from the tense swollen aspect of the breast, a diagnosis of fibro-adenoma in pregnancy was made. The patient had missed one menstrual period. An Aschheim-Zondek test performed on December 1, 1936, was positive, and the baby was born on June 23, 1937. The nodule therefore was excised at the end of the fifth week of pregnancy. In the gross and microscopically the tumour was not encapsulated. It consisted of small branching tubules of rapidly dividing epithelium and proliferating fibroblasts. Lymphocytes were mingled with the fibroblasts.

The changes observed in this tumour and in those removed later in the first third of pregnancy are characterized by a progressively increasing, branching, and reduplicating of small terminal tubules (Figs. 2A and 2B), and a proliferation of young connective tissue about them. Some of these tubules extend into the adjacent neighbouring fat. The epithelium lining the ducts consists of small oval cells with scanty cytoplasm and dense nuclei, many of which are undergoing mitosis. In places these proliferating cells are without basement membrane, obliterate the lumen of the ducts, and grow into the ends of the adjoining ducts to form small duct adenomas. The fibroblasts surrounding the tubules show active growth and are interspersed with numerous lymphocytes. The number of budding tubules and the amounts of periductal connective tissue increase steadily until mid-pregnancy. The lymphocytic infiltration is greatest at the end of the second month, and diminishes in mid-pregnancy.

Microscopically all but one of the fibro-adenomas were non-encapsulated, showing irregular extension into the surrounding mammary parenchyma and fat. In the exception the tumour removed in the third month of pregnancy was definitely encapsulated and the stroma showed advanced myxomatous change. This tumour had remained relatively refractory to the changes of pregnancy. It measured $2\frac{1}{2}$ cm. in diameter, and had been first noted a year and a half previously, at the age of 27. It showed a moderate increase in the number of newly formed epithelial ramifications, and the pre-existing myxomatous stroma of the tumour was sprinkled with lymphocytes.

A comparison of changes in the fibro-adenoma with those in the surrounding breast tissue shows greater epithelial proliferation in the tubules and more rapid growth in the surrounding connective tissue in the fibro-adenoma. The lobules of the adjacent breast tissue are more heavily infiltrated by lymphocytes, and a larger number of terminal tubules remain patent, and are lined by only two or three rows of epithelium.

MID-THIRD OF PREGNANCY

The changes in the mid-third of pregnancy are represented by two tumours removed during the fourth month and one during the fifth month. The changes in the breast tissue during this period are transitional between those of the first and the last third. The newly formed tubules are grouped together in large lobules; the surrounding connective tissue is reduced in amount and is gradually crowded out. Lymphocytic infiltration is absent. The lumen of a few of the tubules shows dilatation, and occasional secretory vacuoles form in their lining cells. One of the fibro-adenomas removed in this stage was encapsulated and apparently quiescent. In another the growth of fibrous tissue continued, and in the third tumour there was progressive proliferation of both epithelium and connective tissue. In this case (reported below) malignant change occurred.

Case 10.—The patient was a white female aged 29 who had noticed a small lump in the breast two years previously. A surgeon who saw the lump eighteen months previously advised excision. On examination, May 23, 1931, a small nodule about the size of a 10-cent piece was palpated in the right breast in the mid-portion of the lower hemisphere. An indefinite swelling was felt in the upper hemisphere. Another small tumour was palpated above the nipple in the left breast. Both breasts were indefinitely lumpy to palpation. A diagnosis of lumpy painful breasts was made by Dr. Bloodgood; no operation was advised, and the patient was asked to return at monthly intervals. One month later examination showed no definite lump in the lower portion of the right breast, but a lump was still palpable in the upper

left breast, and an amputation was performed, April 9, 1898. The stroma was unusually cellular, and was differentiated with difficulty from sarcoma. The patient was reported well twenty-five years later.

Post-lactation Changes

Ten tumours excised at known intervals after lactation were chosen for study of the involutional changes. In four cases the tumour was excised within five months to a year after lactation, a fifth was excised at the end of fifteen months, and the remainder between two and eight years after the cessation of lactation. In three cases the tumour had been present in more than one pregnancy. The outstanding microscopical feature in these cases was the replacement by myxomatous and hyalinized connective tissue of the more cellular stroma found during pregnancy and occasionally persisting in lactation. Seven of the ten cases studied showed myxomatous changes. In one of the tumours removed two months after the cessation of

(Astwood, Geschickter, and Rausch, 1937). The histology of fibro-adenomas removed at puberty, characterized by growth of ducts and stroma without evidence of lobule formation, suggests that these neoplasms represent an increased response to oestrin on the part of the tissue involved. Oestrin, which is secreted by the ovarian follicle in increased amounts at puberty, acts as a stimulant to the growth of fibro-adenomas and accounts for their frequent appearance in patients at this period. The concentration of oestrin in the blood is again greatly increased during the first third of pregnancy (see chart). Growth of the fibro-adenoma as well as the surrounding breast results from this stimulation, and the ramification of mammary tubules and the increase in periductal fibrous tissue in both the tumour and the normal breast may be looked upon as a response to oestrin. Heiman and Krehbiel (1936) noted that oestrin in combination with anterior-

TABLE III.—Fibro-adenomas in Post-lactation

Case	Age Race	Duration	Symptoms	Size	Site	Relation to End of Lactation	Treatment	Microscopic	Result
24	W 30	1 m.	Lump	cm.	—	5 m. after	Excision	Myxomatous	Well 4 y.
25	W 40	—	"	1.5	UOQ*	6 "	"	"	Lost
26	W 31	6 y.	"	2.5	LIQ	8 "	"	Fibro-matous	"
27	W 19	5 y.	"	3	UOQ	12 "	"	Myxomatous	"
28	W 28	15 m.	Lump Pain	1.5	LIQ	15 "	"	"	"
29	W 28	3½ y.	Lump	3	UOQ	2 "	"	"	Well 2 y.
30	W 37	14 y.	"	1	UIQ	2 "	"	"	" 10 y.
31	W 41	—	"	—	UOQ	8 y.	"	Cystic disease	" 2 y.
32	W 41	—	"	2	UOQ	8 y.	"	"	Lost
33	W 35	9 y.	"	3	—	—	"	Fibro-matous	Well 5 y.

* UOQ=Upper Outer Quadrant; LIQ=Lower Inner Quadrant; UIQ=Upper Inner Quadrant.

lactation residual lactation was found as well as in the surrounding breast tissue. Less striking areas of residual lactation were seen in four of the other tumours. In several growths removed two or more years after the end of the nursing period strands of atypical proliferating epithelium were found at the margin of the tumour. In the majority, however, involutional changes such as occur in the normal breast were found. The epithelial tubules had collapsed, secretion was diminished or absent, and the lining cells had atrophied and were reduced to a single layer of quiescent epithelium. In one case in which the tumour was excised eight years after nursing an intermittent milky discharge from the nipple occurred. The excised fibro-adenoma was found to contain multiple cystic areas, some of which suggested residual lactation acini.

Discussion

Recent studies indicate that the changes observed in fibro-adenomas and in the surrounding breast during pregnancy and lactation are influenced by the sex hormones. The failure of the fibro-adenomatous tissue to respond to the same extent and in the same manner as normal breast tissue to all phases of pregnancy and lactation suggests that the tumour is more sensitive to certain hormones than to others.

The growth of mammary ducts and periductal fibrous tissue in both animals and humans is stimulated by oestrin

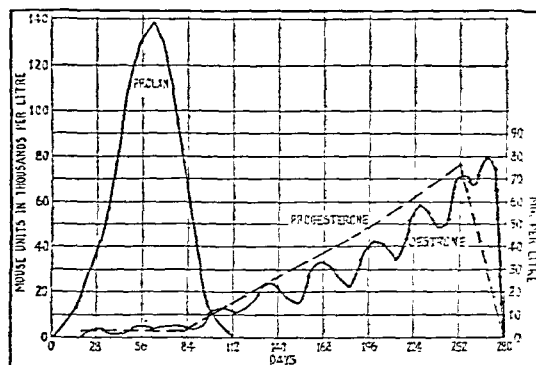


Chart showing the approximate amounts of hormones excreted in the urine during pregnancy. The curves for prolactin and oestrone are in mouse units per litre, and are average values obtained from pooled samples of urine used for the commercial extraction of these hormones. The curve of progesterone shown is based upon the recovery of the excretion product of progesterone—pregnandiol. The pregnandiol values may reach 90 mg. per litre in the last month of pregnancy, according to the studies of Browne, Henry, and Venning (1937).

pituitary-like hormones increased the number of spontaneous fibro-adenomas in rats and stimulated hyperplasia of duct and fibrous tissue in the normal breast. Since, in all but quiescent fibro-adenomas, the growth of the tumour is due to the continuous addition of newly formed tubules, response to pregnancy and lactation is to be expected in these units, which have not yet been pathologically modified through previous overstimulation. As the growth of the tumour is maximal at the periphery, the physiological changes of pregnancy and lactation are usually observed in these newly formed tubules at the periphery of the fibro-adenomas.

In recently developed fibro-adenomas or in more slowly growing tumours of longer duration oestrin stimulation in pregnancy results in marked increase in connective tissue and in pronounced epithelial proliferation. In one such case the stroma had the appearance of fibrosarcoma (Fig. 11). The atypical epithelial proliferation observed in these tumours can be reproduced in the rat breast with moderately large doses of oestrone (50 to 100 rat units daily) administered over a period of several weeks (Fig. 12). In these animals increased doses of oestrone, or moderate doses over longer periods of several months, result in cyst formation, followed ultimately by fibrosis (Fig. 13). Such cyst formation and fibrosis was observed in several tumours in this series (Cases 15 and 33).

larger than a pea. They increased rapidly in size in the next few weeks. By the fifth month of pregnancy they were as large as an orange, and the overlying skin became red and the veins enlarged. An attempt was made to drain this mass elsewhere, but no pus could be obtained. Examination revealed enlarged pendulous breasts, the right breast being nearly twice the size of the left. A mass approximately 9 cm. in diameter occupied the lower portion of the right breast. It was firm, freely movable, definitely encapsulated, and lobulated. Several drops of colostrum could be expressed from both nipples. The calculated duration of the pregnancy was slightly under eight months. Because of the size of the tumour a simple mastectomy was done on August 16, 1937. The tumour tissue was soft, fleshy, and red in the gross. Practically no secretion could be demonstrated. Microscopical study showed a typical fibro-adenoma with compressed epithelial channels. At the termination of these epithelial channels there were areas of hyperplasia. At the margins of the tumour irregular pregnancy changes were seen, corresponding to those in the surrounding breast tissue (Figs. 5A and 5B).

Changes During Lactation

The changes occurring in fibro-adenomas during lactation are represented by ten tumours, two of which were removed in the sixth week of lactation, three in the third month, one in the fifth month, and the remaining four towards the end of lactation, from the ninth through the twelfth month. As in pregnancy, changes similar to those in the surrounding breast tissue occur in parts of the tumour. However, with the exception of lobules scattered about the periphery the tumour tissue fails to respond to lactation. It shows a definite tendency to undergo involutional changes, the most characteristic features being hyalinization and myxomatous degeneration of the stroma. In some cases the rapid growth of connective tissue seen during pregnancy is continued into lactation. In the occasional lobules which show lactation changes the acini are more widely dilated than in the normal lactating breast, and the fibrous tissue in the dividing septa and in the papillary epithelial projections within the acini is greater in amount. Thus the lactating lobules within the fibro-adenoma are coarser in structure (Fig. 6). In the cases reviewed in this series there was apparently a greater tendency for lactation effects to appear in the fibro-adenoma in early lactation than in later lactation. The variety and irregularity of changes are greater in lactating fibro-adenomas than in those excised during pregnancy, because those occurring in pregnancy tend to persist and to have superimposed upon them, in isolated lobules, lactation changes. In the case detailed below the tumour was excised in the third month of lactation. As shown in Figs. 7, 8A, and 8B, the breast was the seat of typical lactation changes. The tumour for the most part remained quiescent, but irregular lactating lobules were scattered about the periphery. The outstanding effect was on the stroma of the tumour, which showed marked hyalinization.

Case 17.—The patient was a coloured girl, aged 17, who noticed a lump in her right breast two years previously. At this time it was about the size of a walnut. During the next year the tumour doubled in size, and thereafter remained stationary. The patient became pregnant in September, 1936. Soon after missing her first period she noted a rapid increase in the size of the tumour, which also became increasingly tender and painful. On examination both breasts were enlarged beyond the normal. The right breast was twice the size of the left and reached to the level of the umbilicus. A slight amount of serous discharge could be expressed from the left nipple. A nodular mass 17 cm. in diameter occupied the lower and central portion of the right breast. No enlarged nodes could be palpated in either axilla. The calculated duration of the

pregnancy was five and a half months. It was decided to postpone operation until after delivery. Caesarean section was performed on May 20, 1937, and the mass in the breast was removed on August 26 in the third month of lactation. The tumour in the gross was fleshy but definitely encapsulated. The cut surface was soft and bulging and exuded milk. Microscopical examination showed typical lactation changes in the normal breast tissue. The central portion of the tumour did not respond to lactation, but the periphery showed numerous secreting acini, many of which were cystic in appearance. The fibrous stroma was of the adult hyalinized variety, and some of the epithelium-lined channels showed the remains of proliferating activity while others showed atrophic changes.

In three of the tumours excised during lactation unusual effects were observed. In one (Case 15) the tumour which had appeared two years previously, was excised from a coloured female aged 36. There had been two pregnancies within the two years preceding operation. She had been nursing the second child for six weeks at the time of excision. The breast tissue showed characteristic lactation changes. In the tumour there were large cysts (Fig. 9). These were surrounded by areas of residual fibro-adenoma in which could be observed epithelial proliferation characteristic of the first half of pregnancy and some atypical lactating acini.

In the two remaining cases the unusual effects were presented by the stroma of the tumour, which resembled that of sarcoma.

A white woman, aged 34 (Case 20), had noticed a tumour fourteen months previously. The breasts were first examined following rapid growth of the mass during the fifth month of pregnancy. An encapsulated nodular tumour was found

TABLE II.—Fibro-adenoma in Lactation

Case	Age	Duration	Symptoms	Size	Site	Months of Lactation	Treatment	Microscopic	Result
14	W	—	Lump	cm.	—	6th wk.	Excision	Fibro-matous	Let
15	C 36	2 y.	"	5	—	"	"	"	Well
16	W 23	15 m.	Lump	5	LOQ*	3	"	"	Let
17	C 17	2 y.	Pain Lump	17	LOQ	3	Amputation	"	Well
18	W 49	11 m.	"	15	UOQ	3	"	"	" 25 y.
19	W 30	—	"	1	—	5	Excision	Myxomatous	Let
20	W 34	14 m.	"	16	—	10	Amputation	"	Well
21	W 34	10 m.	Lump	2	UOQ	10	Excision	Fibro-matous	" 25 y.
22	W 22	—	Pain Lump	1.5	UOQ	End of lact.	"	Myxomatous	Let
23	W 29	30 m.	"	2.5	UIQ	"	"	Fibro-matous	Well

* LOQ = Lower Outer Quadrant; UOQ = Upper Outer Quadrant; UIQ = Upper Inner Quadrant.

which occupied the entire upper half of the left breast. With the onset of lactation the tumour ceased to grow. Following nine months of lactation the patient presented herself for examination in this clinic. At this time the tumour occupied practically the entire breast and was 16 cm. in diameter. The superficial veins were dilated and milk could be expressed from the nipple. The breast was amputated on September 27, 1927. On gross examination the appearance suggested sarcoma (Figs. 10A and 10B). On microscopical examination (Fig. 11) there was an extreme cellularity in the fibrous tissue which showed many mitotic figures. This was most marked at the margins of the tumour, and in these areas the epithelium of the terminal tubules looked malignant. The patient was reported well eight years after operation.

A tumour (Case 18) was removed from a woman aged 49, who had observed a tumour of the left breast for the third month of lactation. It had been painful and tender for eleven months. The tumour occupied nearly the entire

was very faintly positive. Two weeks later the boy's temperature and pulse rate had dropped to normal, he no longer had a cough, his weight had increased by 2 lb., no abnormal physical signs could be detected on examination of the chest, and a further x-ray film (Fig. 2) showed that the pulmonary condition had completely resolved. It might be suggested from a consideration of Fig. 1 and the positive Mantoux reaction that the correct diagnosis in this case should be epituberculosis, but the rapid resolution negatives this.

Case 2.—A girl aged 7 years, who had previously suffered from pertussis and measles, was brought to the out-patient department on January 21, 1937, on account of a cough, anorexia, and loss of weight of two weeks' duration. On examination her temperature was 99.2° F., her pulse 116, and respirations 24, and over the upper and middle zones of the left lung the percussion note was impaired, while on auscultation the breath sounds were vesicular and medium "sticky" rales were audible. The Mantoux reaction (1 in 1,000) was negative, and a white cell count showed a total of 11,800 cells per c.mm., the differential count being normal. A simple cough linctus was prescribed, and two weeks later the child was symptom-free, had gained 4 lb. in weight, and on examination of the chest no abnormal physical signs could be detected.

Case 3.—A boy aged 7 years, whose previous illnesses included measles and pertussis, was brought to the out-patient department on October 17, 1936, on account of a cough and anorexia of three weeks' duration. On examination he was afebrile, his pulse was 120 and respirations 24, and over the base of the right lung the percussion note was impaired, while on auscultation the breath sounds were vesicular and rales were audible. X-ray examination showed heavy shadowing in this area, together with some enlargement of the hilar glands. Two weeks later the boy was symptom-free, had gained 2 lb. in weight, and no abnormal physical signs could be detected in the chest.

Case 4.—A girl aged 6 years attended the out-patient department on October 12, 1935, on account of a lump in the neck. This was thought to be a tuberculous gland. The Mantoux reaction (1 in 1,000) was positive, and a radiograph of the chest showed calcified deposits in the hilar glands. The child was kept under observation, and gradually the cervical gland became smaller until finally it was no longer palpable. A year later, on October 14, 1936, she attended again, complaining of a cough of a few days' duration, and on examination an impaired percussion note was found over the base of the right lung, while on auscultation air entry was weak and "sticky" rales were audible. Her temperature was 99.4° F. A radiograph showed an opacity extending from the left hilar region outwards into the left mid-zone and a further opacity in the right lower zone. A few weeks later the cough had gone, the child had gained 3 lb. in weight, no abnormal physical signs were present on examination, and a second radiograph showed that the opacities previously noted had cleared. It might be suggested that these pulmonary lesions were tuberculous, but the appearances were not those of epituberculosis, and parenchymatous tuberculous lesions would not have resolved in such a manner.

Case 5.—A girl aged 9 years, whose previous illnesses included scarlet fever, pertussis, and mumps, was brought to the out-patient department on May 27, 1937, on account of cough, anorexia, and loss of weight of some three weeks' duration. On examination she was afebrile, her pulse 96 and respirations 20, and over the base of the left lung the percussion note was impaired, while on auscultation air entry was diminished and "sticky" rales were audible. She was given a simple cough linctus, and at her second attendance two weeks later she was symptom-free, had gained 2½ lb. in weight, and no abnormal physical signs could be detected in the chest.

DIFFERENTIAL DIAGNOSIS

1. The usual diagnosis made in these cases is that of unresolved pneumonia, and yet there is no history to suggest any recent pneumonia or other inflammatory pulmonary lesion. The condition cannot be one of long

standing, dating from some earlier illness, because the symptoms are recent in origin and resolution takes place within a week or two without treatment. For the same reasons simple pneumonitis should not be mistaken for the chronic pneumonias of infancy and childhood (Jaso and Fandos, 1934) or for subacute peribronchiolar pneumonia (Reichle and Moritz, 1934).

2. The comparative rapidity with which recovery takes place in simple pneumonitis, together with its benign course, renders differentiation fairly easy from most forms of tuberculosis of the respiratory system which are seen in childhood. Epituberculosis is sometimes more difficult to eliminate with certainty, but in this condition the Mantoux reaction is invariably positive, resolution is slow, and fever is usually absent (Moncrieff, 1934).

3. In a personal communication it has been suggested that simple pneumonitis is a form of allergic bronchopneumonia (Feingold, 1935), a condition seen in asthmatic children and thought to be due to allergic changes in the respiratory tract, producing bronchial obstruction, parenchymal infiltration, and fever. However, none of the cases of simple pneumonitis seen at the Middlesex Hospital have had any allergic manifestations, either respiratory or systemic, nor is there any evidence of familial allergic phenomena. In order to show how allergic bronchopneumonia differs from simple pneumonitis a case of the former is included in this series.

Case 6.—A boy aged 5 years was brought to the out-patient department on May 6, 1937, on account of bronchial asthma, from which he had suffered since the age of 6 months. There was a strong family history of allergy on the maternal side. On examination of the chest there was much bronchial spasm. He was afebrile, his pulse 112 and respirations 24. X-ray examination (Fig. 3) showed enlargement of the hilar glands, thickening of the septum between the upper and middle lobes of the right lung, and shadowing in the left cardio-phrenic angle. It was found that the boy slept on feather pillows and that there was a down coverlet on the bed. These articles were removed from the bedroom and the patient was given a mixture containing potassium iodide and stramonium. He began to improve, the physical signs in the chest disappeared, and further radiographs one month later showed that the shadowing in the left cardio-phrenic angle had cleared. The hilar shadows were smaller and the interlobar septum was no longer visible.

CASES IN ADOLESCENTS

Case 7.—A youth aged 17 attended the out-patient department on April 1, 1937, complaining of a cough, blood-stained

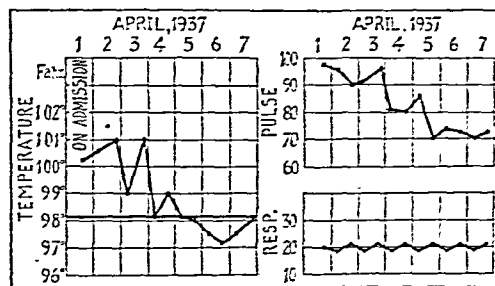


FIG. A.—Temperature, pulse, and respiration charts of Case 7.

expectoration, loss of weight, and anorexia, the symptoms being of three days' duration. He denied any previous illnesses, and stated that there was no tuberculosis in his family. On examination his temperature was 99.4° F., pulse 96, respirations 20, and at the left base the percussion note was impaired, air entry was weak, and rales were audible. X-ray examination (Plate, Fig. 4) showed enlargement of the hilar glands, together with a dense opacity in the left lower

Advanced fibrosis with hyalinization or myxomatous change in the stroma in fibro-adenoma of long standing or in tumours with an unusual intensity of oestrogenic response accounts for those fibro-adenomas which remain refractory to the hormonal influences of pregnancy and lactation. The fibrosis characteristic of these quiescent lesions is simulated experimentally by fibrosis in the mammary gland of the rat produced by overstimulation with high doses of oestrone (50 rat units daily) given over a period of 100 days (Fig. 13). The amount of fibrosis thus obtained in the rat's breast is remarkable in view of the small amount of connective tissue in this organ under normal condition.

On the basis of the above considerations oestrin stimulation, direct or indirect, may be looked upon as the most important factor in the wide variety of changes in fibro-adenomas observed during pregnancy and lactation. The multiplication of mammary tubules and periductal connective tissue seen in the first third of pregnancy is a direct effect of oestrin. These newly developed tubules in late pregnancy are acted upon by other hormones, leading to the formation of acini and development of lactation. Atypical epithelial proliferation in the mammary tumour similar to that seen in Schimmelbusch's disease or adenosis and cyst formation are pathological effects resulting from oestrogenic overdosage, and can be reproduced experimentally in the rat's breast by repeated oestrone injections. Fibrosis such as is seen in those tumours which remain quiescent is the result of prolonged and intense response to oestrin. Involution and secretion with cyst formation in these tumours may be stimulated by the lactogenic hormone of the anterior lobe of the pituitary gland. In general, the effect of the lactogenic hormone seems to hasten and make more marked involutional changes.

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The report of the Gordon Memorial College, Khartum (1936), reflects the beginning of the emergence of the Sudan from the world-wide wave of financial and economic depression. After a continuous decrease in the number of pupils, following the peak year of 1930, the turning point now appears to have been reached, and 1937 opens with 325 pupils, an increase of thirty-four over the figure of the previous year. An interesting analysis of the parentage, nationality, and provinces of origin of the pupils shows that a large proportion are sons of officials, of Arab nationality, and from the province of Khartum. The report states, however, that the son of the Government official is generally less endowed with brains than the offspring of the illiterate peasant of the provinces or of the townsman following some very humble trade or calling. With regard to the subsequent employment of pupils of the college, the lean time of the depression has been succeeded by an extremely satisfactory state of affairs, and it is anticipated that in the course of the next few years the supply will not be equal to the demand. According to figures given for pupils who completed their full four years' course at the end of 1935 and 1936 respectively, the majority appear to secure appointments in permanent Government service. Of ten pupils from the scientific section in 1936, nine entered the Kitchener School of Medicine.

PNEUMONITIS

BY

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(WITH SPECIAL PLATE)

The rapid advance of radiological technique in recent years has enabled the clinician to gain a clearer conception of the nature of many pulmonary conditions, some mild, some serious, the physical signs of which are so similar as to render differentiation by clinical methods alone exceedingly difficult, if not impossible. Among the most important of these conditions is one which American authors and, more recently, English workers have termed *pneumonitis*. By definition this name signifies an inflammatory pulmonary reaction. It is evident that the aetiology of such an inflammatory reaction is likely to be varied, and it is the purpose of this paper to present a practical classification of the condition. The following varieties of *pneumonitis* have been described: (1) acute simple; (2) secondary types; (3) chronic.

1. Acute Simple Pneumonitis

In a recent paper I gave an account of this disease as seen in children (Gill, 1937). Since then annotations have appeared in the *Lancet* (1937) and the *British Medical Journal* (1937), while Beaumont (1937) and Moncreff (1937) now recognize the condition as a separate entity. After an intensive search through the literature one other account has been found which, under the heading of acute *pneumonitis* (Allen, 1936), undoubtedly refers to the condition here described.

Briefly, a child is brought to hospital for a cough of recent origin, anorexia, and loss of weight. There may be blood-stained expectoration, and the mother is sometimes suspicious of phthisis. The child is listless, the temperature is normal or slightly raised, the respiration rate is normal, and tachycardia is present. Examination of the chest reveals one or more areas over which the percussion note is slightly impaired, while on auscultation the breath sounds are normal or weak vesicular, and persistent medium "sticky" rales are audible. An x-ray examination reveals opacities in the zones under suspicion. Some enlargement of the hilar glands may be present. The white cell count is either within normal limits or is slightly increased. The erythrocyte sedimentation rate is raised. No treatment is necessary, and within a week or two the symptoms, signs, and radiographic changes completely disappear, the child's general condition improves, and he proceeds to regain his lost weight. Several cases have now been seen in adolescents and in adults, and examples of these, together with a further small series of cases in children, are described below.

CASES IN CHILDREN

Case 1.—A boy aged 4 years was brought to the out-patient department on April 1, 1937, on account of a cough and loss of weight amounting to 1 lb. over a period of two weeks. At the age of 1 year he had had pneumonia with bilateral otitis media, and subsequently, in fairly quick succession, measles, scarlet fever, and chicken-pox. He had undergone tonsillectomy two months previously. On examination the temperature was 100° F., the pulse rate 120, and respirations 20, and over the middle and lower zones of the lungs the percussion note was impaired, while on auscultation the breath sounds were vesicular and showers of "sticky" rales were audible. X-ray examination (Plate, Fig. 1) showed an opacity in this region, and a leucocyte count revealed a total of 13,200 cells per c.mm., of which 74 per cent. were neutrophils. The Mantoux tuberculin reaction (1 in 1,000)

2. Secondary Types of Pneumonitis

Several varieties of pneumonitis have been described, occurring as a secondary manifestation in some other disease.

(a) *Acute Influenzal Pneumonitis* (Bowen, 1935).—Some two to three days after the usual explosive onset of influenza the patient develops a cough, and on examination of the chest an area is found over which the percussion note is impaired, while on auscultation rales are audible. The respiration rate remains normal and the patient's general condition good, in contrast to those who are afflicted with influenzal pneumonia (Boyd, 1935) who are toxic, prostrate, and cyanosed, the wings of death beating ever nearer. The following is an example of the clinical and radiological changes that occur in acute influenzal pneumonitis.

Case 12.—A man aged 28 was suddenly taken ill on April 25, 1937, with headache, shivering, dizziness, malaise, and fever. These symptoms persisted and were followed three days later by cough and expectoration. On admission to hospital his temperature was 100.6° F., pulse 92 and respirations 18. No abnormal physical signs were detected on examination. An x-ray film of the chest, however, showed (Fig. 9) an opacity in the right middle and lower zones, together with enlargement of the right hilar glands. A white cell count revealed a total of 16,000 cells per c.mm., of which 10,400 were neutrophils. On May 3 an area of dullness was found over the base of the right lung. The breath sounds in this region were vesicular and were accompanied by medium rales. The temperature and pulse settled to normal, the patient became symptom-free, and a further x-ray film on May 8 showed that the pulmonary condition was resolving, and by May 19, when he was discharged from hospital, the abnormal physical signs in the chest had cleared.

There is, of course, no proof that the above patient had influenza. However, he was taken ill during an influenza epidemic; other patients, suffering from influenzal pneumonia and lying in the same ward, offered a strikingly different clinical picture; and, finally, the symptoms—namely, headache, shivering, dizziness, and malaise—are in strict accord with those which have been laid down by Stuart-Harris (1937), one of the band of workers, comprising Andrewes, Laidlaw, and Smith, who have recently elucidated the problem of epidemic influenza. Indeed, Stuart-Harris in his paper gives a brief account of influenzal pneumonitis, and considers that the condition is a "bronchiolitis with patchy atelectasis." From such cases he was able to isolate the virus.

(b) *In Association with Pulmonary Abscess.*—Beaumont (1937) states that a pneumonitis may be the first lesion that develops in an area of lung before liquefaction occurs with cavity formation. Bowen (1935) and Beaumont (1937) use the term "pneumonitis" to describe the exudative inflammation that is so often seen around a lung abscess.

(c) *In Association with Bronchiectasis.*—All those physicians who are interested in respiratory diseases are familiar with the patient, a sufferer from long-standing bronchiectasis, who from time to time develops an acute exacerbation of his symptoms, with fever, lasting perhaps for two or three weeks and gradually settling at the end of this time. During this period the abnormal physical signs already present are increased, while radiographs reveal opacities extending from the bronchiectatic areas into normal lung. With defervescence of the fever the symptoms and physical signs return to their former degree, and further radiographs show resolution of the inflammatory areas. Such a process is admirably and concisely described as a pneumonitis.

(d) *In Association with Other Pulmonary Lesions.*—A similar process to that just described under bronchiectasis may be seen in connexion with bronchial neoplasms, pulmonary emboli, and pulmonary collapse (Beaumont, 1937).

(e) *In Association with Vincent's Infection.*—Cahan (1927) and Davis and Harper (1931) have reported cases in which, during the course of a Vincent's angina, the physical signs and radiological appearances of a pneumonitis have developed in one or more pulmonary areas. These lesions have resolved after the exhibition of arsenicals.

(f) *In Association with Rheumatism.*—Klein (1934) reports the case of a little girl suffering from chorea and rheumatic carditis complicated by pneumonia. On somewhat scanty evidence he concludes that the latter condition is a rheumatic manifestation.

3. Chronic Pneumonitis

Cases of chronic pneumonitis are reported in the literature from time to time (Colton, 1927; and Cabot Case 20092, 1934). It would appear that the essential lesion is a progressive pulmonary fibrosis of unknown aetiology. Some of these patients eventually develop pure right heart failure, which may prove fatal.

Summary

1. An account is given of pneumonitis, a term used to describe a recently recognized type of inflammatory pulmonary reaction.

2. Pneumonitis is divided primarily into three main groups—acute simple pneumonitis, secondary types of pneumonitis, and chronic pneumonitis.

3. Examples are given of acute simple pneumonitis as it occurs in children, adolescents, and adults.

4. Secondary types of pneumonitis include acute influenzal pneumonitis and pneumonitis in association with pulmonary abscess, bronchiectasis, bronchial neoplasms, pulmonary collapse, pulmonary embolism, Vincent's angina, and possibly rheumatism.

Dr. G. E. Beaumont has given me invaluable help and criticism in the preparation of this article. I am indebted to Dr. C. E. Lakin, Dr. T. Izod Bennett, and Dr. Alan Moncrieff for permission to publish cases under their care; to Professor James McIntosh for the white cell counts; and to Dr. Graham Hodgson for permission to reproduce the x-ray films.

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zone. It was thought that the condition was probably one of basal tuberculosis, and he was admitted to hospital. However, examination of the sputum on three occasions failed to reveal the presence of tubercle bacilli, his temperature and pulse rate gradually settled (Fig. A), the blood sedimentation rate (Fig. B), which was raised, also dropped to normal, the abnormal

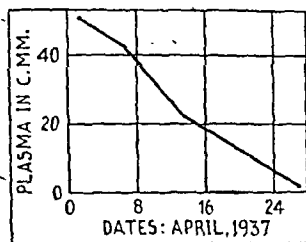


FIG. B.—Case 7: Blood sedimentation rates (Westergren).

physical signs in the chest gradually disappeared, and a further radiograph (Fig. 5) showed complete resolution of the pulmonary condition. He was discharged from hospital on April 30, 1937, afebrile and symptom-free, having gained 8 lb. in weight.

Case 8.—A youth aged 16 attended the out-patient department on May 3, 1937, complaining of a cough, expectoration, lassitude, and loss of weight. His symptoms were of two weeks' duration. Apart from an operation for acute appendicitis in 1934 he had had no illnesses in the past. There was no tuberculosis in the family. On examination his temperature was 98.6° F., pulse 96 and respirations 20, and over the base of the left lung the percussion note was impaired, air entry was weak, and medium rales were audible. The blood sedimentation rate was 22 mm. (Westergren), and a white cell count showed 6,200 cells per c.mm., the differential count being normal. No treatment was prescribed, and a week later the boy was symptom-free, had gained 2 lb. in weight, and no abnormal physical signs could be detected on examination of the lungs. He remains well, and his Mantoux reaction (1 in 1,000) is negative.

CASES IN ADULTS

Case 9.—A man aged 32 attended the out-patient department on December 17, 1936, complaining of a cough with slight expectoration of one week's duration. The sputum had been streaked with blood on one occasion. He had had no serious illnesses in the past. On examination of the chest the percussion note was impaired at the right base, breath sounds were vesicular, and persistent "sticky" rales were audible. An x-ray film showed an opacity in this region. The sputum was negative for tubercle bacilli. He was seen again one week later, when he complained, in addition, of pain in the right chest. The physical signs remained unaltered. He was sent home to bed for ten days, and at the end of this time confessed that he felt perfectly well. No abnormal physical signs could be detected in the chest, and a further radiograph showed that the opacity previously noted had cleared.

Case 10.—A man aged 60 came to the out-patient department on January 28, 1937, complaining of a cough, expectoration, and loss of weight of two weeks' duration. He stated that he had never had a day's illness up to this time. On examination he was pale and thin, and over the middle and lower zones of the right lung the percussion note was impaired, while on auscultation the breath sounds were vesicular and rales were audible in this area. He was afebrile, his pulse was 96 and respirations 20. X-ray examination (Fig. 6) revealed shadowing in the region under suspicion, and it was thought that this was a case of pulmonary fibrosis. A fortnight later, however, he was symptom-free, had gained weight, and no abnormal physical signs could be detected on examination of the chest. Further radiographs were taken, and the shadowing previously noted had almost entirely cleared. At the present time he is well and his Mantoux reaction (1 in 1,000) is faintly positive.

Case 11.—A man aged 26 was taken ill with malaise, cough, and expectoration on March 24, 1937. He was found to be febrile and to have a tachycardia, but there was no increase

in the respiration rate. No abnormal physical signs could be detected on examination. The fever gradually settled, the tachycardia diminished, and the symptoms cleared, so that by April 6 the patient was well enough to be allowed up. As a precautionary measure an x-ray film was taken of the chest, and this (Fig. 7) showed mottling and increased striation in the upper zone of the right lung, the appearances being highly suggestive of pulmonary tuberculosis. However, in view of the patient's general well-being, it was decided to wait for three weeks and then repeat the x-ray examination. This (Fig. 8) showed that the pulmonary condition had completely resolved. Since this date the patient has remained in normal health.

DIFFERENTIAL DIAGNOSIS

Little need be added here to that which has already been said under the differential diagnosis of simple pneumonitis in childhood.

1. Recent pneumonia, unresolved pneumonia, and chronic pneumonia are readily differentiated for the reasons given above.

2. Disseminated focal pneumonia (Scadding, 1937) differs from acute simple pneumonitis in its initial symptoms, in the expectoration of purulent sputum, and in pursuing a more prolonged course with delayed resolution. Scadding suggests that disseminated focal pneumonia may be an earlier phase of the condition he has already described under the heading of chronic diffuse bronchopneumonia (Scadding, 1936).

3. As is well known, the majority of adult town-dwellers in this country have been infected by the tubercle bacillus: this primary infection in most cases leaves a healed focus somewhere in the body, but some of these people do not thereby acquire complete immunity, and proceed sooner or later to develop some form of phthisis. This stage of tuberculous pulmonary infection is called by Wingfield (1937) the "secondary" or "S" lesion. He states that the lesion consists of a central core of tubercle bacilli surrounded by a zone of allergic reaction, and, further, that if the deposit of bacilli is small enough and the host's immunity sufficiently high the whole lesion may disappear completely, leaving no trace. For this attractive theory no definite proof is offered, and, moreover, this teaching is contrary to the generally accepted view—namely, that pulmonary lesions containing tubercle bacilli heal by fibrosis, leaving scar tissue which can readily be detected by x-ray examination. Furthermore, those tuberculous pulmonary lesions, believed to be allergic, which occur in childhood invariably leave recognizable foci on healing—for example, Ghon lesions.

For these reasons, and also because several of the cases exhibited a negative Mantoux reaction, it seems evident that acute simple pneumonitis is not a manifestation of tuberculous infection of the lung.

PATHOLOGY

Since no fatalities have as yet been recorded in acute simple pneumonitis it is impossible to do more than conjecture as to the exact pathological process underlying the clinical and radiological picture constituting this condition. It was originally suggested (Gill, 1937) that the primary lesion may be a low-grade inflammatory process chiefly affecting the pulmonary alveoli. In a personal communication Beaumont has since pointed out that the same syndrome could be produced by partial obstruction of one or more bronchioles by a muco-purulent inflammatory exudate. The presence of blood-stained sputum in several cases suggests that the condition is either bronchiolar or alveolar, and not primarily a reaction of the interalveolar tissues. In the state of our knowledge further discussion, necessarily theoretical, would be sterile.

We know, further, that cancer cells may remain latent, presumably encapsulated by a fibrous tissue reaction. This is the only possible explanation of the late recurrences sometimes seen. I would instance a patient whom I saw recently who had a radical removal of the breast done for carcinoma, and who came up twenty years later for a recurrence in the lumbar spine. In this particular case it is certain that the deposit was there at the time of the operation. I am suggesting that operation, by cutting down the amount of cancer present, allows it to be successfully dealt with and shut off. Then at a later stage some other factor comes into play, possibly trauma, possibly a lowering of the general health of the patient, and the cancer cells resume their interrupted activity.

I do not wish to imply that partial operations should be undertaken, or that radical removals of a primary source should be done in the presence of gross secondary deposits. I am only placing this case on record to show that a patient who might have been regarded as hopelessly inoperable is still alive and well after an interval of ten years.

Summary

A case of carcinoma of the descending colon associated with a nodule in the liver is reported in which the patient is alive and well ten years after a partial colectomy.

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THE PLANTAR WART

VERRUCA PLANTARIS: VERRUCA PEDIS: PLANTAR PAPILLOMA

BY

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(WITH SPECIAL PLATE)

At the present time there is a widespread epidemic of plantar warts among school children. So far as my experience goes the epidemic is most severe among adolescent girls, although I have seen several boys whose ages ranged from 8 to 17 years suffering from the complaint. In South-West Lancashire the epidemic scarcely affects the so-called hospital classes, and the majority of cases are in children who attend boarding-schools; it would seem to be unduly optimistic to believe that all classes of the community will not be soon infected. Until recent years this type of wart has not been prevalent, and it is difficult to discover why the present epidemic has developed.

Plantar warts (or "verrucae," as they are called by many patients and some chiroprudists) are a minor malady, but when they have reached an average size they considerably curtail the activities of the person affected, owing to the pain caused by pressure on the warts whenever he attempts to walk or run. The warts develop insidiously. The first sign is the formation of a small semi-translucent macule, 1 to 2 mm. in diameter. There are no signs of inflammation. The macule is slightly painful on pressure, but is usually disregarded by the patient, who, if he considers the matter at all, believes that he has a tiny piece of grit embedded in the sole of his foot. The lesion, as a rule, develops on the heel or the ball of the foot, but may appear on any part of the plantar surface,

including the toes. The macule increases slowly in size until it reaches a diameter of approximately 0.5 cm., when the wart may be regarded as being fully formed. On examination one finds a roughened, hyperkeratotic type of lesion, greyish yellow in colour, and its papillomatous nature is usually, not apparent until the wart is pared with a knife. Satellite warts develop, and it is not uncommon to find as many as ten warts on one foot. The subjective symptoms vary with the site of the warts and the stoicism of the patient. One can generally obtain a history of throbbing pain, which is most severe when the patient gets out of bed in the morning or when he puts on his boots and starts to walk. The pain usually diminishes after he has been standing for some little time. He may complain that the warts throb when he has a hot bath.

Plantar warts have to be differentiated from callosities due to pressure: but medical men are so accustomed to recognizing callosities due, for example, to dropping of the anterior arch of the foot or to faulty shoes that the differential diagnosis is not often a matter of difficulty. In a doubtful case one should remember that whereas little or no pain is experienced when a callosity is pressed, the patient always complains of severe pain if a plantar wart is treated similarly: further, if the lesion is pared down the papillomatous nature of the wart becomes apparent.

Aetiology and Pathology

There is little doubt that plantar warts are caused by a filter-passing virus. It is probable that individual susceptibility to this virus varies considerably, but the virus is virulent and appears to be able to obtain a secure foothold on skin which to the naked eye reveals no sign of abrasion. Whilst the virus probably cannot develop or multiply except on a medium of living cells, it is reasonable to presume that it can remain alive for some minutes, if not for a few hours, on areas where an affected foot has pressed. If the superficial layers of a wart are shaved off the closely packed papillae are revealed. The papillae are in most cases yellowish white in colour, but may be stippled with red or brownish stains where haemorrhage has occurred. They are encircled by a tough horny collar. The lesion is broader at its base than at the opening on the surface of the skin.

The histology has been described by MacLeod (1933) in the following terms: "Microscopical sections show hyperkeratosis at the periphery, and marked acanthosis and elongation of the interpapillary processes in the centre. Towards the centre of the processes the prickle cells tend to be vacuolated." Inclusion bodies may be found in these vacuolated prickle cells.

Treatment

Treatment must be divided into two categories, preventive and active. In my opinion preventive treatment is of the utmost importance at the present time, and I would urge that all doctors who are in charge of schools should institute regular inspection of their pupils' feet, at least until the present epidemic has passed. School children suffering from plantar warts should be segregated so far as dormitory accommodation is concerned. They should have their own bathrooms and changing-rooms, and should not be permitted to use the school swimming-bath. Special care should be taken that their boot lockers are far removed from their colleagues', whilst the bootblack should have instructions always to clean the patients' boots in a batch after he has finished with those belonging to the rest of the school.

SPONTANEOUS DISAPPEARANCE OF
CARCINOMA

BY

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(WITH SPECIAL PLATE) -

It has long been recognized that carcinoma of the large intestine is a very slow-growing form of malignant disease, and it is being realized now that its rate of growth is probably even slower than we had previously thought. It is not until some degree of obstruction begins to make its appearance that our advice is sought, and if we go carefully into the history we may find evidence of some indefinite abdominal symptoms which may go back for as long as two or three years. Even when the disease has been present for this length of time the outlook is comparatively favourable if the acute obstructive condition is relieved and the growth subsequently removed. When we open the abdomen in these cases we usually find a comparatively small primary lesion, with some enlargement of the glands in the mesocolon. It is only in the later cases that we find involvement of the aortic glands or secondary deposits in the pelvis with free fluid. Secondary nodules in the liver are also, as a rule, a late phenomenon. The latter two forms of extension are usually regarded as contraindicating any form of radical surgery.

Case History

A man aged 41 was seen on March 29, 1927, when he gave a history of attacks of pain in the left side of the abdomen for some considerable time. These had been diagnosed as due to renal colic, and he was eventually x-rayed, with negative results, in December, 1926. Colicky abdominal pain and increasing constipation began to be felt four weeks before he came up for treatment. For ten days he had noticed his abdomen becoming fuller, and he had commenced to vomit. At the time of his admission he had absolute constipation. He was obviously suffering from acute intestinal obstruction, and as he gave no response to enemata his abdomen was opened by a right paramedian incision. A growth was found in the descending colon, and the gut above it was very much distended. His caecum was brought out through a separate incision in the right iliac fossa and a Paul's tube tied into it. Three weeks later his abdomen was reopened by a left paramedian incision and examined in more detail. The distension of the gut was considerably less. One or two of the paracolic glands were enlarged, and on sweeping the hand over the convex surface of the right lobe of the liver a nodule which was hard and about the size of a pea was felt on its surface. This was taken to be a secondary deposit and seemed to exclude any hope of resecting the growth. It was felt undesirable to leave the patient with a caecostomy on account of the difficulty of controlling a liquid discharge, and the choice lay between a short circuit and a partial colectomy. The left half of the colon was mobilized and a piece stretching from the left side of the transverse to the upper part of the sigmoid colon was removed. The two ends were closed and continuity was restored by a side-to-side anastomosis.

The pathological report on the specimen read as follows: "The growth is a typical adenocarcinoma, showing some mucoid degeneration in parts. It almost encircles the gut, causing some narrowing. Melanosis is present above the growth." Two photomicrographs are here reproduced (see Plate).

Following the operation his caecostomy opening gradually got smaller and he was discharged with it practically closed five weeks later. For about eighteen months he was seen

periodically because of some leaking from it, and it then appeared to close finally. During this time his general health improved and no sign of any further growth was seen. He went to Ireland for business reasons at this time and nothing more was seen of him until February, 1937, when he came up with a history of three weeks' constipation. His general health had been good for the ten years since his operation. He had been so well that his business affairs had prospered; but he was worried, as he knew that a growth had been removed and he was afraid of a recurrence. There was still no sign of a return of the growth, and a barium enema showed a colon, with no sign of any obstruction, in which it was practically impossible to tell that a resection had been done. He was reassured, and has now returned to his work.

Discussion

The interest in this case centres on the nature of the nodule that was felt in the liver. The obvious diagnosis was of a secondary carcinomatous nodule, but there was no verification of this with absolute certainty. Simple liver tumours occur occasionally and are usually accidental findings at a post-mortem examination, so that there is no reason why they should not be accidental findings during the course of an operation for some other condition. We are thus left with the two alternative diagnoses of a secondary deposit and a simple tumour such as a bile-duct adenoma. Except for the subsequent history the former of these would appear to be the more likely.

There is no doubt that carcinoma can and does disappear spontaneously, as instanced most strikingly in Pearce Gould's (1910) classical case. Further, we know that cancer cells which are carried to the liver and the lungs are often destroyed and that they do not always give rise to metastatic growths. Teacher (1908), in an article on the development and natural healing of secondary tumours of chorion-epithelioma malignum, brings forward evidence to show that haemorrhage and thrombosis in a tumour are able to destroy the tumour cells, and that healing is brought about by a process of encapsulation within a zone of actively growing connective tissue and blood vessels which invade the tumour nodule.

It is said that in tuberculosis when there are two foci of disease the elimination of one may allow the natural defence mechanisms to overcome the other, whereas the two together might be progressive and beyond the patient's power to deal with. May it not be that a similar state of affairs holds in cancer and that the question of dosage is an important one? It is possible that cancer cells may be left behind after radical operations, and that we may congratulate ourselves on having removed the disease in its entirety when it is really the natural resistance of the body that has made our efforts successful.

It is usually held that the presence of one growth protects its host from the development of another, probably on account of the elaboration of some antibody which makes its way into the circulating blood. Thus in the tar warts which are produced in the experimental animal only one of them becomes malignant, and in polyposis of the colon, which is well known to be pre-cancerous, only one polypus shows a malignant change. The removal of the carcinoma in such a case may be followed at a later date by the appearance of a malignant change in one of the other polypi or warts. The two cases are, however, hardly parallel. Here we are dealing with an actual growth and a potential one, whereas in the case I am reporting there were two established foci, one certain and the other probable.

than that of cerebrospinal fluid. It can be demonstrated *in vitro*, by using alcohol coloured with a dye, that it floats on the surface of cerebrospinal fluid for several minutes with very little admixture. It is therefore possible, by placing the subject in a suitable position, to introduce alcohol into the subarachnoid space in such a way as to cause it to come into contact with the posterior roots it is intended to destroy, but not with other structures which it would be undesirable to injure.

Dogliotti himself in his original paper described forty-five cases of various kinds (all non-malignant) treated in this way with doses ranging from 0.2 to 0.8 c.cm. Of these patients twenty-seven (60 per cent.) were partially relieved, and nine (20 per cent.) were unrelieved, or almost immediately relapsed, or were lost sight of (one case). Since that time much the same degree of success has been achieved in both malignant and non-malignant cases by workers using this method or some modification of it. The literature includes papers by Yeomans (1933), Saltzstein (1934), Stern (1934 and 1936), Sloane (1935), Grant (1935), Silverstein (1935), Rowe (1935), Greenhill and Schmitz (1935 and 1936), King (1935), Babcock (1935), Abbott (1936), Meynier (1936), Russell (1937), and Todd (1937). On injection the relief of pain is often immediate, but is sometimes delayed for a considerable period—according to Dogliotti as long as forty days. In a number of cases the first injection has been unsuccessful, but pain has been completely relieved by a second. Todd (1937) in two cases found it necessary to repeat a successful injection in three months. The length of time for which the effect of treatment is felt has varied in the recorded cases. Dogliotti gave the maximum as six months, and Stern as eight months. In Todd's series the maximum period of relief was sixteen months and the average period five months.

The effects of alcohol injections upon the cord and nerve roots have been studied post mortem in a few instances: they are extremely slight. In Todd's cases they included extreme congestion of the vessels around the nerve roots and throughout the lower part of the cord, thickening and hyalinization of the vessel walls, and some perivascular deposit of hyaline fibrous tissue. Ritchie Russell reported demyelination of nerve fibres and cellular infiltration both in the posterior nerve roots and in the column of Goll in two cases examined twelve months and nineteen months respectively after alcohol injection. Dogliotti found that the cerebrospinal fluid examined a few days after an injection is under increased pressure and shows a slight increase of albumin and of leucocytes. Normal conditions are restored in about ten days.

Technique of Injection

The method used by different workers has varied somewhat, but in most cases either absolute or 95 per cent. alcohol has been given in doses of 0.2 to 1 c.cm. without previous withdrawal of cerebrospinal fluid or barbotage. In one only of the recorded cases was barbotage employed. Meynier (1936) withdraws 10 c.cm. of cerebrospinal fluid and injects an equal quantity of dilute alcohol (5 to 7.5 per cent. solution of absolute alcohol in distilled water), introducing it "rather rapidly." In view of possible dangers it is best to begin with small doses and repeat the injection, using a larger dose, if necessary. The treatment can quite well be given to the patient in bed, though it is easier to arrange and maintain the required position on an operating table furnished with a kidney bridge. A general anaesthetic is very rarely necessary, but local anaesthesia may be used if desired.

Having decided which nerve roots are to be the objective—taking into consideration the innervation of the diseased organ and the situation of the pain—the interspace to be employed for the injection is calculated from the known relation between the spinal segments and the bones of the vertebral column. The risk of injuring structures other than the posterior roots in question is minimized by introducing the alcohol as close as possible to the point of emergence of the latter from the cord. When, therefore, the lumbar or sacral roots are the objective the very general practice of making the injection through a lumbar interspace is open to criticism. Since the spinal cord does not extend, at most, lower than the first lumbar interspace, alcohol introduced below this point will come in contact with the nerves of the chorda equina, where its effects cannot be accurately localized. It is technically easier to introduce a needle through a lumbar than through a dorsal interspace, but it would seem to be much safer to use the space most nearly corresponding to the spinal segments involved.

The patient is placed on the side opposite to that on which the pain is felt: if the pain is bilateral, on the side on which it is less severe, supposing there is any inequality. The spine is well flexed in a forward direction and the head lowered either by raising the foot of the bed or by tilting the operating table. The spine is flexed laterally by means of pillows or sandbags or by elevating the kidney bridge of the operating table, so placed that the site of the proposed injection is raised and the spinal segments corresponding to the nerve roots aimed at become the highest part of the spinal cord. At the same time the body is inclined forward at an angle of 45 degrees. This brings the posterior roots into a horizontal position, where the greatest possible length is exposed to the action of the alcohol, while the motor roots are brought into a plane in which they are less likely to be damaged. The puncture is made in the midline with an ordinary fine lumbar puncture needle. When puncturing a dorsal interspace it must be borne in mind that the needle must be introduced obliquely upwards as well as forwards, in a plane almost parallel with the skin surface of the back. To avoid injury to the cord in this region it is safer to remove the stylet from the needle before it enters the theca. It is dangerous to make a puncture above the dorsal region.

As soon as the needle is well in the subarachnoid space the syringe containing the measured dose of sterile alcohol is attached and the alcohol very slowly injected, at a rate of about 0.4 c.cm. a minute. After the injection is finished the patient is kept in exactly the same position for a time sufficient to allow the alcohol to act upon the posterior roots. The period allowed for this by different workers varies from ten minutes (Stern) to two hours (Greenhill and Schmitz). At the end of that time he is placed flat on his back and left in that position for twenty-four hours. It is wise to keep the foot of the bed raised for the first few hours. If it be necessary to repeat the injection either on the same or on the opposite side an interval of five to seven days should elapse before this is done.

A feeling of burning may accompany the introduction of the alcohol, but this quickly passes off. Pain may stop immediately, or, as already mentioned, its relief may be gradual. Dogliotti observed in many of his patients that immediate cessation was followed by a temporary return of the pain, lasting for some hours or days and succeeded in its turn by gradual relief. There may also be transient numbness and weakness of the leg on the side of the injection, sometimes associated with temporary loss of the tendon reflexes. In some cases more serious

In private houses similar precautions should be taken. The infected person must never tread with bare feet where an unaffected person will step. On leaving his bath he should step on to his own bath mat, which should be removed from the bathroom as soon as he leaves. No one else should use his bath towel, and probably it is safer to swill down the bath with a weak antiseptic after he has used it. The evidence is not conclusive, but it is probable that the infection is more usually contracted in bathrooms than elsewhere. So little is known about the dissemination of the wart virus that it is better to be overcautious rather than risk dissemination of the virus by lack of caution.

In the earliest stages the warts can in most cases be destroyed by the use of a wart paint—for example:

R. Zinci chloridi 3 ss
Collodium acid. salicyl. (1 in 10) ad 3 i
Misce.

A spicule of wood should be dipped into this paint and then bored gently into the wart. The treatment should be carried out twice daily, and if the patient is placid the results are usually satisfactory. Many persons complain bitterly that they cannot stand the pain, and other measures have to be employed.

Most dermatologists prefer to use radium or x rays, and these physico-therapeutic agents are the least painful methods of treatment and the most certain in their results. In my experience, using x rays filtered through 0.5 mm. aluminium, a plantar wart requires an average of 900 r units of x rays before it succumbs. While receiving treatment it is advisable for the patient to wear white cotton socks underneath his usual socks throughout the day. These socks should be boiled every night. The feet may be powdered with an antiseptic dusting powder.

If physico-therapeutic measures are not available excision may be attempted. In my hands local anaesthesia has not been very successful: I have found it to be almost impossible to infiltrate the part with novocain without causing much pain. I prefer to use a general anaesthetic (nitrous oxide or gas-and-oxygen). The warts should be scraped out with a sharp curette. It is surprising how deeply the roots are situated. I have found it best to remove the horny collar which surrounds each wart, as recurrence is frequent if this is left. Bleeding should be controlled and the area disinfected, so far as is possible, by the application of the silver nitrate pencil. Dry dressings are usually adequate, and healing is complete in about fourteen days. Diathermy or refrigeration with carbon dioxide snow are alternative measures. Goldsmith (1936) recommends that the "snow" should be applied for three to five minutes: a large bleb will develop, allowing the wart to be painlessly excised about three days later. Good results have been claimed for treatment by cataphoresis with zinc sulphate.

Chiropodists often treat these cases successfully. They generally aim at destruction of the wart by escharotics or keratolytics. Runting (1935) states that their object is "to destroy the growth so thoroughly that such a reaction may be created in the healthy tissue as to bring about a line of cleavage between the destroyed growth and the normal healthy tissue. The culmination of this process is usually accompanied by effusion of serum or sero-pus. . . . The whole art of the successful destruction of verrucae depends upon inducing this condition effectually without causing more disturbance to the normal tissue than is actually essential to the cure." "The majority of chiropodists bring about the desired result with acids, such as nitric, acetic, monochloroacetic,

trichloroacetic, salicylic, chromic, pyrogallic, or acid nitrate of mercury; or with such powerful alkalis as potassium hydroxide or sodium hydroxide."

In the majority of cases the surrounding tissue is protected by an application of vaseline, and the acid or alkali is applied with an orange stick and "worked into the growth." A protective dressing is employed and a few days later the treatment is repeated, the tissue which has been destroyed by the previous treatment being removed before fresh acid or alkali is applied. By proceeding slowly and giving regular treatments the warts are destroyed with a minimum of pain. The use of pyrogallic acid is effective and is not associated with much pain unless the application is left *in situ* too long. The acid is applied as an ointment (30 to 50 per cent. in ung. resinae) once or twice weekly, the usual occlusive precautions being observed.

Summary

Attention is drawn to an epidemic of plantar warts among school children.

A short description of the signs, symptoms, aetiology, pathology, and treatment of the warts is given.

[The photograph in the Special Plate is reproduced from *Diseases of the Skin* (fourth edition), published by Messrs. Baillière, Tindall and Cox.]

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INTRATHECAL ALCOHOL INJECTION FOR RELIEF OF PAIN: A REVIEW

BY

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Dogliotti in 1931 first suggested the use of subarachnoid injections of absolute alcohol as a simple and comparatively safe means of alleviating severe chronic pain of which the cause is not amenable to treatment. He pointed out that the various surgical measures designed to relieve pain (posterior rhizotomy, chordotomy, sympathectomy) are operations to which many patients suffering from such conditions as advanced malignant disease cannot justifiably be submitted; nor are they always successful. Paravertebral nerve-blocking is an alternative, but it is difficult to carry out and is uncertain in its effects.

Dogliotti's aim in devising this method was to bring about a partial destruction of the appropriate posterior nerve roots close to their entry into the spinal cord. Accepting the assumption that pain is proportional in severity to the numerical strength of the sensory impulses reaching the centres concerned, he argued that this "decimation" of the afferent nerve fibres should reduce the pain-provoking stimulus below threshold value. From animal experiments he satisfied himself that it is possible to limit the action of the alcohol with sufficient precision to the posterior roots; only when the doses used were excessive did symptoms of motor paralysis follow the injections.

Principles of Treatment

The principle underlying the method is that absolute alcohol possesses a specific gravity considerably lower

advice to a new parent attending the clinic is in regard to a balanced dietary, but with the children under consideration this was avoided in order to demonstrate the effect of the addition of iron to their normal meals. After a course of iron appetites improved, the mucous surfaces became less pale, and the children became more active and showed an increased vitality generally.

It will be noted from the tabulated results given below that there was a definite rise in the percentage of haemoglobin. From the clinical improvement noted in the children this was expected. In order to avoid giving a detailed account of the rise in the percentage of haemoglobin and the blood pictures obtained from each child, a table is appended to show the average rise in haemoglobin over the series of children who attended weekly for examination. The blood picture is the average for thirty-one children, but since the attendance for examination diminished each week, owing to ailments and lack of co-operation from parents, the results given at the end of the sixth week are completed from a smaller number. Clinically, however, all the children maintained their immense improvement in health and general activity while taking a daily dose of iron. Considering that the iron cost the parent only 1½d. per week one feels it to be worthy of trial in any case where a child shows a lack of normal vitality. Had advice regarding diet been given in conjunction with the addition of iron to the food we could have obtained a more pronounced rise in the haemoglobin percentage and a greater improvement in the general health of the children. It is gratifying to note that some firms who market dried full-cream milk are now adding an adequate dose of iron to the food, and not the small amount so often met with a few years ago, an amount which would fail to give any satisfactory rise in haemoglobin.

Table showing the Blood Picture before giving Iron to Thirty-one Children (Average Age, 2½ Years)

Average number of red blood cells per c.mm.	3,340,000
Average percentage of haemoglobin ..	66
Percentage showing anisocytosis ..	84
" " pallor ..	35
" " poikilocytosis ..	16
" " polychromatophilia ..	7
" " punctate basophilia ..	3

Conclusion

Many of the children attending a toddlers' or infant clinic under the direction of a local authority show a clinical anaemia (confirmed by blood pictures) although no definite defect appears to be present, apart from sub-nutrition and pale mucous surfaces. These children should be given a regular daily dose of iron over a period of at least six to eight weeks, even though they are getting insufficient food. If their blood picture does not show an improvement further investigation will be necessary. Where the clinical finding fails to suggest a physical defect the administration of a course of iron on empirical grounds will often save much further investigation of a more difficult nature.

Table showing the Average Percentage of Haemoglobin at the End of Each Successive Week while taking a Daily Dose of 20 grains of Ferri et Ammon. Cit.

Before taking Iron	Weeks After taking Iron					
	1	2	3	4	5	6
66.6	66.6	69.5	73.7	74.7	75.9	73.0

Summary

1. The average blood picture of thirty-one children under the age of 5 years (average age 2½ years) is given, showing signs of anaemia clinically.

2. A table is included to demonstrate the effect of a simple addition of iron to children's diet, which is left unchanged in other respects.

3. These children were chosen from a welfare centre in a poor-class district in Birkenhead, where unemployment is prevalent.

4. The cost to the parent per child per week amounted to 1½d. for the ferri et ammon. cit.

5. No advice was given to parents regarding diet for children.

We wish to thank Dr. D. Morley Mathieson, Medical Officer of Health, Birkenhead, for granting us the facilities for carrying out this work.

Clinical Memoranda

Block Anaesthesia for Insertion of Radium to Epithelioma of Lip

(WITH SPECIAL PLATE)

The use of block or local anaesthesia, either alone or combined with gas and oxygen or any other general anaesthetic, often seems to be neglected, perhaps through lack of opportunity or from prejudice on the part of the patient, the anaesthetist, or the surgeon. The following account appears to be worthy of record as illustrating the indispensable use of block anaesthesia in a case which presented considerable difficulty with regard to the anaesthetic.

The patient, a man of 77, was suffering from an extensive epithelioma of the lower lip. The growth involved the left corner of the mouth and extended along the lower lip to within half an inch of the right corner. The patient was frail and quite unsuitable for a general anaesthetic, and had given cause for great anxiety when under gas and oxygen for the extraction of teeth. The intravenous barbiturates were out of the question in view of the patient's age and general condition, so local anaesthesia seemed to be the method indicated. Local infiltration is not ideal for radium cases, as the ensuing soginess of the tissues, added to the reaction of the radium itself, is apt to cause more sloughing than is usual. The only solution appeared to be in block anaesthesia sufficiently far away to leave the operation site untouched.

An hour before operation the patient was given one-sixth grain of morphine and 1/150 grain of hyoscine, and fifteen minutes before operation a right and left mandibular injection by the indirect method, 2 c.cm. of anaesthetic fluid being injected at each inferior dental foramen. To anaesthetize the left corner of the mouth the infra-orbital nerve was dealt with by the deposition of 2 c.cm. of anaesthetic fluid at the left infra-orbital foramen and gently massaged upwards. On being questioned the patient now said that his lower lip was tingling and he was unable to feel the prick of a needle, proving that the mandibular injections were working efficiently. Each of the long buccal nerves was injected with 1/2 c.cm. to anaesthetize the mucous lining of the lip. All these injections were of course given inside the mouth. The patient's eyes were then bandaged and he was taken into the theatre, the towels placed in position, and the lip prepared. After the insertion of the first radium needle the patient fell asleep, and remained asleep and snoring until roused by the removal

motor disturbance has occurred, such as paraplegia, retention of urine, or loss of control of the sphincters. For the most part these symptoms have passed off after some hours or days; in a few of the cases a greater or less degree of disability has persisted. Silverstein's patient, a tabetic, was left with complete motor and sensory paralysis of the leg, but in this case an unusually large dose of alcohol (9 c.cm.) was given. In Sloane's patient, also a tabetic, there was retention of urine and faeces, abolition of the ankle-jerk and paresis of the muscles of the lower leg on both sides—more pronounced on the side of the injection—and anaesthesia of the back of the thigh and leg and of the peri-anal region, complete on the side of the injection and partial on the opposite side; a certain degree of weakness of the legs and difficulty with micturition was permanent. Babcock also observed persistent weakness of the leg. In one of Todd's cases a meningeal reaction occurred, but this subsided spontaneously in four days. One death has so far been reported—by Abbott, in a patient in the last stages of malignant disease who died the day following the injection. Russell's series of twenty-five cases included one case of retention of urine and three cases of sphincter paralysis; and among Todd's eighteen cases retention of urine and incontinence of faeces occurred in two and incontinence of faeces alone in one. In all these cases, and in others reported in the literature, recovery took place within a few days. The longest time taken for recovery from these sphincter disturbances has so far been two weeks. One case of diarrhoea lasting three weeks has been reported (Greenhill and Schmitz).

The comparative rarity of motor disturbances after subarachnoid injection is probably due in part to the relative insensitivity to alcohol of motor as compared with sensory fibres; it is difficult otherwise to understand why these disturbances do not more often accompany injections given in the region of the cauda equina.

One case may be added to those collected from the literature. This patient, a woman of 57, was suffering from intense pain in the right side of the abdomen associated with generalized melanotic disease of the liver, secondary to a malignant melanoma of the choroid for which the right eye had been removed five years before; the pain was constant and relieved by morphine only to a very slight extent and for an hour or two at a time; she was worn out from lack of sleep. The diagnosis having been confirmed by exploratory laparotomy and biopsy, 10 minims of 95 per cent. alcohol were injected through the seventh dorsal interspace. The injection was wholly unsuccessful. It was therefore repeated a week later, the dose being increased to 20 minims. This time relief was immediate and complete. Neither injection was followed by complications of any kind.

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THE EFFECT OF IRON ADMINISTRATION IN CASES OF SUBNUTRITION

BY

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It is a pity that medical officers in charge of a welfare centre under the control of a local authority do not more often publish their experience at the centres. The number of children attending is usually large and the work done excellent, but the amount of literature relating to these clinics is much too small. One realizes that the difficulties of research work are many, the greatest of them being the lack of co-operation from parents. Numerous plans are conceived and much work started; but the result is *nil*, as parents will not bring their children along for examination often enough, and so results that are promising cannot be put in the tabulated form necessary for publication. This is a great loss to the general practitioner, who often has little chance of obtaining experience in the pathology or even the physiology of infant life during his first few years of practice. The following work was carried out partly at a toddlers' clinic (children from 1 to 5 years old) and partly at the laboratory, both under the control of a local authority (county borough, population 150,000). For reasons already mentioned the figures were not nearly so complete as one would desire, but they are of value as showing a positive result from a simple and cheap form of therapy for a certain defect prevalent among children in the poorer-class districts of many boroughs.

At the clinic under consideration the children attending belonged to families whose chief breadwinner was often unemployed for long periods, and whose food was therefore mostly of the cheap variety. The proteins necessary for adequate growth were seldom present in the daily menu. The children's food consisted in the usual energy-producing carbohydrates, mostly in the form of wheat of different millings made edible by the addition of animal or vegetable fat. During the summer first-class proteins such as eggs, fish, and meat could be bought, but in the winter, when these foods were most necessary, they were often lacking, and malnutrition therefore followed.

Many of the children attending the centre had pale mucosae, and showed lack of energy, anorexia, subnutrition, and dullness of spirit. It was decided to try the effect of the addition of iron to their diet, unaided by anything else that might cause a diminution in the existing subnutrition. The children were chosen and sent to the laboratory, where complete blood examinations (cell count, films, and haemoglobin estimation) were carried out. In order to reduce the passive opposition of the parent the blood examination was made only at the first attendance, subsequent investigation being confined to estimation of the percentage of haemoglobin. In this way we could eliminate those children who were not actually anaemic though appearing so on clinical examination. All the children selected, however, were anaemic both on clinical and on biological grounds.

The parents were not advised regarding diet, but were merely given a bottle of ferri et ammon. cit. to be taken by the children once daily in any form of food. The first

Reviews

ELECTROCARDIOGRAPHY

Clinical Electrocardiography. By Sir Thomas Lewis, M.D., F.R.S., D.Sc., LL.D., F.R.C.P. Sixth edition. (Pp. 128; 109 figures.) London: Shaw and Sons, Ltd. 1937.

The Fundamentals of Electrocardiographic Interpretation. By J. Bailey Carter, M.D. (Pp. 326; 250 figures. 20s.) London: Baillière, Tindall and Cox. 1937.

It seems that few cardiologists escape the urge to write a textbook on electrocardiography. In fact there are too many such books, and too few readable and concise accounts of the clinical aspects of cardiovascular disease. It is true that no investigation of heart disease, known or suspected, is complete without electrocardiography, but there is a tendency for instrumental methods to be given too dominant a place among the means at the disposal of the clinician. One of the earliest and best brief accounts of electrocardiography was given by Sir Thomas Lewis, and the sixth edition of his *Clinical Electrocardiography* presents a useful outline of the method and of the interpretation of the curves obtained in the common disorders of the heart. In his section on coronary thrombosis the author emphasizes the importance of correlating the electrocardiogram with the other clinical evidence before arriving at a diagnosis.

Dr. J. Bailey Carter, in *The Fundamentals of Electrocardiographic Interpretation*, has produced a comprehensive survey of the subject. The earlier sections of the book give an account of the principles and technique of the method, and these are succeeded by orthodox accounts of the common abnormalities of rhythm. A discussion of the electrocardiographic aspects of myocardial disease makes reference to chest leads. The author has given a description of the curves likely to be obtained in certain forms of heart disease, such as congenital lesions and mitral disease, and in addition has mentioned the anomalies often seen in certain general disturbances of bodily function, such as myxoedema and diabetes, and in toxic conditions such as pneumonia and diphtheria. The 250 figures (mostly electrocardiograms) suitably illustrate the text, though the records themselves or the reproductions of them are not all of equally high standard. This is a valuable book in which a serious attempt has been made to present an up-to-date outline of electrocardiography in its true perspective and without elaboration of debatable matters.

ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Archives of Neurology and Psychiatry from the Central Pathological Laboratory of the London County Hospitals for Nervous and Mental Disorders. Edited by Frederick L. Golla, M.B.Oxon., F.R.C.P. Volume XIII. 1937. London County Council. P. S. King and Son, Ltd.

It has sometimes been said that the administration of hospitals or laboratories by local authorities was likely to kill originality and discourage enterprise. The present volume is the best possible refutation of such a doctrine. In this Professor Golla has collected forty-eight papers dealing with various aspects of neurology and psychiatry which have emanated from the special institutions under the control of the London County Council. All these papers have been issued before in various publications and appear here without resetting and therefore in a variety of types and styles. It seems a pity that the typography could not have been made uniform.

However, if the manner leaves something to be desired the matter is full of interest. There are studies of Berger's rhythm in cerebral tumours and in epilepsy, records of basal ganglia syndromes, and certain biochemical observations as well as studies on the effect of benzedrine, mescaline, evipan, and bromides on cerebral function. Papers on neurosyphilis are contributed as well as on encephalitis lethargica, polyneuritis, etc.

In the psychiatric section are several papers dealing with experimental psychology, while others are more purely clinical. An interesting genetic paper is contributed on dissimilarity of monozygotic twins, and there are a few papers on matters relating to mental deficiency. This is the thirteenth volume of the series, and as has been indicated above it is a tribute to the healthy activity of the scientific work carried out under the auspices of the London County Council.

NATIONAL EDUCATION

The Silent Social Revolution. An Account of the Expansion of Public Education in England and Wales, 1895-1935. By G. A. N. Lowndes. (Pp. 274; 14 illustrations. 2s. net.) London: Humphrey Milford. Oxford University Press. 1937.

Not so very long ago the National Union of Teachers issued a remarkable publication entitled *The Schools at Work*. With very little letterpress but with abundant pictorial illustration it set out in a very vivid and at times pathetic way what our schools are now doing and the contrast between all this and the state of things forty to fifty years ago. We now have in *The Silent Social Revolution*, by Mr. G. A. N. Lowndes, an equally remarkable volume, to which the earlier publication may be regarded as an introduction, but to which it might well have been an addendum, giving a relatively full and detailed account of "The Expansion of Public Education in England and Wales, 1895-1935." The author states that existing literature bearing upon this subject seems to him "to be duller than the intrinsic interest of the subject warrants," and most readers will agree with him. They will the more gladly welcome this comprehensive, accurate, orderly, well-written, and restrained humorous "account." It is an account in two senses: historical and, being so well done, therefore strongly illuminative; and economic, balancing the gains and the cost of a vast social change. In the former aspect worthy tribute is paid to those whose names should never be forgotten in this connexion, particularly Sir John Gorst, Sir Michael Sadler, Mr. A. J. Balfour (as he then was), and Sir Robert Morant. In the latter aspect it is said: "Whatever may be the ultimate verdict of the social historian of the future upon the efforts made by successive British Governments, in co-operation with the local authorities, to repair in three decades the neglect of three centuries, this much is certain, that their efforts have quite outstripped the capacity of the man in the street to keep abreast of what has been happening"; and again, "Although most people will readily assent to the dictum that educational expenditure is long-range expenditure, few are qualified to prove its truth by showing what the long-range expenditure incurred by past generations has achieved."

A widespread ignorance or indifference as to education still prevails in several sections of the population, and each year there are still voluminous and verbose aspersions on the value and methods of our modern schools. Constructive criticism and suggestions are always valuable, but judgments made without any real knowledge or understanding of what is actually being done are of no use. The present volume sets out more completely and

of the bandage from his eyes at the completion of the operation.

A dental syringe fitted with a fine 42-mm. needle was employed. The anaesthetic used was procaine solution with epinephrin (novol)—each cubic-centimetre containing 0.02 gramme of procaine hydrochloride (novol) and 0.00003 gramme of epinephrin made isotonic with buffer salts.

I am indebted to Miss Lewis, M.S., F.R.C.S., for permission to publish this case and also for the loan of the photograph of the patient.

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Foreign Bodies in the Intestinal Tract

The surgeon is often obliged to perform operations for removal of foreign bodies from the intestinal tract. The patients are mostly children in whom the swallowing of a foreign body has been accidental or mental patients with whom it is either a symptom of disease or an attempt at suicide. In these cases the operation is nearly always performed from fear of subsequent "perforation" or to remedy intestinal obstruction. Furthermore, the identity of the foreign body is usually known.

The following case is of special interest because of the difficulty in diagnosis which was presented both to clinicians and to radiologists.

CASE RECORD

A male convict in the Shanghai municipal gaol, aged 24, was admitted to hospital complaining of pain and swelling on the right side of the abdomen. He could recall no other serious illness, and the family history was very vague and essentially negative. The onset of the illness was apparently insidious, but the patient referred to attacks of pain in childhood, and vaguely mentioned having swallowed some fruit-stones many years ago. For the past ten years he had suffered from frequent attacks of acute colicky abdominal pain, lasting some two hours on each occasion. These attacks were not associated with vomiting or diarrhoea and had no relation to food. He also stated that for over ten years he had had a swelling in his right side. Bowel action was regular and without pain. The present attack was identical with previous ones.

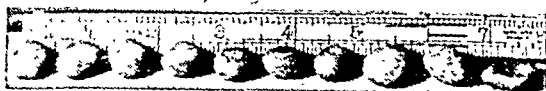
Examination.—The patient was well developed, without any signs of wasting. The cardiovascular, pulmonary, and nervous systems and the urine showed no abnormalities. The stools contained no ova. Examination of the abdomen revealed no tenderness or rigidity. The liver, spleen, and kidneys were not palpable. A round firm non-tender mass was palpable to the right of the umbilicus: it was mobile and also moved with respiration. There was no definite edge to the tumour. The differential diagnosis based on the presence of this tumour associated with a history of attacks of colicky pain was as follows: hyperplastic tuberculosis of caecum; carcinoma of colon; gall-stones; appendicular abscess; renal calculi; tuberculous glands; and actinomycosis. To these were added, after the first examination, "gall-stones passed through common bile duct but retained in ileum" and "calcified hydatid cyst."

X-Ray Examination.—Having committed ourselves to the above differential diagnosis the patient was submitted to the following x-ray examinations: (1) barium meal and enema, (2) cholecystography, (3) pyelography, performed in that order. The first report, on items (1) and (2), was: "Sixteen large 'ring' shadows in right iliac region; they are not in a dilated gall-bladder, as a normal dye-filled gall-bladder is shown. They appear to be a dilated terminal ileum, and are probably 'foreign bodies' which have been swallowed." The second report stated: "Kidneys normal and not related anatomically with the shadows."

Operation.—The diagnosis of the first report was tentatively agreed upon, and, since the patient still continued to have attacks of pain and asked for operative intervention, a laparotomy was performed by right paramedian incision. A loop of the ileum was found adherent and twisted upon itself. There were no signs of inflammation. Hard masses like "pebbles" were felt inside the loop of gut "as if in a bag" and made loud "clicking" sounds when handled. Fifteen of these were delivered through a small opening made in the wall of the ileum (the sixteenth could not be found), the opening in the ileum was sutured and the abdomen closed. Although the sixteenth "foreign body" was subsequently seen by x rays, the patient made an uneventful recovery and was returned to gaol free from these attacks of pain.

THE "FOREIGN BODIES"

The fifteen "foreign bodies" removed were all more or less spherical in shape, save one which was flat. They were heavy (average weight 2.66 grammes), resembled



pebbles of a greenish-brown colour, and were very smooth. The size is shown in the illustration. They were easily crushed, and were found to be laminated. The nucleus in each stone crushed was a fruit-stone with an average weight of 0.352 gramme.

Extract from the Analyst's Report.—"Analysis showed the powdered concretion to contain 3.9 per cent. moisture and 60 per cent. calcium oxalate, together with traces of calcium and magnesium phosphates. No carbonates and no ammonia were detected. Continuous extraction with ether in a Soxhlet apparatus yielded a substance consisting chiefly of fat, and amounted to 1.2 per cent. of the dried concretion. Qualitative tests on this extract showed the presence of cholesterol in very small amount."

CONCLUSION

It was concluded that the vague story of swallowing fruit-stones during childhood was correct, and that these fruit-stones, instead of passing normally through the intestinal tract, had been retained in a loop of the terminal ileum, where they formed the nucleus of the "stones" removed, having during the passage of years become encrusted with deposits of the oxalate and phosphate salts of calcium and magnesium and traces of cholesterol.

Our thanks are due to the Commissioner of Public Health and the Commissioner of Police for permission to publish this case; to Mr. L. H. Barton, who made the analysis of the "stones"; and to our Chinese medical colleagues for the able assistance which they gave in the treatment of the case.

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Shanghai.

A verbatim report of the proceedings of the twenty-third annual conference of the National Association for the Prevention of Tuberculosis, held at Bristol in July last, is now published. The subjects discussed at the conference were: (1) propaganda and publicity methods; (2) preventive institutions (with special reference to open-air schools); (3) equipment and activities of a tuberculosis dispensary. Addresses were also given on the inquiry into tuberculosis in the island of Cyprus. Copies of the transactions may be obtained from the Secretary-General, N.A.P.T., Tavistock House North, Tavistock Square, W.C.1; price 7s. 6d. each, post free.

peutic considerations of diseases of the eye; and diseases of the outer coats of the eye. In the first of these the reader is conducted as it were through a complete examination of the eye by the simplest and oldest methods to the elaboration of these which new instruments and new methods of illumination and magnification have given to us. The balance of emphasis is admirably maintained, and the clearness of exposition is perfect. The second section is one that is a first-class test of the judgment of the author. Congenital and developmental anomalies are almost as many as the sands of the sea. Every one of them has some point of interest. A mere collection of such anomalies may exhibit the chaotic fascination of the junk shop of the antique dealer. But the wise collector will so marshal his exhibits as to display the trend of development in such a fashion as to be instructive in the highest degree. This the author has done. In the more clinical sections the handling of the diseases of the cornea is of great merit in its completeness and its suggestiveness. To each of these sections and to their subdivisions there is a well-selected bibliography.

The author has continued that very human feature of his first volume, the reproduction of the portraits of some of the masters of ophthalmology for whose work both ophthalmologists and their patients are daily debtors, and it is interesting to find that the portrait of Treacher Collins faces the introduction to congenital anomalies. We are sure that this second volume will receive as warm and appreciative a welcome as the first, and that in this welcome the author will find an encouragement to proceed with all speed to the issue of the third and final volume. It is scarcely necessary to add that the work of the printer, both in the text and in the illustrations, is of the highest order.

Notes on Books

Dr. BRONSON CROTHERS is well known as a paediatrician with a special interest in neurology, which naturally brings him up against the difficult question of behaviour problems of children in and out of hospital. *A Paediatrician in Search of Mental Hygiene* (Humphrey Milford, 8s. 6d.) is chiefly concerned with the difficulties of liaison between child guidance units and children's hospitals in America, where it sometimes appears from the literature that there is a good deal of rigidity and want of tolerance of each other on the part of the various specialists concerned, though this is probably more obvious in theory than in practice. That difficulties exist there can be no doubt, and they are as real in this country as anywhere else, and therefore all those concerned will gain much from a study of this book, in which the differences in outlook of the paediatrician and the psychiatrist are freely discussed. Further problems, such as the small number of psychiatrists interested in children and the difficulty of fitting the psychologist and psychiatric social worker of the child guidance team into a hospital unit, are dealt with. Finally Dr. Crothers describes a co-operative unit modified from the child guidance plan which has been set up in the Boston Children's Hospital to deal with problems of behaviour and adjustment in the hospital's clientele.

We have received a copy of the *Periodica Medica* (Leipzig, Georg Thieme, RM. 3), which, as its subtitle states, contains a list and abbreviations of the most important journals of medicine and the allied sciences. The work, which is now in its third edition, has been compiled by Generaloberarzt Dr. Max Kuntze of Berlin and edited by Professor Kurt Klare Scheidegg, and contains 3,449 entries.

Preparations and Appliances

AN AID IN THE TREATMENT OF VARICOSE ULCER

Dr. JOHN FRANKLIN (London, W.1) writes:

Edward Taylor Ltd. prepared for me at my suggestion last year circular pads of sponge rubber half an inch thick and three inches in diameter coated with the same plaster mass that is used on "flexoplast" elastic adhesive bandages. I have found that the healing time of varicose ulcers has been shortened very considerably by the application of one of these pads to the surface of the ulcer before putting on the elastic adhesive bandage. Where the area of ulceration is more extensive than three inches in diameter, pads of the requisite size and shape may be cut out of large sheets of the material. The pad and elastic bandage is changed every one, two, or three weeks, following the usual technique employed in treating varicose ulcer with elastic adhesive bandages.

TWO OINTMENTS

"Desitin" ointment (Desitin Products Ltd., Park Royal Road, N.W.10) is compounded with vaseline, lanolin, and cod-liver oil, and also contains zinc oxide and talc. The vendors quote numerous favourable references from medical literature regarding the wound-healing action of the ointment.

"Esiderm," made by the same firm, is a non-greasy ointment which is compounded with glycerin and water, and contains zinc oxide, talc, and Kieselguhr.

LIVER EXTRACT FOR PARENTERAL USE

"Reticulogen" (Eli Lilly and Co.) is a liver extract for parenteral injection, combined with vitamin B₁₂. Each ampoule (0.5 c.c.m.) contains the haematopoietic equivalent of nearly 10 lb. of fresh liver and, in addition, 500 international units of vitamin B₁₂. The manufacturers supply an interesting pamphlet in which they recount the remarkable therapeutic success of parenteral liver therapy, and mention that during the past decade the mortality due to pernicious anaemia has fallen by 60 per cent. The disorders of the central and peripheral nervous system in pernicious anaemia have proved more refractory to treatment than have the blood changes. Various authorities have advocated the use of vitamin B₁₂ for the relief of the nervous disorders, and for this reason that vitamin has been included in the preparation.

A NEW LOCAL ANAESTHETIC

"Metycaine" (Eli Lilly and Co.) is a new local anaesthetic, the chemical name of which is gamma-2-methyl-piperidino-propyl benzoate hydrochloride. The toxicity of this compound by subcutaneous injection is similar to that of procaine, and therefore much less than that of cocaine; when administered intravenously, however, it is more toxic than procaine. Metycaine is superior to procaine, as it can penetrate mucous membranes, and hence is useful for ophthalmic, oral, nasal, and urogenital application. It can be used for hypodermic administration in the same manner as procaine. The makers recommend it for spinal anaesthesia, and state that its action is more enduring than that of procaine. It is supplied for spinal anaesthesia in a 10 per cent. solution, and the dose required lies between 40 mg. and 200 mg. of the drug, or 0.4 c.c.m. and 2 c.c.m. of the solution.

SULPHONAMIDE EMULSION

Emulsion of sulphonamide (Wyleys Ltd., Coventry) is a palatable preparation containing 7½ grains (0.5 grammes) of pure p-aminobenzenesulphonamide in each fluid drachm (4 c.c.m.). The drug is present as a fine powder suspended in water, and the mixture contains nothing in addition except a simple emulsifying agent. The oral administration of sulphonamide has become established as an effective method of treatment of disease due to infection with haemolytic streptococci (acute puerperal sepsis, erysipelas, tonsillitis, etc.), and its action in numerous other forms of infection is being investigated intensively. Emulsion of sulphonamide provides a convenient and agreeable method for the administration of this important drug.

accurately than any other known to the reviewer—the case for public education: it supplies abundant material—historical, social, and statistical—for those who wish to make an intelligent assessment in this sphere, or who would like to be helped and encouraged in their presentation of the case to any public which remains sceptical. As has often been said in this *Journal*, education and health are not subjects which are really separable, but many of our readers will be particularly interested in what is said of the school medical service. They will find that the author says with regard to this: "One wonders if any nation has ever spent £2,000,000 a year to better advantage," and that full justice is done to the work of Sir George Newman. There may, however, be a little regret that the author has failed to note the decisive influence of the British Medical Association upon both the initiation and progress of this service. It may be worth pointing out that in the particular copy of the book sent for review pages 177 to 192 are reduplicated. This oversight—or lack of oversight—is embarrassing; but it may not have occurred in other copies.

EXPERIMENTAL PHARMACOLOGY

Handbuch der Experimentellen Pharmakologie. By A. Heffter. Vol. V. Edited by W. Heubner and J. Schüller. (Pp. 307; 24 figures. RM. 39.60.) Berlin: Julius Springer. 1937.

The fifth supplementary volume of Heffter's textbook of experimental pharmacology contains the following articles: chaulmoogra oil, by Professor Schlossberger of Berlin; coramine and cardiazol, by Professor Hildebrandt of Giessen; the harmine alkaloids, by Professor J. A. Gunn of Oxford; insulin, by Professor Geiling of Chicago and Drs. Jensen and Farrar. The articles on coramine and cardiazol are of particular interest, since these drugs have attained great clinical popularity. The experimental work reviewed shows that there is little evidence for any direct cardiac action. The author gives a full review of the extensive literature regarding the stimulant action of these drugs on the central nervous system.

The article on insulin by Geiling and his co-workers gives a very clear summary of the experimental evidence, and the authors deal fully with various difficult problems, such as the factors regulating insulin secretion, the manner in which insulin acts on the blood sugar, and the influence of the pituitary gland on the secretion and action of insulin. The speed and success with which the therapeutic use of insulin has been developed form a striking contrast to the difficulties which have attended the analysis of its physiological action. Professor Schlossberger's article on chaulmoogra oil and related compounds gives a summary of the recent chemical and pharmacological literature relating to fatty acids which contain cyclic groups. The very large literature quoted shows that a surprisingly large amount of work has been done on this subject during the last decade. Professor Gunn, in his article on the harmine group, gives a brief account of the very varied pharmacological actions of members of this group.

TUBERCULOSIS OF THE ALIMENTARY TRACT

Tuberculose du Tube Digestif. By André Cadé, Paul Santy, and Jean Heitz. (Pp. 410; 27 figures. 85 fr.) Paris: Gaston Doin et Cie. 1937.

This work serves as a reminder of the possible existence of tuberculous lesions in every part of the alimentary tract (infinitely rarer in some situations than in others), and of the fact that tuberculosis may involve organs, such

as the appendix, without producing the typical histological changes. It attracts attention, too, to the frequency with which simple inflammatory and nervous derangements of the digestive system are associated with tuberculous disease elsewhere; thus dyspepsia is one of the commonest symptoms of phthisis. The body of the book is divided into four parts. In the first are discussed the various aspects of tuberculosis of the buccal cavity, including the tongue, the gums, the mucosa of the cheeks, the palate, and the lips; and the second surveys tuberculosis of the oesophagus. The part describing tuberculosis of the stomach contains also discussions on the relation of simple ulcer to tuberculosis and on the dyspepsias and forms of gastritis associated with tuberculosis of other organs. The fourth section, on tuberculosis of the intestines, deals separately with the generalized form and the forms localized to the small intestine, the ileo-caecal region, the appendix, the colon, the rectum, and the anal and perianal regions.

The book is written in textbook style, more adapted to the student than to the practising physician or surgeon, who will find the volume of little assistance in clinical work. The contents are not quite up to date, as is exemplified by the treatment of tuberculous enteritis; and the illustrations are inadequate in relation to the subject-matter, though a word of praise must be given to the four excellently reproduced x-ray photographs of tuberculous enterocolitis. The work will, however, be found very useful for purposes of consultation, particularly as there is an appendix which contains over a thousand references classified according to subject.

DUKE-ELDER'S OPHTHALMOLOGY

Text-Book of Ophthalmology. Volume II. Clinical Methods of Examination, Congenital and Developmental Anomalies, General Pathological and Therapeutic Considerations, Diseases of the Outer Eye. By Sir W. Stewart Duke-Elder, D.Sc., Ph.D., M.D., F.R.C.S. (Pp. 2094; 742 illustrations, including 24 coloured plates. 63s. net.) London: Henry Kimpton. 1938.

The second volume of Sir Stewart Duke-Elder's *Text-Book of Ophthalmology* will be received with interest and critical appreciation by all English-speaking ophthalmologists. In reviewing the first volume, which was published in 1935, we wrote:

"This first volume is in our judgment a great book. It is great by reason of its bulk, for it exceeds a thousand pages; it is great in its conception, and also great in its achievement. The author may well be congratulated upon such a piece of work—upon his ability to produce it and his industry in producing it. The standard he has set himself in this first volume, which deals with matters which have been particularly the subjects of his study, will make this succeeding task—that of embracing the many-sided aspects of clinical ophthalmology—difficult indeed, and the more meritorious will be his achievement if he wins through. In that event we may say with assurance that there will be no work on ophthalmology in the English language to match it."

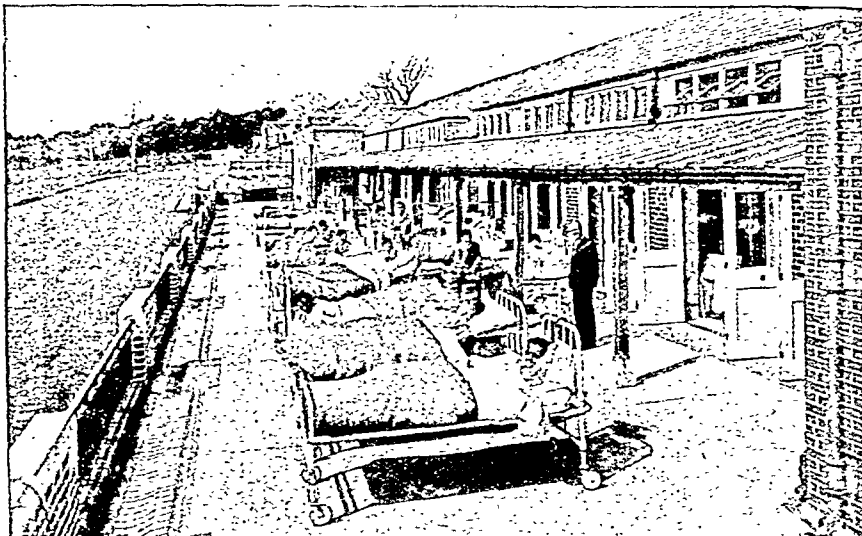
—This second volume is fully up to the high standard set by the first, and wholly justifies the interest and expectation aroused in the author's work. It accounts for another thousand pages, yet there is no inflation of material, but rather there is shown a real economy of words. The size is dictated by the subject-matter, for the book aims to be encyclopaedic. For an individual worker, in the full practice of his profession, to have produced two such volumes is a great achievement.

The second volume comprises four sections: the clinical methods of examination of the eye; congenital and developmental anomalies; general pathological and thera-

additional twenty beds. As a memorial to Prince Albert the Royal Albert wing was added in 1862, the cost being £2,900; and six years later a children's ward of twelve beds was provided.

Less than forty years after the hospital had been opened the governors came to the conclusion that in consequence of serious structural defects a new one was desirable. Accordingly they bought the site of the present imposing buildings for £5,000, and in 1881 erection was begun. Altogether the hospital cost over £38,000, practically the whole of this sum being raised locally. Many substantial

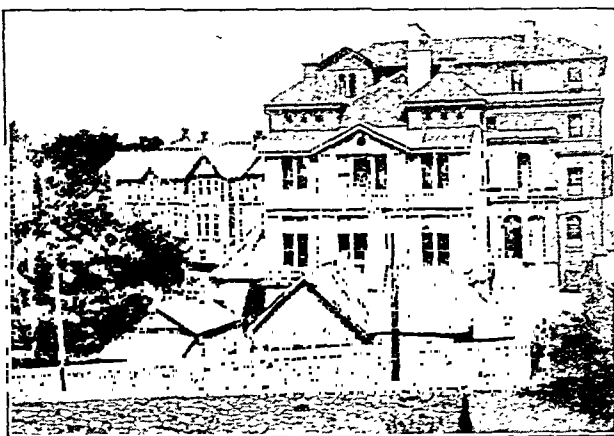
into a Medical Board to consider questions submitted to them by the committee of management. Other developments included in 1912 an enlarged theatre block dedicated by the Bishop of Exeter in memory of Dr. Connell Whipple. The cost was met by friends, who contributed £400. Four years later a mortuary chapel was completed, and in 1918 buildings were erected for the treatment of venereal diseases, the cost being defrayed by the Devon County Council, Cornwall County Council, and Plymouth City Council. In the following year the Mildmay hut was presented for pensioners requiring orthopaedic treatment,



Men's Ward, Orthopaedic Hospital, Mount Gold, Plymouth.
(Block lent by Messrs. Ed. J. Burrow and Co., Ltd., Cheltenham and London.)

bequests were made. Mrs. Haines gave nearly £30,000 for, among other things, the erection of a wing in memory of her brother, John Hay. The gifts of Sir Massey Lopes of Maristow, near Plymouth, amounted to something like £20,000, and two medical wards endowed by him are known as Lopes and Maristow. It is interesting to note that Henry Lopes, a son of Sir Massey, is now the president of the hospital. The names of other benefactors are recalled in the various wards: Mount Edgcombe, Rooker, Gill, Prance, Radford, Bewes, Dawson. To commemorate Queen Victoria's Diamond Jubilee, friends of the hospital gave £1,148 for the maintenance of unendowed beds in the John Hay wing. As an indication of the hospital's increasing usefulness it may be pointed out that in 1900 in-patients totalled 1,483, and the daily number of occupied beds 135, with an average stay of thirty-six days at a cost of 3s. 11½d. a day, the operations numbering 620; and out-patients 2,599, with 366 operations.

In 1898 the physicians and surgeons formed themselves



The Prince of Wales's Hospital, Devonport (formerly Royal Albert).
(Photo, Abrahams, Devonport.)

and subsequently a similar hut for convalescent patients was given by the staff of the Territorial Hospital, then established at Salisbury Road schools. A sum of £2,500 was voted by the British Red Cross Society for sleeping quarters for the nursing staff, and £6,000 was received from the National Relief Fund.

To keep abreast of the times, a massage and electro-therapeutic department and a new building for pathological work were provided, deep-therapy plant installed, and an ultra-violet-ray lamp added to the electrical

department. In 1928 Princess Mary, Viscountess Lascelles, laid the foundation stone of a new block, which was not opened until January 8, 1936. This extension cost £20,000, towards which £9,000 was allocated from the proceeds of a fair and fête attended by the Duke of Windsor, then Prince of Wales and Lord High Steward of the city. This ambitious effort, the largest of its kind organized in Plymouth, realized nearly £15,000. Provision has been made for paying patients, and a scheme whereby persons in receipt of incomes below a certain limit are

ONE HUNDRED AND SIXTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION PLYMOUTH, 1938

THE one hundred and sixth Annual Meeting of the British Medical Association will be held at Plymouth next summer under the presidency of Dr. Colin D. Lindsay, emeritus physician to the Prince of Wales's Hospital, Plymouth. The Sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 20, 21, and 22, the morning sessions being given up to discussions and the reading of papers. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 15. The full list of presidents, vice-presidents, and honorary secretaries of the seventeen Scientific Sections was printed in the *Supplement* of February 5. Other details of the arrangements for the Annual Meeting will be given in subsequent issues. We publish below the second of a series of descriptive and historical articles on Plymouth and its medical institutions. The first article appeared in the *British Medical Journal* of January 1 (p. 32).

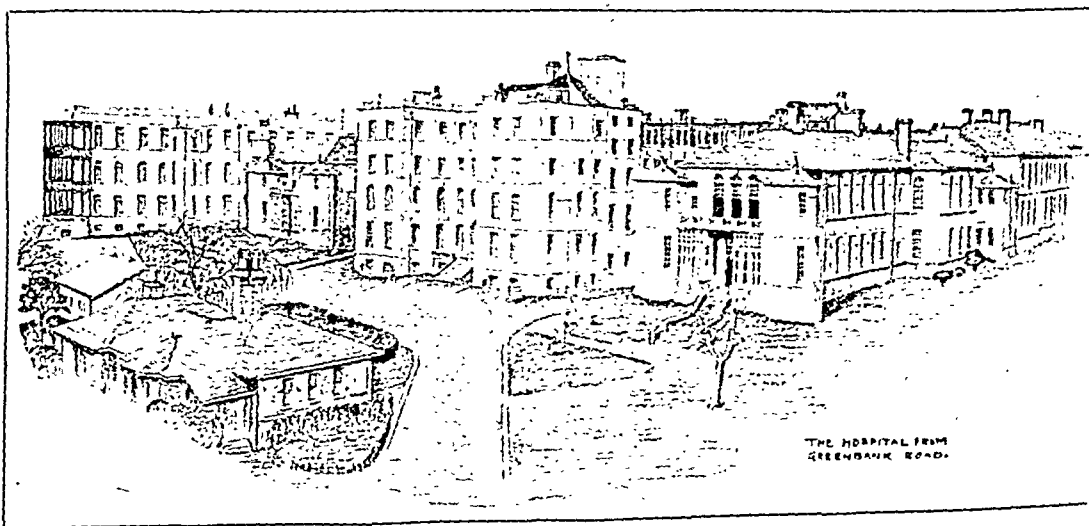
THE HOSPITALS OF PLYMOUTH

"How many desolate creatures on the earth
Have learnt the simple dues of fellowship
And social comfort in a hospital,
As Marion did! She lay there, stunn'd, half trained,
And wished at intervals of growing sense,
She might be sicker yet, if sickness made
The world so marvellous kind, the air so hushed,
And all her wake time quiet as a sleep."

The manner in which the medical profession in Plymouth have paid "the simple dues of fellowship," as Elizabeth Barrett Browning so beautifully put it, to their suffering fellow men and women illuminates some of the nobler pages of the city's long and outstanding history. The task has not been easy, for although, generation after generation, leading physicians and surgeons have willingly given of their time and skill in the art of healing, the institutions where they have laboured, relying for their existence upon voluntary financial support, have too often been faced with the handicap of debt. This remains true, even more so, to-day. But that has never daunted those upon

as the Prince of Wales's Hospital. Under this merger the available number of beds is 374. In the year ended December 31, 1936, the number of people who received treatment was nearly 22,000, and over 320 beds were occupied daily. The medical, nursing, technical, and supporting staffs total 354. The daily food bill is £30, and the wages absorb £21,000 per annum. The number of motor accidents treated in 1936 was 355. These figures give some idea of the activities of the hospital. Maybe they are small compared with similar institutions in the larger centres; but Plymouth's population is not much over 200,000, so it will be realized that the service is adequate. Unfortunately the hospital is under a severe financial handicap, the present deficit in running it being nearly £30,000, in addition to which there are liabilities in respect of the building fund and other contingencies.

What was formerly the South Devon and East Cornwall Hospital was established in 1840, when the population of Plymouth was 35,000. The cost of the building, which



Prince of Wales's Hospital, Plymouth.

whom the responsibility for the management has rested from exercising a faith which has reflected itself in a progressive policy, the result being that the hospitals of Plymouth are among the best-equipped in the country.

The Prince of Wales's Hospital

Until recently there were three main hospitals, the largest being the South Devon and East Cornwall, the Royal Albert, and the Homoeopathic, but under a recent charter these have been amalgamated and are now known

as the Prince of Wales's Hospital. This sum being raised by voluntary contributions. There was at that time accommodation for twelve patients, and at the first annual meeting it was reported that twenty patients had been received. In due course the number of beds was increased, until in 1847 there were forty-two. Through the generosity of the Earl of Mount Edgcumbe wards were set apart for patients who were able to pay for their own maintenance, which was then apparently 10s. a week. In 1852 a new wing, erected at a cost of £1,050, gave an

The hospitals of the council are staffed in part by whole-time medical officers under the direction of the medical officer of health, and in part by part-time consultants, who are otherwise engaged in active practice in the city.

Plymouth Public Dispensary

The Plymouth Public Dispensary is 140 years old, work there having begun in 1798 at the Mayoralty House in Woolster Street, the dispensary being removed three months later to other quarters. It was in 1804 that a garden in Catherine Street was bought, and the present building was in due course erected on the site. The originator of the dispensary was Mr. Charles Younge, an eminent medical man, who left it £1,000 in 1807. An excellent portrait of this worthy by Northcote hangs in the Governors' room. It may be said that the South Devon and East Cornwall Hospital was an offshoot of this institution, and at one time the possibility of a union between the two was considered. Nothing came of the project, however, and the dispensary continues its beneficent work, the number of patients in the year ended September last being over 3,300, with total attendances of nearly 12,000.

Some records of the dispensary provide curious reading these days. For instance, the committee decided in 1799 that the medical officer be empowered to "order wine and porter occasionally for the patients," and two years later came to the conclusion that it was very desirable to extend the benefit of cow-pox inoculation, "which is now generally acknowledged to be a safe and effectual prevention of small-pox," to the poor. At a later date the committee held a special meeting to consider the expediency of taking some specific steps towards obtaining apparatus for dealing with suspended animation; further, it was only after ascertaining that the dispensary pump was beyond repair that the "town water was brought in." In 1832 the following committee minute is recorded: "A serious affection of the stomach and bowels be prevalent in the town and that, regarding it as a probable precursor of a more malignant disease, they had deemed it necessary to provide for such applications for medical aid from the dispensary without waiting for formal admission by ticket." A little later cholera broke out, and the dispenser was paid a guinea for additional work during the epidemic, the duration of which, however, is not stated. In 1800 it was considered "highly expedient that the establishment of this excellent institution should be annually commemorated by attending Divine service." Subscribers were accordingly invited to St. Andrew's Church for that purpose, an annual custom that prevailed for many years.

Money came from all sources. The Guardians of the Poor paid their first subscription of twelve guineas in 1809. Various sums from the Mayor represented fines, though upon whom imposed and for what offence there is no enlightenment; but one gentleman sent five guineas he had won as a bet because he regarded this to be "a weak method of supporting an argument." The dispensary also received a similar sum forfeited by two men "who had improperly secreted an anchor they had weighed"; and £1 came as a "part of an acknowledgment for improper conduct," the Mayor again being the medium for passing on the money. Mr. Toll's chimney caused a spot of bother. It fell and damaged the dispensary, leading to "sundry repairs," the cost of which was defrayed by the committee, the unfortunate Toll "being insolvent and unable to pay for the same."

In 1821 the facsimile of an instrument invented in Edinburgh and used there for extracting a double-barbed fish-hook from a youth's throat was "gratefully received." Leeches were apparently used in the treatment of patients, for another minute requests the medical officer "to give written orders, duly signed, for the supply of leeches, and that no leeches be paid for unless the order of the medical officer is produced."

The Plymouth Medical Society

The Plymouth Medical Society is one of the oldest in the provinces, having been inaugurated as far back as 1794. It is still very active. Originally the idea was presumably a close corporation, for the first rule laid down that it should "consist of no more than fifteen members, who are to meet on the Friday close to every full moon at 7 o'clock in the evening at the home of one of the members in rotation, where all business relative to the society shall be transacted." Of the two founders, Dr. Remmett and Samuel Fuge, the former was president till his death in 1828, and also the first honorary treasurer, secretary, and librarian. Truly he earned the title of "Father of the Society." In 1817 extraordinary members to the number of twelve were admitted as associates, but in 1826 members were unlimited. A reconstruction of the society followed in 1869 which, among other changes, made no distinction between members. Among the many distinguished members was Dr. Cookworthy—nephew of Cookworthy, of Plymouth china fame—who was secretary and treasurer for a long period. The society continues with even greater vigour its educational work for the profession, and possesses a valuable library at its headquarters in Beaumont House.

CONTROL OF RABIES IN PALESTINE

A feature of the annual report for 1936 of the Department of Health, Palestine, is the inclusion of three maps, showing respectively the Public Health Administrative Divisions, the incidence of hookworm as shown by the 1932-5 survey, and the stations of the Public Health Laboratory and Anti-Rabic Service.

Rabies constitutes a problem of considerable importance in Palestine. Anti-rabic vaccine, a modification of Semple's carbolized killed virus, has been manufactured at the Department's Central Institute in Jerusalem since 1923. By a wise policy of decentralization treatment is made readily available throughout the country, and no fewer than thirty-eight provincial health offices are supplied with adequate issues of vaccine. During the year under review 1,350 persons attended for specific treatment, and of these 1,280, or more than 94 per cent., reported within four days of being bitten. It is thus evident that the facilities for anti-rabic treatment are regarded with confidence and enthusiasm by the populace. Of the 1,350 who received treatment only one died of hydrophobia. The victim was a Palestinian Arab boy, aged 4, who was severely bitten in the right arm by a dog which ran away. Specific treatment was begun on the following day. Symptoms of hydrophobia developed thirty-three days after the bite, and nineteen after completion of treatment. Death occurred four days later. It is noteworthy that another child was bitten by the same dog on the same day; in this case the course of treatment was successful. Among untreated persons there were two deaths from hydrophobia. One case was a young Rumanian Jew, aged 16, who was slightly bitten on the hand by a dog in Oradia, Rumania, four months before he arrived in Palestine. The period of incubation was 241 days, the duration of the disease three days. The other case was a Palestinian Arab, a villager aged 35. He was bitten severely on the face by an unknown animal, possibly a jackal. Symptoms developed thirteen days later, and the sufferer died on the following day.

The importance of rabies control in Palestine is demonstrated by a table showing the number of animals destroyed during the year. The total figures are: dogs, 10,608; cats, 1,346; wild animals, mostly jackals and foxes, 1,301. The dog has been chiefly incriminated in the dissemination of rabies. Of eighty-seven cases of rabies notified, sixty occurred in dogs and eleven in cats. Of the 1,350 persons receiving treatment, 910 were bitten by dogs. Cats were incriminated to the number of 123, jackals 45, and ruminants 48; other animals included the fox, the mongoose, the rat, and the mouse.

assured of free maintenance and treatment by paying contributions equal to a penny for every pound earned in wages produces well over £20,000 yearly—a sum which, incidentally, represents the hospital's annual wages bill. The amalgamation of the Ear and Throat Hospital with the main hospital enabled the Governors to utilize that building as a nurses' home. Eleven years ago Mr. Arthur R. Cash, from the Norfolk and Norwich Hospital, was appointed general superintendent and secretary, and he has rendered, and continues to render, conspicuous service.

It was in 1934 that unification of the hospitals became an accomplished fact. Such a step has been fully justified, enabling the Governors the more efficiently to meet the public needs so far as the financial resources of the hospital permit. The Board of Management was fortunate in securing as its first chairman Dr. R. H. Wagner, who for many years was one of the leading practitioners of the city. Dr. Wagner still fills that responsible and arduous position, bringing to bear upon it not only wide medical experience but business acumen combined with a mind of catholic culture.

The hospital is recognized by the Conjoint Board, and medical students studying there are entitled to have the portion of the time so spent treated as the equivalent of passing a like period in a London hospital. In addition to the nurses' homes training schools are maintained. Working in conjunction with the hospital are the Pearn Convalescent Home, provided and endowed many years ago by a gentleman bearing that name, and another Home at Crownhill, near Plymouth, which is used as a recovery Home.

Dr. Colin D. Lindsay, President-Elect of the British Medical Association, retired from the post of senior honorary physician in May of last year, "after a long and honourable association with the hospital." To quote from the last annual report: "He was appointed honorary assistant physician to the South Devon and East Cornwall Hospital in January, 1913, reaching the senior staff in April, 1926. During twenty-four years he has rendered service of a high order, carrying out the duties of his office skilfully and ungrudgingly."

The Lockyer Street Section of the Prince of Wales's Hospital was originally the Homoeopathic Hospital, the inception of which was due to Dr. Field, who came to Plymouth in 1870 and opened a dispensary. A gift of £1,000 enabled a house in Union Street to be purchased, and it was opened for the reception of ten patients in 1884. Subsequently a house in Lockyer Street was purchased, and the hospital was transferred there in 1893, under the name of the Devon and Cornwall Homoeopathic Dispensary and Cottage Hospital. After a lapse of years the adjoining house was acquired and added to the institution, which five years earlier had changed its name to the Central Hospital, it having been decided by the governing body to provide general and universal medical as well as homoeopathic treatment. A well-known medical practitioner, Dr. Wilmot, was elected honorary physician in 1902. He served for twenty-three years, and on retirement became honorary consulting physician. Dr. Wilmot was president of the British Homoeopathic Congress when it met in Plymouth in 1930.

The Devonport Section of the Prince of Wales's Hospital was for many years the Royal Albert Hospital. It evolved from the Dock (Devonport's old name) and Stonehouse Public Dispensary, which, established in 1815, functioned for over half a century. The hospital was projected by Thomas Woolcombe, Joseph May, and Alfred Norman (the last-named prepared the plans), Miss Florence Nightingale being responsible for the arrangement of the wards. The memorial stone was laid in 1862 by the Earl of Mount Edgcumbe with impressive Masonic ceremony. The Government granted £3,500 towards "lock wards," then first instituted for the treatment of "certain women,"

and these functioned till, as the result of general agitation and after fierce controversy, the policy came to an end. The hospital, situated near the naval dockyards, has received good support from the men employed there. In the year before amalgamation sixty-one beds were available and the average number of patients resident daily was fifty; during the twelve months 988 in-patients were admitted, out-patients numbered 5,588, and total attendances were 36,000.

The Royal Eye Infirmary

Like the other hospitals the Royal Eye Infirmary had a small beginning and owed its inception to one who, impelled by what has aptly been termed the "civic spirit," wished to do something to alleviate suffering. This gentleman, Dr. John Butler, specialized in the treatment of the eyes, and after consulting medical men in London and several provincial centres opened a dispensary in 1822. The demands upon it were such that developments became imperative and larger premises were acquired in Millbay Road. On the site to-day stands a large hotel. In 1828 the name was changed to the Royal Plymouth Eye Infirmary, the Duke of Clarence (later King William IV) having become patron. For thirty-two years Dr. Butler treated sufferers, and it is computed that he cured or relieved over 30,000 persons. To mark his benevolence he was presented with a silver salver and a portrait of himself in 1854.

In commemoration of Queen Victoria's Diamond Jubilee a fund was inaugurated, and as a result the present spacious hospital, equipped to-day on the most modern lines, was erected at Mutley at a cost of £15,000. It is stated that up to the eve of its removal to Mutley about 80,000 persons had been treated at the Infirmary. In its last annual report the committee recorded that during the year the number of new patients who received treatment was 3,649, the number of attendances 11,591, and the number of operations performed 618. This was the second successive year that the figures exceeded those recorded for any other year since the foundation of the institution. The balance-sheet showed a healthy state of affairs, income being in excess of expenditure by £1,045. It is worth pointing out that the institution has some sound investments, dividends on which totalled just over £1,000.

Municipal Hospitals

Since the passage of the Act of 1929 the Plymouth City Council has established a Municipal Hospital, which is rapidly developing into a very important institution for the treatment of acute as well as chronic disease. The main hospital is situated at Greenbank, and consists of acute medical and surgical wards and wards for chronic diseases. A maternity block is projected, and other extensive additions are in the programme of the City Council. A new nurses' home was added recently, and is a very good example of what can be done in this respect.

On the site of the old isolation hospital in Mount Gold a modern and extremely well-equipped Orthopaedic Hospital has been erected, the buildings being on the single-floor system. In the same grounds are sited the wards for cases of acute pulmonary tuberculosis. The more chronic type is dealt with through the tuberculosis dispensary at Beaumont House and at the council's sanatorium at Didworthy, which is beautifully situated in the Avon valley. The Infectious Diseases Hospital stands in grounds at Swilly, in the neighbourhood of the council's housing estate; while at Blackadon, near Ivybridge, the council maintains a very fine Mental Hospital, with which are associated several farms for the employment of suitable types of patients. A new block for private and voluntary patients has recently been added to this. The hospital also is delightfully situated on a height, and commands one of the lovely views so characteristic of the scenery of Devon.

earlier studies on the subject are numerous. He will be remembered as the author of the idea that prontosil acts on streptococci by decapsulating them and of experiments that were said to show that it neutralizes streptococcal toxins. Levaditi now seems chiefly concerned to prove that prontosil and sulphanilamide do not act as such on bacteria at all but are both converted, probably by the reticulo-endothelial system, into some other and more active substance. The basis of this belief is the fact that the drug is ineffectual in experimental intraperitoneal infection if given by the same route. It saves life only when given by the mouth or parenterally; hence it is utilized primarily elsewhere than at the site of infection. His observations include elaborate studies of the cytology of the exudate in treated and untreated animals which are of much general interest, more particularly in exalting the defensive capacity of the macrophage and depreciating that of the polynuclear.

More illuminating perhaps than many pages of Levaditi's polemics is a simple experiment recently reported by Buttle.⁶ In mixtures of monkey blood, sulphanilamide, and streptococci, bacterial growth always proceeded for two hours and then ceased. If the blood had previously been freed from leucocytes the number of streptococci then remained stationary; in the presence of leucocytes the number fell almost to zero. This experiment surely shows that there are two effects—one purely bacteriostatic and one which might be described as opsonic. But in the divergent attitudes of the two distinguished observers previously quoted one thing is common: they do not accept the phenomena of bacterial destruction in such simple tube experiments as the whole explanation of what occurs in the body. This point is vital not only in theory but in the devising of means whereby laboratory experiment may perhaps guide the course of future therapeutic trials. With the number of already synthesized sulphonamide compounds running into three figures and the whole range of pathogenic micro-organisms awaiting their attack, some simple preliminary method of testing anti-microbial activity would be a godsend if its results were significant in relation to clinical effect. It is now claimed by Osgood⁷ that his method of observing the behaviour of bacteria in cultures of human marrow containing various concentrations of sulphanilamide will serve this purpose of preliminary trial. One of this author's principal conclusions is that sulphanilamide neutralizes streptococcus toxins, but his only evidence for it is absent or reduced haemolysis in cultures, and many anti-

septics which are useless therapeutically have this effect on streptococci *in vitro*. These experiments leave it uncertain whether haemolysin is neutralized or whether its formation is prevented, but an experiment was reported some time ago by Meyer⁸ in which the neutralization of pre-formed haemolysin appears to have been achieved with high concentrations of prontosil. This aspect of the matter needs fuller investigation.

HEALTH AT THE UNIVERSITIES

In the report of the British Medical Association's Committee on Physical Education⁹ it is noted that physical education is "conspicuous by its absence" in universities. With few exceptions "the universities make no provision for gymnastic training with or without apparatus. Facilities for games and athletics are provided, but a considerable proportion of undergraduates do not participate in this side of university life." Even with regard to university departments for the training of teachers it is said that "very little physical education is obtainable and many students take little part in games." The committee deplored this neglect, particularly in the training departments.

"A strong claim for the personal training could be made out on the ground of the benefit to the student's health and physical fitness and the consequent increased capacity to profit by the university course. Moreover, a knowledge of gymnastic training, games, and athletic sports, and a degree of skill in them, are of real professional value to teachers and an asset to their schools. . . . A satisfactory standard of physical education in senior and central schools is not to be expected so long as the university training departments as a whole continue to show a lamentable lack of interest in the subject."

It is now two years since that report was published, and these important pronouncements have perhaps not attracted so much attention as some other parts of the report. Their value as an initiative to reform in this field may, however, be stressed, and they are now strongly reinforced by the results of an inquiry conducted by the National Union of Students of the Universities and University Colleges of England and Wales and published in a pamphlet entitled *Student Health*.¹⁰ In an introductory section attention is called to the B.M.A. report and to other similar statements by individuals, as well as to a section on general health services in the last quinquennial report of the University Grants Committee—commented upon at the time in the columns of this *Journal*—in which the provision for physical training in the

⁶ *Proc. roy. Soc. Med.*, 1937, 31, 154.

⁷ *J. Amer. med. Ass.*, 1938, 110, 349.

⁸ *Quart. Bull. Sea View Hosp.*, 1937, 2, 143.

⁹ *Report of the Physical Education Committee*, 1936, British Medical Association, Tavistock Square, W.C.1. (Price 6d., post free.)

¹⁰ *Student Health*, 1937, National Union of Students, 3, Endsleigh Street, W.C.1.

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THE MECHANISM OF THE NEW
CHEMOTHERAPY

The enormous expansion of chemotherapy in bacterial infections now being witnessed is proceeding largely on empirical lines. It is true that curative experiments in animals justify much of it, but these experiments are themselves empirical, and no one can yet begin to explain why quite closely related bacteria such as haemolytic and non-haemolytic streptococci exhibit widely different degrees of susceptibility, or how among the many new compounds now being synthesized slight differences in chemical structure so profoundly affect therapeutic activity. The number of these compounds is constantly expanding; so also is that of the infections in which they are said to be useful. Experimental work by Rich and Fillis¹ of the Johns Hopkins Medical School shows that sulphanilamide can exert a "striking inhibitory effect" on the development of tuberculosis in the guinea-pig. Two recent publications, though unimpressive in the weight of their evidence, are portentous if they are to be accorded any significance at all. According to de Léon² prontosil will cure malaria, and Rosenthal, Wooley, and Bauer³ have demonstrated a protective action by this drug against lymphocytic chorio-meningitis in mice, though they also record negative results in protection tests against the viruses of influenza and the St. Louis type of encephalitis. If to a number of bacterial infections we are now to add virus diseases and protozoal infections as profitable subjects of therapeutic study, the amount and complexity of the work yet to be done if present methods have to be followed defy the imagination.

It is almost a relief to turn from this welter of therapeutic experiment to a reconsideration of first principles. Two important recent papers have reverted to the original problem of how prontosil acts on streptococci in the body; if this question could be fully answered it might well afford an insight into the wider problem and provide methods

of attacking it which would shorten its investigation by years. Belief on this specific question has passed through two stages, and may now perhaps be said to be entering upon a third. The first was purely agnostic. Prontosil had been found to cure mice infected with haemolytic streptococci, and this action was providentially paralleled in the human patient. The drug was almost without any demonstrable antiseptic action *in vitro*; therefore its effect in the body must be exerted indirectly by some unknown mechanism. The second stage was ushered in by the assertion of Tréfouel, Nitti, and Bovet that prontosil is broken down in the body, liberating the substance we now know as sulphanilamide. The work of Colebrook, Buttle, and others in England then showed that sulphanilamide, in contrast to prontosil, is bactericidal even in extreme dilution for small numbers of streptococci, and since in the average case of septicaemia the numbers of cocci in the blood are small it was reasonable to suppose that they were directly destroyed in the infected body. These observations led to the partial abandonment of prontosil and the substitution of sulphanilamide in therapeutics, as well as to a wide exploration of the possibilities of other related compounds. This simple explanation has never been universally accepted, and the objections to it are now marshalled by Domagk himself⁴ in a general review of the work which his discovery initiated.

Domagk does not believe either that prontosil is inactive in the body until it is split up or that its effect is simply that of an antiseptic. Of several reasons which he gives two carry more weight than the rest: the fact that the destruction of streptococci by sulphanilamide *in vivo* is more efficient in blood than in lifeless media, arguing that phagocytosis plays an essential part; and the discrepancy among different compounds of this nature between activity *in vitro* and *in vivo*, some which are highly antiseptic in the test tube being therapeutically valueless. As a further reason he adduces the variability of effect in different animals: if a certain concentration in the body fluids is all that is needed simply to kill bacteria, why should this in some cases bring about a cure in rabbits and not in mice? Domagk seems to have no very positive substitute to offer for what we may call the English hypothesis, but his attitude is broadly that prontosil makes streptococci susceptible to attack by the normal bodily defences; the appearance of degenerate cocci in treated animals is held, not very convincingly, to indicate some change rendering them vulnerable. The second contribution to this problem is that of Levaditi,⁵ whose

¹ Johns Hopk. Hosp. Bull., 1938, 62, 77.² Publ. Hlth. Rep., Wash., 1937, 52, 1460.³ Ibid., p. 1211.⁴ Z. klin. Med., 1937, 132, 775.⁵ Monographies de l'Institut Alfred Fournier, No. 5, Paris, 1937.

male hormone appear to be antagonistic in certain circumstances. The latter is now being employed in cases of chronic mastitis and favourable reports are beginning to appear.

SPONTANEOUS RECOVERY FROM CANCER

The frequency of spontaneous cure in cancer has been placed at one case in 100,000. In fully authenticated cases a primary growth has been quite incompletely removed or merely subjected to biopsy and has nevertheless later disappeared, necropsy following death from another cause revealing no trace of the growth. Mr. Digby Chamberlain's case, described on page 508, involves a slight element of doubt, since the primary growth was excised, and the nature of both the enlarged glands which were seen and the liver nodule which was felt cannot be considered absolutely certain. The subject of spontaneous recovery from cancer has recently been reviewed by Touraine and Duperrat,¹ who discuss the circumstances in which it takes place and possible explanations of it. Of many factors which have been supposed to be responsible fever is most often mentioned, while infection of the growth, or the treatment of an infective condition, such as syphilis, in which the growth arose, has also been given credit for its regression. If these influences play any part they can only have this effect very exceptionally: infected growths frequently spread rapidly, and hyperpyrexia has been found unavailing in the treatment of growths in animals, even when carried to a point which would be unjustifiably dangerous in man. Although high temperatures are no more lethal to cancer cells than to the rest of the body, it remains possible that fever or some other disturbance may exceptionally cause a metabolic change inimical to the cancer cell. This metabolic hypothesis, completely vague though it is, appears to be one of the two chief possibilities, and it can go no further than to suggest that in some way the nutrition of the growth is interfered with. The other assumes the development of a humoral immunity, or at least a specific attack on the growth. Leucocytic infiltration at the margin, which is undoubtedly more pronounced when the growth rate is slow, and particularly so after successful irradiation, lends support to the idea that the body is capable of attacking a growth by the same means as are used against foreign invaders. The existence of a specific antibody to the cancer cell has been both asserted and questioned, and the part played by humoral immunity in cancer remains a matter of great doubt and difficulty. Regression occurs frequently in transplanted animal tumours; in some indeed it is the rule, and the contrast between the behaviour of these transplanted tumours and spontaneous growths is so marked that what is true of one may well not apply at all to the other. There is one encouraging aspect of this subject: the mere fact that human tumours ever regress, however rarely, suggests that some mechanism exists by which the same result could more often be brought about, and this may yet be discovered.

PHARMACOLOGICAL RESEARCH

The annual report of research work carried out at the College of the Pharmaceutical Society in 1937 shows that this college is actively continuing its work on the advancement of knowledge regarding the properties of drugs. The Department of Pharmaceutical Chemistry has investigated the chemotherapeutic actions of a series of acridine compounds and has found certain classes with a bactericidal activity greater than that of acriflavine. The Nutrition Department has continued its work on the testing of vitamin preparations, and also has carried out an interesting research on the effect of calcium-poor diets on the ash content of bones of rats, which has led to the conclusion that a child receiving an ordinary "poorer-class" diet and drinking London water would receive only about half the quantity of calcium necessary for normal bone development. The Department of Pharmacology has continued interesting researches on the standardization of the adrenal cortex preparations by their action in prolonging the life of adrenalectomized drakes. The testes of drakes have a big seasonal variation in size (3 grammes to 78 grammes) and a close correlation has been found between the effective dose of cortical hormone and the size of the testes. This discovery is of particular interest on account of the well-known effect of cortical tumours in producing sexual precocity. The report contains accounts of many other important researches, and it is of interest to note that the laboratories have given hospitality to a number of foreign workers. The year under review has seen important changes in the staff of these laboratories, and it will not be long before they move to new quarters in Brunswick Square. We wish them all success under the new conditions.

UNUSUAL FACTORS IN RICKETS

Although the majority of children with rickets are readily cured by adequate doses of cod-liver oil, types resistant to therapy occur from time to time. Such a case is fully reported by F. Albright, A. M. Butler, and E. Bloomberg,¹ who recount observations extending over fourteen years upon a boy now aged 16. He was not suffering from coeliac disease or from renal disease, two recognized causes of resistant rickets, but at the age of 2 he showed clinical and radiographical evidence of rickets, which failed to improve after nearly two years' treatment with cod-liver oil (3 drachms daily) and sunlight. The first problem the authors discuss is concerned with the abnormal condition of the bones—was it true rickets? Histological examination of a portion of the sternum removed for biopsy, the x-ray appearances, and investigation of the metabolism of calcium and phosphorus proved that the bony changes were undoubtedly those of rickets. The part played by the parathyroids had also to be considered, as it is now accepted that there is some degree of hyperparathyroidism in rickets. At operation only three of the glands were found and none was enlarged, although there was definite hyperplasia in one removed for

¹ *Presse méd.*, 1938, 46, 57.

¹ *Amer. J. Dis. Child.*, 1937, 54, 529.

universities and of some form of student insurance against illness is advocated. Pronouncements such as these have no doubt produced some sort of intellectual conviction in university and associated circles, but apparently more is still needed to overcome what the N.U.S. report calls "the immense inertia of the established system," and to translate conviction into action.

To establish and recapitulate the facts demonstrating this need for action requires a few pages only. The report then goes on to give a valuable review of the university health services in the United States of America, in Canada, in Germany, and in Sweden, and to state the nature of the relatively little provision made for medical and health services in British universities at the present time. Then follow a short summary of recommendations previously made concerning such services and the establishment or improvement of physical education at universities, and proposals for a minimum policy on these matters made by the Committee of the National Union of Students itself. The needs and aims are really threefold: an insurance or contract scheme for the medical examination of students and their treatment and care in case of illness, such scheme to have regard to their economic position; the organization of systematic courses in physical training, together with the provision of suitable facilities, open to all the students and so designed as to attract and help those who merely want to keep themselves fit and improve their condition, whatever their future walk of life may be; the establishment of courses of a more technical character for those who will be responsible for physical education in the schools or as organizers of physical recreative training under the direction of local authorities. It is with the first two of these objects that the report is mainly concerned, but the third has become at the present time an important function of institutions of university rank. Again, there are at least three points which should be borne in mind as essential to the success of these developments. The object is to assist the student to better health and physical condition where he needs this, not at all to debar an unfit student from a university career. There should be considerable freedom of choice among activities, and not too much insistence on particular requirements. Under a director of physical education the general management, particularly of games, should continue to be exercised by the students themselves. The proposals of the N.U.S. report are on these lines, and the details given will be found helpful to all those who have responsibilities in this field or who are in a position to hasten the action which is more and more urgently needed.

ENDOCRINE FACTORS IN BREAST TUMOURS

That the mammary gland is one of the effector organs of the endocrine system is an observation not only of physiological interest but of pathological importance. The variation of response of different species to the hormones concerned has made it difficult to define the function of each particular factor, but the available evidence suggests that oestrin is responsible for the development and ramification of the ducts and for the proliferation of the periductal connective tissue, while progesterone opens up the terminal acini, and the lactogenic hormone of the anterior pituitary stimulates the secretion of milk. The definition of the part played by oestrin is substantiated in our present issue (p. 499) by the interesting study of Drs. Geschickter and Dean Lewis of cases of fibro-adenoma of the breast observed during pregnancy and lactation. The rapid increase in size of these growths during pregnancy is due to development of duct epithelium and the surrounding fibrous tissue. The response of the tumour to the increased concentration of oestrin during pregnancy depends on its previous state of development. In some cases the opening up of peripheral tubules with coincident proliferation of connective tissue leads to rapid enlargement of the tumour. In others already submitted to prolonged oestrogenic stimulation there is an exaggeration of the epithelial and fibrous proliferation, with blockage of ducts, formation of cysts, and epithelial overgrowth, without encapsulation—very closely simulating malignancy. In a third type intensive oestrogenic stimulation has led to fibrosis and hyalinization, so that the increased concentrations of oestrin in pregnancy are without effect on the tumour. Such observations offer fresh support for the principle that the response of a tissue to an endocrine stimulus depends not only on the concentration of the stimulating hormone but also on the sensitiveness of the tissue, which is determined by its structural and functional state at the time the stimulus is applied. This principle of the susceptibility of the tissue is probably of fundamental importance in determining the degree of response to endocrine stimulation. The females of certain strains of mice are highly susceptible to spontaneous mammary cancer; others are resistant to cancer. The administration of oestrin to the males of cancer-susceptible strains induces the development of mammary cancer in a percentage equivalent to that attained by the females, suggesting that these strains respond easily to oestrin and that in such strains oestrin, by virtue of intensive activity, may become carcinogenic. Fortunately the human breast appears to be more resistant to stimulation by oestrin, and it is improbable that the concentration of oestrin found at any time in the blood stream naturally or as the result of treatment can so activate the breast as to form a basis for malignant changes. The demonstration that oestrin may be responsible for innocent changes in the breast such as fibro-adenoma and cystic mastitis, however, suggests that the giving of some antagonist to oestrogenic activity may be a possible line of treatment for such conditions. Progesterone and the

CHARLES F. GESCHICKTER AND DEAN LEWIS : PREGNANCY AND LACTATION CHANGES IN FIBRO-ADENOMA OF THE BREAST



FIG. 1



FIG. 2A.



FIG. 2B.



FIG. 3.



FIG. 4A.

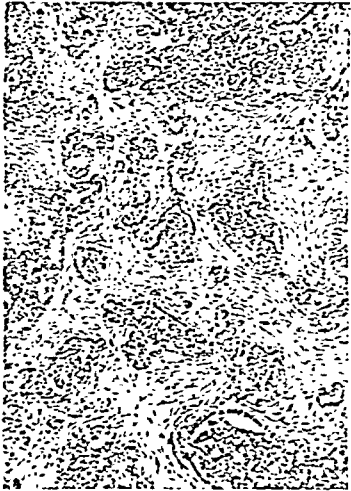


FIG. 4B.



FIG. 5A.



FIG. 5B.

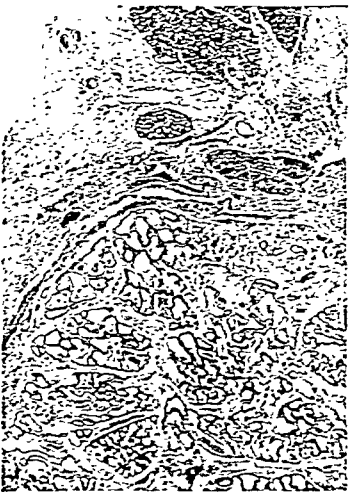


FIG. 6.

section. Post-operative chemical changes in the blood favoured the view that a secondary hyperparathyroidism was probably present in this case. Thinking that the absorption of vitamin D might be at fault, the authors injected a crystalline preparation intravenously, but this had no beneficial effect. Next the oral dose of vitamin D was pushed up to extreme limits (1,500,000 U.S.P. units of vitamin D daily, equivalent to 15 litres of cod-liver oil), and at last there was some x-ray evidence of healing. It is pointed out that most careful and frequent examinations of the blood must be made with such dosage to avoid the calcifying effects of hyper-vitaminosis. In such a patient as described above there is some intrinsic resistance to the action of vitamin D, but the aetiology of the resistant rickets is at present unknown. A possible biochemical factor in certain cases is suggested by B. Hamilton and M. M. Dewar.² They found that when sodium citrate was added to a rachitogenic diet in the proportion of 0.4 mol to each kilogramme of diet it prevented the development of rickets in rats, and a similar effect was produced by sodium tartrate and sodium bitartrate in the proportion of 0.8 mol to each kilogramme of diet. Citric and tartaric acids also had an antirachitic effect, although it was less marked than that of sodium salts. Further, the acids and the salts promoted healing when administered to rachitic animals. Various factors are probably concerned with these effects. For example, the hydrogen ion concentration of the gastro-intestinal contents is probably increased by the acids and thus the solubility of the calcium phosphate compounds is enhanced. Changes in the acid-base metabolism of the body may also come into the picture, and in this connexion the results reported by G. Graham and W. G. Oakley³ of the effects of administering alkalis in cases of renal rickets are of interest. Despite the downward progress of patients with this disease, massive doses of alkalis effected some temporary control.

POLIOMYELITIS IN NEW ZEALAND, 1936-7

The annual report of the New Zealand Department of Health for the year ended March 31, 1937, records a slight rise in the death rate, which was 8.75 per thousand. Infant mortality was the lowest ever recorded—namely, 30.96 per thousand live births. There was also a welcome rise in the birth rate and a substantial decline in maternal mortality. The latter was 3.70 per thousand live births. Deaths from septic abortions are included in this figure. In 1924, when an active campaign for the promotion of maternal welfare was first inaugurated, the maternal death rate was 5.0. All the above statistics are exclusive of the Maori population. The chief epidemiological feature of the year under review was an outbreak of acute poliomyelitis, which occurred in Dunedin during December, 1936. In the first three weeks notifications were 2, 16, and 40 respectively. The public were informed immediately and picture-theatre proprietors co-operated by voluntarily excluding children from their

establishments through the whole of New Zealand. All schools were closed. The authorities sought the collaboration of representatives of the New Zealand Branch of the British Medical Association. As a result in each of the four main centres a practitioner with special knowledge of poliomyelitis and its treatment was appointed whose experience was available for his colleagues in consultation. The great majority of the cases were treated in hospital. Nevertheless, despite all precautions the disease spread through the whole of New Zealand during the first quarter of 1937. Practically no district escaped. The peak of the epidemic was reached in April, when there were 246 cases. During the period from December, 1936, to the end of June, 1937, there were 819 cases, including 43 Maoris: the deaths numbered 39. It is stated that a fuller account of the epidemic will be published in the next annual report.

URINARY IODINE IN HYPERTHYROIDISM

Iodine is excreted through the kidneys, sweat glands, salivary glands, and in the bile. The amount excreted depends chiefly on the intake, and this is borne out by the striking diminution in urinary iodine among the population in regions of endemic goitre, where the environmental iodine is low. In hyperthyroidism, however, where the intake is not in excess of normal, the urinary excretion of iodine is increased, as the patient is in a state of negative iodine balance through increased production of the iodine-containing hormone of the thyroid gland and consequent depletion of the iodine stores. G. M. Curtis and I. D. Puppel¹ have investigated the urinary excretion of iodine in forty patients with hyperthyroidism. They found that the average urinary excretion was 184 γ of iodine per day, which was between three and four times greater than that of normal subjects, their average figure for these being 51 γ of iodine per day. The variability of the daily urinary excretion of iodine in hyperthyroidism was considerable, ranging on an average from 30 to 593 γ , and these variations corresponded to the variations of the clinical features of the disease. They consider, however, that a normal urinary excretion of iodine in hyperthyroidism does not necessarily indicate that there is not a pathologically increased loss of the body iodine, as there may be a greater output of iodine through other channels, or there may be retention of iodine through renal insufficiency or a depletion of available utilisable iodine. There is no evidence, however, that their patients had any impairment of renal function. Nevertheless the authors present evidence in favour of at least partial depletion of the iodine stores, such as an increased retention of iodine immediately after its administration. This depletion of the iodine stores in the absence of a sufficient intake may explain some of the spontaneous remissions of toxic goitre. Determinations of the blood and urinary iodine would be of considerable diagnostic importance in those cases of neuro-circulatory asthenia in which the clinical features simulate borderline hyperthyroidism.

² *Amer. J. Dis. Child.*, 1937, 54, 548.
³ *Quart. J. Med.*, 1937, 6, 478.

¹ *Arch. intern. Med.*, 1937, 60, 492.

DIGBY CHAMBERLAIN: SPONTANEOUS DISAPPEARANCE OF CARCINOMA

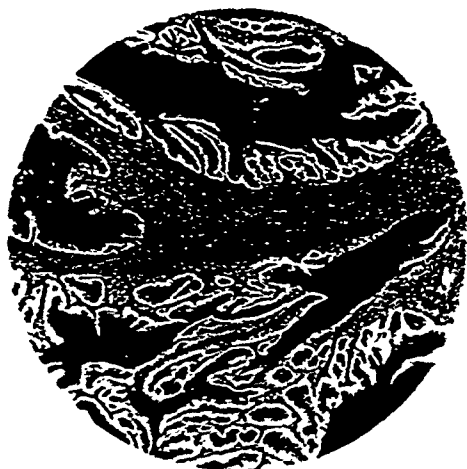
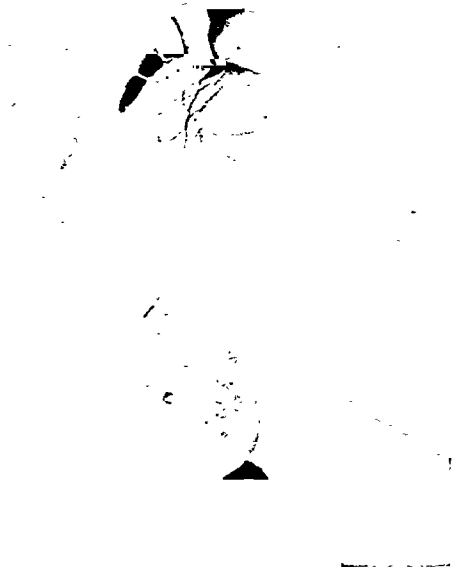


FIG. I.—Showing the proliferative character of the growth. ($\times 45$.)



FIG. II.—Showing how the growth is invading the muscle. ($\times 45$.)

R. M. B. MacKENNA: THE PLANTAR WART



Plantar warts.

PHYLLIS F. L. DAPLYN: BLOCK ANAESTHESIA FOR
INSERTION OF RADIUM TO EPITHELIOMA OF LIP



Condition of lower lip at operation.

CHARLES F. GESCHICKTER AND DEAN LEWIS: PREGNANCY AND LACTATION CHANGES IN FIBRO-ADENOMA OF THE BREAST



FIG. 7.



FIG. 8A.



FIG. 8B.

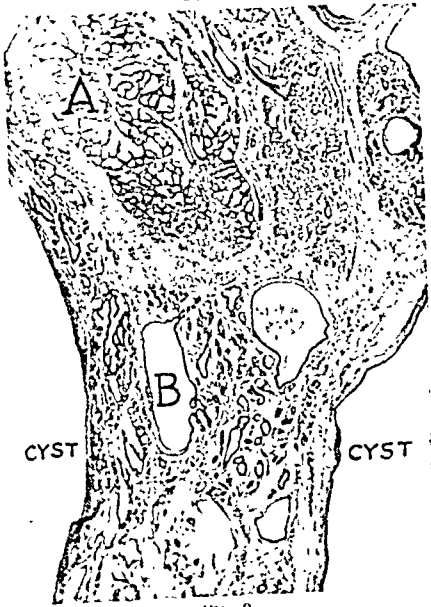


FIG. 9.



FIG. 10A.



FIG. 10B.

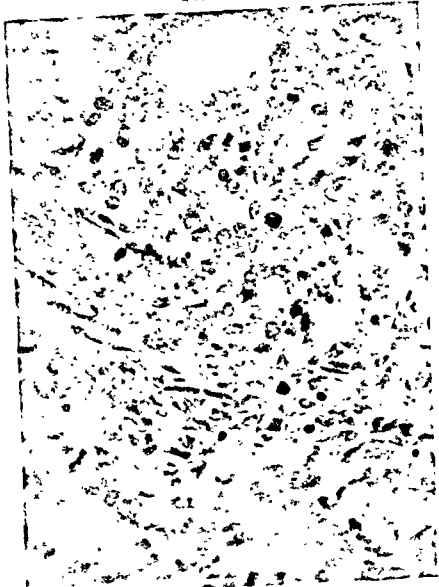


FIG. 11.



FIG. 12.



FIG. 13.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE TREATMENT OF JOINT SPRAINS AND STRAINS

BY

R. C. ELMSLIE, M.S., F.R.C.S.

The terms "sprain" and "strain" cover a variety of injuries to joints in which there is no evidence of a gross fracture or dislocation. As a rule when a definite injury—a fracture, a dislocation, a complete rupture of an important ligament, or a displacement of a semilunar cartilage, etc.—has been found, the fact that an exact diagnosis has been made takes the case out of the category of sprains or strains. Therefore in all these cases of minor injuries of joints the first thing to aim at is an exact diagnosis. It is not uncommon to find that a joint injury which has resulted in an effusion is diagnosed as a case of traumatic synovitis. There are grave objections to this diagnosis because it is apt to lead to slack methods and to a failure to discover exactly what has happened. We ought to try to determine what has been the nature of the trauma and exactly what lesion has been produced in the joint.

Classification of Ligaments

From the practical point of view the ligaments of joints may be divided into three classes:

1. Those consisting of a simple thickening of the capsule which cannot be defined exactly by dissection except in an artificial manner. As is the case with the joint capsule as a whole, the attachment of these ligaments to bone is also indefinite; the fibrous tissue of the ligament is continuous with that of the periosteum beyond, which can be stripped up if the ligament is artificially lifted. The internal lateral ligaments of the knee and ankle, and in fact the majority of ligaments of joints, fall into this category.

2. Extracapsular bands which stand out, when dissected, as isolated structures. Such are the external lateral ligament of the knee and the middle and posterior fasciculi of the external lateral ligament of the ankle.

3. Intra-articular bands, such as the crucial ligaments of the knee, the ligamentum teres of the hip, and the intra-articular fibro-cartilage of the sterno-clavicular joint.

Injuries of Capsular Ligaments

Ligaments of the first category are not likely to be ruptured completely unless the capsule is itself extensively torn by such a force as may produce a dislocation of the joint. In a sprain the injury to the ligament is partial, and it is most likely to occur at the point of attachment to the bone. The joint cannot be sprung open, and no hypermobility or instability of the joint results. For example, in the case of the internal lateral ligament of the knee-joint forced abduction of the tibia on the femur strains the point of attachment of the ligament to the internal condyle of the femur. This point is tender, and some swelling and possibly discoloration appear over it. But the knee does not become hypermobile, and cannot be sprung open on the inner side by forcing the tibia outwards. In fact, mobility of the joint is restricted by pain, and the knee is generally held in a position of slight flexion because in this position the ligament is relaxed and therefore less painful.

The common sprain of the ankle is an injury of the anterior fasciculus of the external lateral ligament, produced by twisting the foot inwards while it is in a position of slight plantar flexion. Either the substance of the ligament or its attachment to the neck of the astragalus may be injured, and the tender spot varies accordingly. But the movement of the foot, particularly inversion, is diminished by pain. There is no hypermobility.

Sometimes in injuries of this class the strain upon the ligamentous attachment pulls off a portion of the bone, or it may, as already mentioned, pull up the periosteum for a short distance beyond the actual ligamentous attachment. The detachment of a fragment of bone constitutes a sprain fracture. These injuries occur frequently and characteristically in the interphalangeal joints and metacarpo-phalangeal joints of the hand, where a lateral or antero-posterior strain may either damage the point of attachment of the lateral or anterior ligaments or else may tear off a tiny fragment of bone from the margin of the phalanx or metacarpal head. On the posterior surface such injuries are uncommon because flexion of the joints is free; the terminal joint is an exception, but there the extensor tendon is commonly damaged and not the joint ligament. The tendon may rupture or tear off a fragment of the phalanx.

Sprain fractures also occur at the attachment of the internal lateral ligament of the knee to the femur, the usual site of an injury to this ligament. A fragment of bone may be torn off at the time of the injury and be shown by a radiograph; or the bony fragment may only appear later and be due to pulling up of the periosteum. In the latter case the bone may be high up on the condyle and not apparently at the site of attachment of the ligament. This fact has led to the naming of this condition Stieda-Pellegrini disease, in the belief that it is not due to injury of the ligament at all. This seems to be a quite unnecessary refinement. Sprain fractures also occur in a more gross and obvious form, as, for example, when the internal epicondyle of the humerus is pulled off by an abduction strain of the elbow and in fracture of the great tuberosity of the humerus.

Injury of Intra- or Extra-articular Bands

Rupture of such ligaments as the external lateral ligament of the knee, the crucial ligaments, and the middle fasciculus of the external lateral ligament of the ankle gives rise to instability of the joint which is immediate. Thus, in the knee if the external lateral ligament is ruptured the knee can be sprung inwards and opened up on the outer side; if the crucial ligaments are ruptured, even incompletely, excessive antero-posterior mobility of the joint is present. In the case of the ankle rupture of the middle fasciculus of the external lateral ligament allows excessive inversion of the foot, the astragalus tilting in its socket—a fact which can be demonstrated by taking a radiograph in full inversion. The posterior fasciculus of this ligament does not appear to be often injured, but when strained it may pull off the posterior tubercle of the astragalus, to which it is attached: this tubercle sometimes occurs as a separate bone (os trigonum). Such an injury leads to chronic pain and

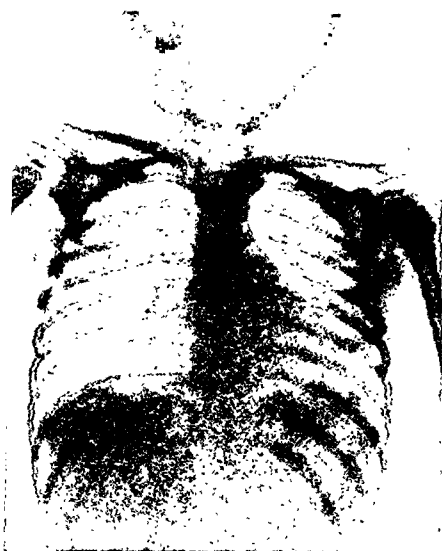


FIG. 1.—Case 1. Opacity left middle and lower zones.



FIG. 2.—Case 1. Resolution of pneumonic process.



FIG. 3.—Case 6. Allergic bronchopneumonia.



FIG. 4.—Case 7. Enlarged hilar glands; opacity left lower zone.



FIG. 5.—Case 7. Resolution of pneumonic process.



FIG. 6.—Case 10. Opacity right middle and lower zones.



FIG. 7.—Case 11. Opacity right upper zone.



FIG. 8.—Case 11. Resolution of pneumonic process.



FIG. 9.—Case 12. Influenza pneumonia.

ment should on no account be forced. The strapping should only be left off and increased use encouraged when the swelling and tenderness subside. This is likely to take at least six weeks, and may take several months, especially if injudicious use and movement have been allowed early. In the case of the knee-joint the use of a compression bandage with gentle walking exercise and some faradic treatment of the quadriceps muscle will suffice in the slighter injuries. In severe cases, in any region, when a radiograph shows ossification in the attachment of the ligament or beyond it the joint should be immobilized on a splint in an easy position just short of full extension until all pain and tenderness have disappeared, and movement then restored by gentle persuasive methods and without the use of force.

Treatment of Sprains which Render a Joint Unstable

These include ruptures of important ligaments and the cases of sprain fracture in which an important ligamentous or muscular attachment has been damaged—for example, fracture of the head of the fibula, the spine of the tibia, the internal epicondyle of the humerus, the attachment of the long extensor of the terminal phalanx of the finger, etc. The treatment of these injuries is really a part of major surgery and in many cases operation is advisable, but the recognition of the nature of the injury and its immediate treatment are important. The joint should be at once immobilized on a splint or, better, in plaster-of-Paris in a position in which the ligament affected is relaxed, and if there is difficulty in securing the position an anaesthetic should be given. Drop-finger due to damage to the extensor tendon should be splinted in hyperextension. Rupture of the middle fasciculus of the external lateral ligament of the ankle requires fixation in plaster with the foot at a right angle and everted. Rupture of the external lateral ligament of the knee-joint or fracture of the head of the fibula should be treated by plaster with the knee extended and the tibia forced outwards. Rupture of the crucial ligaments or fracture of the tibial spine requires fixation with the knee fully extended; in the latter case an anaesthetic is necessary in order to secure this position.

In the case of fracture of the internal epicondyle of the humerus operative fixation is essential because the fragment is pulled down by the pronator-flexor group of muscles. In all this group of cases the necessary surgical treatment by fixation support, etc., and possibly operation, can be facilitated by early diagnosis and correct fixation; in fact, in many cases the need for operative treatment may thus be avoided.

The third International Cancer Congress under the auspices of the International Union against Cancer will be held in the United States, September 11 to 16, 1939, at the Haddon Hall Hotel, Atlantic City, New Jersey. The president of the congress is Professor Francis Carter Wood, Director of the Institute of Cancer Research of Columbia University, New York City; Dr. Donald S. Childs of Syracuse, New York, is the secretary-treasurer; and Dr. A. L. Loomis Bell of Long Island College Hospital, Brooklyn, New York, is in charge of transportation and exhibits. The proposed sections are as follows: general research; biophysics; genetics; general pathology of cancer; surgery of cancer; radiological diagnosis of cancer; radiotherapy of cancer; statistics; and education. The membership fee is 15 dollars. All inquiries should be addressed to the Institute of Cancer Research, 1145, Amsterdam Avenue, New York, N.Y.

DIABETES AND ITS TREATMENT

LETTSONIAN LECTURES BY DR. GEORGE GRAHAM

The first of the three Lettsomian Lectures under the auspices of the Medical Society of London was delivered on February 21 by Dr. GEORGE GRAHAM, who took as his general subject a survey of the changes and results of treatment of diabetes in the last fifteen years.

Dr. Graham began by remarking that Lettsom apparently never addressed the society on any subject connected with diabetes, although in his time the presence of sugar in the urine had been demonstrated. Lettsomian Lectures on diabetes, however, had been delivered in 1860 and again in 1912. During the twenty years before the introduction of insulin diabetes was regarded as a very serious disease, and it was generally held that patients did not live for more than two years. That was not quite true, though certainly the majority did not live very long. The fasting treatment had helped a certain number, and it had been possible sometimes to stop a patient from passing sugar.

It was now a common contention among anti-vivisectionists that insulin was discredited because since its introduction the deaths from diabetes had gone up. This was true, though the statement unqualified contained a great fallacy. The lecturer showed a number of graphs indicating the death rate in England and Wales during the present century. One curious point brought out was that there were formerly always more men than women in the mortality tables of diabetes, but since the war this position had been reversed, and for many years past far more women than men had died of the disease. There was also a mysterious drop in the figures during the war years. It was suggested that this was due to dietary restrictions imposed by the war, but possibly in the absence of many doctors abroad patients were not examined as carefully as at other times, and deaths were attributed to other causes.

Deaths from Diabetes

The answer to the anti-vivisectionist was evident when the figures came to be examined for each decade of life. During the last fifteen years the deaths from diabetes for the age period 6-15 showed a 34 per cent. decrease for both sexes; for the age period 16-25 also a decrease—29 per cent. in the case of females and 41 per cent. in the case of males. A decrease of similar extent was recorded in the two following age groups, covering the period 26-45. In the age period 46-55, while there was still a decrease in the number of deaths of males, though of smaller extent than in the earlier periods, there was actually an increase in the number of deaths of females, and for the later age periods there was an increase in the death rate for both sexes, specially marked in the case of women.

During the period covered by the statistics the number of persons of 70 years of age and over per 10,000 of the population of England and Wales had gone up from 297 in 1911 to 344 in 1921, 426 in 1931, and 455 in 1934. Thus there were many more old people alive, and because people were living longer they were more liable to those diseases, diabetes being one, which their shorter-lived predecessors had escaped, having died probably of some disease more frequently attacking the young and early middle-aged. A further factor which had to be remembered in studying the figures was that in the later years of the period under survey doctors were more careful with regard to the examination of the urine, not only for albumin but for sugar. There had also been a change in the practice of death certification, and if pneumonia or bronchitis was the immediate cause of death and diabetes a contributory cause, the latter as well as the former would be mentioned on the certificate.

swelling behind the ankle on the inner side, which may persist until the separate piece of bone has been removed.

This last injury is, again, an example of a sprain fracture. Other examples occur—for example, the external lateral ligament of the knee may pull off a fragment of the head of the fibula, or the anterior crucial ligament may pull up the mesial spine of the tibia.

Injuries of Muscles and Bones in the Neighbourhood of a Joint

In investigating a case of supposed joint sprain or strain it must not be forgotten that the injury may really be one of a muscle, tendon, or bone. For example, forced inversion of the foot may sprain the anterior fasciculus of the external lateral ligament or it may rupture the middle fasciculus, but it may cause an oblique crack through the external malleolus of the fibula; or the tension on the peroneus brevis muscle may pull off the base of the fifth metatarsal bone (Jones's fracture) or pull some of the muscle fibres off its origin from the fibula. These injuries are disclosed by the exact position of the point of maximum tenderness, and in the first two cases are confirmed by radiographs. After forced dorsiflexion of the foot the calf muscles and tendo Achillis must be carefully examined: rupture of the tendon may easily be overlooked if much effusion is present. In young persons an incomplete injury in the neighbourhood of the epiphyseal bone should be borne in mind, particularly in the case of the hip-joint.

Exact Diagnosis

The multiplicity of the injuries which may be present in a case of strain of a joint would seem at first to make diagnosis a rather formidable task, but with care this should not be difficult. If possible the exact mode of injury should be determined; this helps by showing what structures were put on the stretch. When the examination takes place after a considerable effusion has formed the latter may to some extent mask the symptoms, but there should be no hesitation about feeling firmly into this swelling, particularly over important tendons such as the tendo Achillis and the tendon of the quadriceps. The site of maximum tenderness to pressure is important. It may be over the ligament or its attachment to a bone; if the latter, and if the tenderness is considerable, a sprain fracture may be suspected and a radiograph should be taken. If the point of tenderness is over the shaft of the bone a radiograph is essential in order that a fracture may be excluded. The mobility of the joint is important: hypermobility denotes complete rupture of some important structure. Limitation of mobility—without, however, complete blocking of movement—is the rule in the ordinary less severe sprain. The ideal would be to x-ray every case of joint sprain, but this may not be possible or practicable. A radiograph is essential:

1. When the maximum tenderness is over the shaft of a bone.
2. When the tenderness is over the point of attachment of an important ligament or tendon.
3. When movement of the joint appears to be mechanically blocked—for example, when extension of the knee-joint is blocked.
4. It is wise in the case of all severe sprains in children and adolescents because of the risk of bone injury. This applies especially to the hip-joint.

When other injuries have been separated those which are properly classified as sprains of joints may for purposes of treatment be divided into three groups: simple sprains; sprain fractures; and sprains which render a joint unstable.

Treatment of Simple Sprains

In treating a simple sprain of a ligament which forms part of the capsule of the joint and which is incompletely ruptured the first step is to prevent or limit effusion. This is best done by firm elastic pressure. For example, if an ordinary sprain of the ankle is seen within half an hour the site of injury may be wrapped in a complete covering of thick cotton-wool extending from the metatarsal heads to the middle of the leg and bandaged firmly from below upwards over this with a domette bandage, which should not extend beyond the cotton-wool. Some nervous patients will not tolerate this pressure; in these cases a cooling lotion, such as *lotio plumbi c. opio*, should be applied. In either case twenty-four hours' rest should be allowed. At the end of that time the bandage may be removed and the joint re-examined to confirm the diagnosis. If a radiograph is considered necessary it should be taken and bone injury thus excluded. The joint should then be firmly bound with an adhesive bandage of the elastoplast type, and the patient encouraged to begin use of the limb. In the case of the ankle a shoe should be worn if it can be got on, and the patient should walk with the help of a stick but not with crutches. He should be told to keep the foot under him and walk in as natural a manner as possible, allowing slight movements of the ankle-joint. In the case of the knee and elbow it is more comfortable to retain the compression bandage over cotton-wool, as the free range of movement of these joints is apt to lead to soreness of the skin under adhesive strapping.

At the end of a week the strapping is removed and is replaced by a simple crêpe bandage, and massage and movements are started. The masseur should be instructed first to get rid of the effusion, then to help all active movements through as full a range as possible, and to follow on with exercises in normal use. In the case of the ankle the patient must be encouraged to walk with a natural heel-and-toe movement, be given tiptoe exercises with support, and be persuaded to invert, evert, and dorsiflex the foot through a normal range. Finally, in the later stages of treatment movements which are incomplete must be forced gently until they are complete. If even a little restriction of dorsiflexion, plantar flexion, or inversion of the foot remains there may be persistent discomfort and a tendency to sprain the ankle again. Some nervous patients will not walk early upon a sprained ankle. In such a case it is better to retain the compression bandage and trust to the persuasive powers of a good masseur.

Treatment of Sprain Fractures

Sprains in which a small portion of bone has been torn off and those in which the periosteum has been lifted do not do well on treatment by the methods described above. There is a tendency to the production of a chronic painful thickening with limited movement. This applies to most sprains of the finger- and toe-joints and to sprains of the internal lateral ligament of the knee. These cases should be strapped up securely from the start and only a limited range of movement allowed; massage should not be given over the injured regions, and move-

Reference is made in the report to representations made at the inquiry that it would be of great advantage in dealing with an epidemic of this kind if there were means of securing closer contact and more ready communication between the medical officer of health and the general body of practitioners, so that all the information available from time to time as to symptoms and possible causes could be pooled and distributed. While recognizing that the sole responsibility for dealing with an outbreak must, as the report emphasizes, rest with the medical officer of health, the Minister, as he has previously stated in Parliament and elsewhere, considers it important that all practicable steps should be taken to secure the effective co-operation of local practitioners in this as well as in other matters with which the medical profession, as such, is concerned.

The Minister appreciates the importance which the Corporation doubtless attach to bringing the water from Addington well back into supply at an early date subject to necessary safeguards, and he does not dissent from the conclusion in the report that, with due attention to the gathering ground and suitable chlorination, there is no reason why the Addington well should not provide a perfectly healthy drinking water. The arrangements to be made for the treatment of the water are matters on which the Corporation will no doubt seek expert advice, and the Minister understands that they have already appointed consultants for this purpose. In this connexion the Council will no doubt pay particular attention to the view expressed by Mr. Murphy on the evidence submitted, that analysis of the water from the Corporation's chalk wells should be made more frequently than has been the practice in the past.

In addition to the general and fundamental need for improved co-ordination of the work of the committees and officers of the Council, and to the particular points to which I have referred above, the report deals with a number of other matters which merit, and will doubtless receive, attention. The Minister will be glad to learn from the Corporation at an early date the result of their consideration of the issues raised and to be informed generally of the action to be taken in the light of the report. If the Corporation so desire the Minister would be happy to arrange for his officers to discuss with them and their advisers any points arising on which it is thought they can be of assistance.

I am, Sir,

Your obedient servant.

GEORGE CHRYSTAL.

Reports of Societies

MINERAL SALTS IN THERAPY

At a meeting of the Section of Medicine of the Royal Society of Medicine on February 22, Dr. H. LETHEBY TIDY, presiding, a discussion took place on mineral salts in therapy.

Rationale of Sodium Therapy

Dr. R. A. McCANCE of the biochemical department, King's College Hospital, said that about 60 per cent. of the body was water. Roughly two-thirds of this was in the body cells; the remaining one-third—in the blood, lymph, cerebrospinal fluid, and intercellular spaces—constituted what were conveniently termed the extracellular fluids. Recent work suggested that the osmotic pressure of the cellular fluids was roughly equal to that of the extracellular, but whereas the bulk of the cellular osmotic pressure was due to potassium ions, that of the extracellular fluids was due to sodium. Forced removal of water from the body or, better still, deliberate reduction of water intake to a minimum led to a state of generalized dehydration in which both kinds of fluids suffered and to the same extent. The volume of both fell and the osmotic pressure of both rose. The fall in the volume of the extracellular fluids prevented the normal exchanges of metabolites between the blood and the tissues and reduced the functional capacity of the kidneys. This

state of generalized dehydration could be cured by the administration of water alone.

Forced removal of sodium from the body compelled the organism to compromise between reducing the volume of its extracellular fluids and allowing their osmotic pressure to fall. The fall in osmotic pressure further disorganized the kidney and in addition embarrassed the body cells by making them take up water in order to bring their osmotic pressure into line with that of the extracellular fluids. The only way in which the osmotic pressure of these fluids could be restored to normal and the comparative volumes of the cellular and extracellular fluids readjusted was by the administration of sodium salt and water. To give water alone was of no value. Saline must be given to all who had lost salt—that is to say, in all cases of diarrhoea and vomiting, heat-stroke, etc. It could be given by mouth or rectum or, most efficiently, intravenously. When the body was unable for any reason to excrete sodium salts their administration with water inevitably led to an increase in the volume of the extracellular fluids, and, if their administration was prolonged, to oedema. It was logical to restrict the sodium intake in these conditions, but relative salt deficiency might supervene insidiously, and if it did the treatment must be regarded as unsatisfactory.

The Potassium Level

Dr. R. S. AITKEN described a case of familial periodic paralysis in which reduction of potassium was a feature. The patient, a man of 21, had suffered typical attacks of paralysis of the arms and legs. The attacks occurred in the middle of the night and lasted for anything up to forty-eight hours. They occurred once every two or three weeks or oftener. A heavy meal shortly before bedtime was likely to bring on an attack, also the eating of a large quantity of sweets. The condition was thought to be connected with some disturbance of the electrolytes in the body, especially lactic acid, phosphorus, and potassium. It was found, however, that all the electrolytes before and after the attack were within normal limits, except potassium, which during the attack fell to about half its normal concentration in the serum—that is, about 9 mg. per 100 c.cm. instead of about 18. Potassium chloride given by the mouth was followed by the disappearance of the paralysis and the return of power to the limbs within about an hour. It was found that glucose induced an attack: also that insulin given at 11 p.m. brought about an attack at 4 a.m., which was cut short by the administration of 12 grammes of potassium chloride by the mouth. On glucose and insulin being given together the potassium in the serum descended precipitately and paralysis appeared and became complete so far as the arms and legs were concerned. Prostigmin had no effect on the paralysis, from which it might be concluded that the fault was not the same as in myasthenia gravis. The general conclusion was that in normal people sugar by the mouth, insulin by injection, sugar and insulin together, and adrenaline all produced moderate falls in the serum-potassium level. It was not known where the serum potassium went to out of the blood. In patients subject to periodic paralysis these agencies lowered the serum potassium to an unusual degree, and a flaccid paralysis came on, which with almost complete regularity was relieved within an hour by potassium chloride by the mouth. He was inclined to think that the lowering of the serum potassium was not the only condition necessary for the development of this peculiar form of paralysis.

Toxic Effects of Mineral Salts

Dr. C. L. COPE said that until recently mineral salts, although they had received attention from the pharmacologist, had been little regarded by the clinician. One important precaution to be observed in administering them was to have regard to the effect of the radical with

Analysis of Hospital Cases

Dr. Graham then gave an analysis of the cases admitted to his hospital (St. Bartholomew's) for diabetes during the period 1923-32 and their present condition so far as known:

Age Groups	Total Cases	Deaths	Unknown	Alive
0-5	2	1	-	1
5-15	29	6	8	15
16-25	46	15	5	26
26-35	44	17	6	21
36-45	52	19	7	26
46-55	59	22	7	30
56-65	45	23	4	18
65+	28	18	2	8
	305	121 (39.6%)	39	145 (47.5%)

These were cases which had been in hospital, and they were not quite a fair sample of diabetes cases, being too few at both extremes of age. The death rate in these cases had improved in the more recent years, due to the benefits of the high carbohydrate diet instituted in 1929. He had ascertained the cause of death in a number of these cases. It included coma in twenty-eight, pneumonia in twelve, bronchopneumonia in three, lung diseases in seventeen, influenza in seven, heart failure in eight, gangrene of legs in six, uraemia in four. He had been struck by the very poor resistance that these patients put up to pneumonia, but there was an improvement under the regime of adequate carbohydrate and fluid as well as insulin. One hundred unselected patients who came up to hospital in 1937 and had had diabetes more than five years previously had been examined, and the time since the disease began was from five to ten years in forty-six, eleven to fifteen years in thirty-nine, and sixteen years and over in fifteen.

Complications

On the subject of complications Dr. Graham said that the teaching that neuritis was common in diabetes did not tally with his experience, but one thing that did trouble these patients was very severe pain in the legs, described as "a shooting pain," exactly like the pains in tabes dorsalis. He had known a few patients who had the same pains very badly in the arms. The reflexes and sensations were preserved, and therefore it could not be that the nerve was implicated; it was probable that the pain was due to some central lesion. When the diabetes was got under control these patients lost their pains. In his list there were thirty-two ophthalmic patients, nearly all of them elderly people; sixteen had senile cataract. Patients sometimes came with perfectly normal vision, and on being given insulin they were unable to see, the eye becoming misty, but the condition cleared up later on.

One complication peculiar, so far as he knew, to his own clinic was that during the last three years about twenty-eight cases had developed jaundice, with very high van den Bergh reactions. With one exception they had all recovered, the exception being a man who developed a severe pyelonephritis. But they took a long time to get well, one of them eighty days. He had been very much disturbed by this occurrence. There was no common factor. He had a feeling that there was some infection which they picked up from one to another when they came to the out-patient department.

In conclusion he mentioned some of the disabilities under which diabetic persons laboured, even though their diabetes was controlled by insulin. They could not insure their lives, except at very high rates, nor could they take up any posts with pension rights, and they were gravely dis-

advantaged in regard to driving cars. He gave an account of the precautions on which he insisted if one of his patients was determined to drive a car. The trouble with these patients was that they might suddenly cease to recognize that their blood sugar was low, and then they went on and became unconscious or had an epileptiform convulsion. The perplexing thing about the condition was the way in which the symptoms suddenly changed. He instanced one man who suddenly developed a severe diuresis, also a very deep depression, and with depression some patients got violent headaches.

CROYDON TYPHOID REPORT

THE MINISTER'S VIEWS

Matters arising from the report of the inquiry into the outbreak of typhoid fever at Croydon¹ are reviewed in a letter addressed to the Croydon Corporation on February 21 by the Permanent Secretary of the Ministry of Health on behalf of the Minister, Sir Kingsley Wood. The letter is as follows:

SIR,—I am directed by the Minister of Health to inform you that he has considered Mr. Harold Murphy's report on the public inquiry held by him into the causes leading up to the outbreak of typhoid fever in the County Borough of Croydon in October and November, 1937. Sir Kingsley Wood, who has followed the course of the epidemic with the deepest concern, finds himself in agreement with the findings of the report, which he has no doubt have been also studied by the Corporation with the object of applying the lessons to be drawn therefrom for the guidance of their administration hereafter, and in particular as affecting the conduct of their water supply service.

The Minister is glad to observe that Mr. Murphy has been able to commend the skill and care with which cases of the disease were handled once they had been reported, and the efficient character of the hospital arrangements, the nursing, and the general medical services of the borough. On the other hand he cannot but feel that the Corporation will share his disquiet at Mr. Murphy's finding (as regards the water service) that the organization of the administration of the borough was such as to lead to "both misunderstanding and lack of communication between the responsible officers of the Corporation in connexion with the work." Sir Kingsley Wood trusts that the Corporation will at once review the whole field of their work in the light of this important consideration. A fundamental condition for the successful discharge of administrative responsibilities of the magnitude and complexity of those committed to the Corporation is the effective collaboration and co-operation of all the branches and departments into which the work must of necessity be divided. Mr. Murphy's report enforces the painful reflection that if this obvious truth had been sooner and more perfectly realized the calamity which we now have to deplore might have been averted. The Minister cannot too strongly impress on the Corporation the necessity for giving their immediate attention to this serious criticism, and he will be glad to be informed at an early date what steps they propose to take to remedy what experience has unhappily shown to be a grave defect in their administrative arrangements.

I am directed to request you to draw the attention of the Corporation to certain other points in the report which he considers to be specially important. The first is Mr. Murphy's finding that the borough engineer's duties covered so wide a range of matters as to make it impossible for him to give detailed personal attention to the highly important subject of water supply, and his consequential suggestion that the Croydon water supply should be under the direction of a fully qualified water engineer reporting to a water committee and keeping in close touch with the medical officer of health. The Minister commends this suggestion to the Corporation. In his view the water engineer should be a chief officer of the Corporation directly responsible to the water committee. He also considers it essential that the water committee and the water engineer should work in the closest co-operation with the Public Health Committee and the medical officer of health in all matters of common concern. He will be glad to be informed that the Corporation are making the necessary arrangements.

¹ The report was summarized at length in the *British Medical Journal* of February 19, 1938, p. 404.

the hearing showed improvement in all. They were tried with a salt-free diet, but the results were not so striking as with the water exchange. The salt-free diet seemed to accentuate the good effects of reducing the fluids, but with a salt-free diet an increase of fluids still caused bad symptoms. He had come to the provisional conclusion that the water was the important thing, although probably if one continued with the salt-free diet, and perhaps took other steps to eliminate sodium, that might result in improvement also.

The PRESIDENT (Dr. Tidy), in summing up, said that the right side of the heart must have an important part to play in the interchange of fluids. Any weakness of action there must come particularly into play when there were differences in the volume of the fluids in the body. Perhaps the plasma proteins and the part they took in this interchange had not been sufficiently considered. He wondered whether it was right to lump together, as Dr. McCance had done, the fluids in blood, lymph, and intercellular spaces as extracellular fluids. Surely there was a distinct difference between those fluids which were contained within the vessels and those which were outside. It seemed to him an artificial division, and he also wondered whether it was right to say that the osmotic pressures of the cellular and extracellular fluids were identical. It seemed to him a very big supposition, and against probability. He added that he had had two cases of aural vertigo, to which he gave a salt-free diet. The intake of water was not controlled. Neither of those cases benefited at all.

MEASLES: EPIDEMIOLOGY AND PROPHYLAXIS

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on February 25, Sir ARTHUR MACNALLY presiding, the subject of discussion was measles, to which Dr. J. A. H. Brincker, principal medical officer of the London County Council, contributed a historical, epidemiological, and aetiological study, and Dr. William Gunn an account of serum prophylaxis.

Dr. BRINCKER, in a short historical survey, said that the disease could not be recognized as such in any writings before Rhazes (tenth century). It was not until the sixteenth century that measles was accepted as an infectious disease. Even at that time there was still great confusion between measles and small-pox, and Thomas Phayre, in his *Book of Children* (1553), writing of "small pockes and meassils," said that "this disease . . . is of two kinds: varioli, ye meassils; and morbilli, called of us ye small pockes." Up to the eighteenth century the words "morbilli," "rubiola," "blacciae," "lenticula," "rossalia," and "rossania" were all mentioned in medical books, and there could hardly be any doubt that the present disease measles was referred to by those words. It might be assumed that in earlier times the exanthemata, at any rate measles and small-pox, were so common that they coexisted and often attacked the child at the same time. Sydenham gave a very clear description of measles epidemics in London in 1670 and 1674. In the first half of the latter year London was affected by a measles epidemic causing 795 deaths, and in the second half by one of small-pox causing 2,507 deaths. Sydenham hinted that many more deaths must have been indirectly due to measles, though they were registered under such headings as "convulsions," "diarrhoea," and "consumption."

Geography and Periodicity

Measles was met with in all countries and climates. It might be rarer in some than in others, but this was due not to latitude but rather to the accident of isolation from the densely populated communities where the disease was endemic. In London and in other cities both in this country and on the Continent it recurred in epidemic form at

regular intervals. The interval in London was two years. Usually this biennial epidemic began at the end of October, but its effect, as regards both incidence and mortality, did not become appreciable until the middle or end of the following January. Both then increased rapidly, to reach their maximum in April or early May, and then there was a rapid fall until the epidemic exhausted itself by the end of June. In temperate countries epidemics were more frequent in the colder than in the warmer months, but severe epidemics had been reported in the middle of summer in such countries as Spain and South Russia. Variability in the severity of outbreaks had been recorded in London and other English towns from time to time. In communities which had been long free from it measles might become widespread, severe, and associated with a variety of complications, and produce a very high mortality. There had been numerous epidemics where the mortality was for one cause or another excessively high—for example, in the Fiji Islands in 1875, when between one-fifth and one-quarter of the population died from measles or its consequences, and among the women and children in the Beer concentration camps in the South African War.

Turning to aetiology, Dr. Brincker said that the infecting agent or virus was known to be present in the blood of the sufferer during the period of invasion and perhaps up to the second day of the disappearance of the rash; thereafter it was irrecoverable from the blood and rapidly disappeared. Immunity due to the development of specific antigens rapidly took place in the body tissues, and these were present in the patient's blood soon after convalescence. Convalescent measles serum obtained from such a person might be used either to prevent an attack or to modify the disease in a person already infected with and incubating it. Infants at the breast had a high resistance to infection, possibly due to antigens derived from the mother. Children from 18 months to 2 years of age, on the other hand, were highly susceptible, and this susceptibility existed until about the fifth year, after which it diminished. These years of a child's life were also those during which it was susceptible to other diseases complicating measles, such as bronchopneumonia, and therefore the mortality at this age was significant. The question of prophylactic vaccination against the disease was still unsolved, but as success had already been obtained in such diseases as small-pox, distemper, and rabies, it was quite possible that this would before long be the case as regards measles.

Incidence and Mortality

So far as London was concerned, there had been a definite reduction in the death rate of measles since the eighties of the last century, and this became more pronounced during the first three decades of the twentieth century. Dr. Brincker showed the following table giving the death rate in London per million of population:

	Males	Females
1851-1860	573	493
1871-1880	558	463
1891-1900	631	539
1911-1920	417	308
1921-1930	192	146
1931-32	128	88
1933-34	120	96
1935-36	85	61

A big decline in mortality began in 1920 and had continued ever since. This drop in mortality was sometimes ascribed to the falling birth rate, but that could not be the case, for the number of cases of measles reported from the schools during every biennial epidemic remained the same. The diminution in the number of deaths must be ascribed to the general improvement in child health, also to the fact that both parents and teachers had come to recognize the disease as a serious one.

In spite of the fact that measles in this country was an endemic disease there were quite a number of isolated communities where it was non-existent, and when it was

which the salt was combined. One patient with some form of haemorrhagic disease was treated with large doses of calcium, and the physician attending him, knowing that the most readily absorbed salt of calcium was the chloride, administered that in considerable amount. Most of the calcium was excreted in the bowel, leaving, however, what was in effect hydrochloric acid in the body, resulting in a severe acidosis. If the lactose had been used all would have been well. The reason why such troubles did not occur more frequently was the efficiency of the normal organs of excretion, especially the kidney. The absorption of any salt tended to upset the ionic balance of the body fluids, and the kidney attempted to rectify the upset. When the excretory mechanism was impaired difficulty was likely to arise in mineral-salt therapy. For example, in pre-insulin and early insulin days much sodium bicarbonate was administered to the diabetic to combat acidosis, and cases of generalized oedema appeared to have been more frequent among diabetics then than they were now. The inference was that the oedema was due to the giving of too much sodium. Potassium also had its toxic action. Potassium citrate was given to nephritic patients to render the urine alkaline. If in such patients there was severe renal functional damage, then the urine would not so readily be made alkaline, and in those circumstances there was a temptation to increase the dose of potassium citrate, rendering the conditions very suitable for the development of potassium poisoning. The use of either potassium or sodium citrate in renal damage was liable to lead to another ill result. An excess of the alkaline ion was liable to be left behind in the body, with the result that alkalosis was produced, and if the kidney was damaged the alkalosis might remain unrelieved.

Another supposedly innocuous substance was magnesium, which was given in large amounts as the sulphate for its effects as a purgative. When a full magnesium dose was given to a person with healthy kidneys some went into the blood stream and was excreted rapidly, but when renal function was damaged it was a different story. The normal level of the magnesium in the plasma was very constant at about 2 mg. per 100 c.cm. of blood. But if in a severe nephritis the full purgative dose of magnesium sulphate were given the plasma magnesium might rise considerably, even to 10 or 15 mg. per cent. He wondered how often coma had been precipitated by a well-meant dose of Epsom salts. An important feature of the clinical condition in such cases was depression, mental lassitude, irritability, and drowsiness, precisely the symptoms to be expected in mild magnesium poisoning. Vast amounts of stomach powders were taken by sufferers from various types of indigestion, in many cases not under medical supervision, and these patients remained in a state of depression due to the continuous ingestion of magnesium. Referring to calcium, Dr. Cope said that in the majority of individuals this was satisfactorily dealt with, and in a series of patients with gastric ulcer under treatment with alkalis containing calcium carbonate there was no sign of retention. But when alkali poisoning did develop in such individuals the calcium in the blood was greatly increased. He had found such values as 16 to 18 mg. per cent. instead of the normal 10. He was not prepared to say that such high blood-calcium levels did definite harm, but a certain proportion of persons taking powders for stomach complaints did suffer from high blood calcium, and the possibility that the prolonged taking of large amounts of calcium might in time have a serious effect on the kidney was at least worthy of consideration.

Excess Iron and Rickets Causation

Dr. J. F. BROCK said that it was now possible to state definitely that one mineral when present in excess in the diet could interfere with the absorption of another mineral and cause deficiency. The simplest way to produce ex-

perimental rickets in rats was by the Steenbock diet, in which the amount of calcium was much increased in relation to the amount of phosphorus. Some years ago he was impressed with the possibility that large doses of iron might have a similar effect, and he discovered that diets containing a considerable excess of iron could produce in rats exactly the same type of rickets. The reason for this was that the excess of iron present in the gastrointestinal tract precipitated phosphorus in the form of insoluble phosphate and gave the rat a phosphorus deficiency. Rickets could be produced not only with an excess of ferric chloride but with any iron preparation, and it had been recorded in various countries that the same sort of rickets resulted when other minerals—magnesium, beryllium, strontium, and aluminium—were added in excess to diet. Applying these principles to man, he had attempted to find out whether the ordinary large therapeutic doses of iron that were used to-day might have any effect on the human phosphorus metabolism. He found that consistently the addition of large quantities of iron caused an excess of phosphorus excreted in the stools. But with the ordinary conditions of diet, notwithstanding the high iron dosage, there was also such an excess of phosphorus as to cause no danger of deficiency at all. In one patient, however, who was on a very low phosphorus diet, the stool phosphorus was raised by the addition of large quantities of iron, and the effect was to bring about a negative phosphorus balance. He was not suggesting that any person had been given rickets as the result of the therapeutic administration of iron. The amount of iron given therapeutically would never cause anything beyond a transient deficiency in the phosphorus. But if the ratio of Fe to P were raised over a certain critical level a deficiency was caused.

Sir WALTER LANGDON-BROWN referred to some French observations to the effect that myasthenia gravis was caused by an adenoma in the thymus, in the same way that hyperparathyroidism caused von Recklinghausen's disease. The biochemical effect of this adenoma was that it raised the sodium content and lowered the potassium, so that good could be done by giving potassium salts and harm by giving sodium—just the reverse of the conditions obtaining in Addison's disease. He thought that the danger of taking alkaline powders in large quantities was one which should be recognized. Dr. E. N. ALLOIT said that, where there was dehydration to begin with, hypertonic saline was a very dangerous drug. It had its advantages, but it should be used with great caution. He also stated that he had had the opportunity at Cambridge of investigating two further cases of familial periodic paralysis of the kind that Dr. Aitken had brought forward. It could be said quite definitely that the potassium in these cases did not go out in the urine; it was retained in the body. The present interpretation of the facts was that for some unknown reason there was an abnormal demand on the potassium in these affected subjects, and that the fall in serum potassium was a reflection of that. Some neuromuscular abnormality as well as some abnormality in dealing with potassium must be postulated.

Salt and Fluids in Treatment of Aural Vertigo

Mr. TERENCE CAWTHORNE referred to cases of aural vertigo. It had been stated that in these cases the attacks of vertigo diminished on the reduction of the water and the salt intake, and that the hearing was very much improved. More recently it had been affirmed that with a sodium-free diet these patients could take unlimited water and did not get vertigo. He had tested the matter out in seven typical cases. The fluid intake was increased, but the vertigo, tinnitus, and deafness were made much worse. The fluids were then cut down to 20 oz. a day in four cases, and in the three others, which could not tolerate that low level, to 30 oz. In six out of the seven cases the vertigo disappeared; the tinnitus went in five, and in a sixth was very much better, and the measure of

MASCULINE FEMALE Pelves

A meeting of the North of England Obstetrical and Gynaecological Society was held in Manchester on January 28, at which Dr. JOHN CHISHOLM took the chair in place of the retiring president, Dr. J. W. BRIDE.

Mr. PERCY MALPAS (Liverpool) read a paper on the masculine pelvis in women. He said that Caldwell and Molloy considered that the main characters of the "android" pelvis were a forward displacement of the sacrum, causing shortening of the posterior segment of the inlet; relative straightness of the ilio-pectineal lines, which pass backwards from the pubes at an acute angle, giving rise to a narrow fore-pelvis; and a tendency for the sacrum to be vertical. Thoms, in 1933, described a series of cases in which transverse narrowing of the inlet was found in association with occipito-posterior positions, and he considered that many of these pelves belonged to the male type of the inverted pelvis of Berry Hart. Hart's papers represented the most important contribution to the subject of the masculine pelvis. He thought that either the ilio-sacral or the ischiopubic segments of the female pelvis might undergo inversion into the male type. An important aspect of Hart's cases was that the patients exhibiting pelvic inversion also showed other evidence of pseudo-hermaphroditism. The characters of the masculine pelvis in women were still far from decided. Many of the anatomists' criteria were not applicable in obstetrical practice, and the relationship between the assimilation pelvis and the masculine pelvis still required elucidation. Three recent cases had called his attention to the problem.

CASE REPORTS

The first patient, a primigravida, was admitted for a persistent occipito-posterior position, which necessitated a forceps rotation. Extraction was difficult on account of antero-posterior as well as transverse contraction of the bony outlet. The iliac bones were small with the rough incurved crests seen in the male pelvis; the sacral promontory could not be reached. Lateral radiographs showed an extension of the sacral articular surface on to the third sacral vertebra, a long six-piece sacrum due to low assimilation, and a false promontory between the first and second sacral vertebrae. The patient was tall and heavily built, with pronounced hirsutes and a general male distribution of body hair.

The second patient had a persistent occipito-posterior position in her first labour, which lasted eighty-one hours and ended in a stillbirth. Her second labour was normal. She had the heavy, incurved, small iliac crests characteristic of the male pelvis. X-ray pelvimetry showed all the measurements of the brim to be the same, the sacral curvature was increased, there was low assimilation, and the angle of inclination of the brim was greater than normal. The patient had hirsutes, which she concealed by shaving, and a general male distribution of hair.

The third patient, as yet undelivered, also exhibited hirsutes and a male type of hair distribution. The iliac crests were of the male type. Radiographs revealed the brim of the pelvis as circular, the sacrum showed low assimilation, was articulating with the ilium by two and a half pieces, and had a well-marked false promontory. The angle of inclination of the brim was raised.

Mr. Malpas considered that evidences of sex intermingling other than those in the pelvis should be taken as a criterion in the selection of cases from which the features of the masculine pelvis were to be worked out. The main characteristics appeared to be a vertical or forward-curving sacrum, low assimilation making a six-piece sacrum, an increased angle of inclination of the brim, and a well-marked false promontory. While contraction of the outlet was probably of importance, its measurement was more difficult than was generally supposed; antero-posterior bony contraction had not

received as much attention as it deserved when compared with transverse contraction. Pelves of the masculine type were undoubtedly responsible for some cases of persistent occipito-posterior position.

At the same meeting Mr. F. J. BURKE (Liverpool) described a granulosa-celled tumour of the ovary occurring in a woman aged 54; Dr. E. A. GERRARD (Manchester) discussed two cases of large tumours complicating pregnancies, one a large parovarian cyst and the other a large pedunculated subserous fibroid; Dr. W. W. WRIGHT (Stoke-on-Trent) read notes on a case of locked twins associated with toxic albuminuria and profound intrapartum collapse; and Professor DANIEL DOUGAL recorded a case of incomplete cervical abortion. In the discussion which followed Professor A. H. CLAYE, Professor MILES PHILLIPS, Miss RUTH NICHOLSON, and Mr. F. H. EDWARDS took part.

DIABETIC OUT-PATIENTS

The management of diabetic out-patients was discussed at a meeting of the London and Home Counties Branch of the Medical Superintendents' Society on January 20.

In opening Dr. H. P. HIMSWORTH quoted certain American statistics and a prophecy that diabetes is likely to be as prevalent as pulmonary tuberculosis within a few years. In 1936 the deaths in this country from diabetes were as numerous as those from all the infectious diseases together. The number of patients attending his own clinic at University College Hospital was increasing by 200 every year; the total admissions last year were sixty-five, out of 900 attending. One hundred more patients were scattered about in other departments of the hospital, and perhaps half of these were admitted. An efficient clinic was essential, and having one man in charge secured continuity of treatment and helped to gain the confidence of patients.

Organization of a Diabetic Clinic

Four important requirements of a diabetic clinic he discussed briefly. First, a dietitian, who should be able to explain a dietary to the patient in simple language, paying due regard to his or her economic position. Secondly, a technician was needed for analysis of urine. Dr. Himsworth did not approve of casual blood-sugar estimations; glucose-tolerance curves were essential in many cases for diagnosis. He placed great reliance on the ferric chloride test for acetone bodies. The nitro-prusside test, positive at about 1 in 400,000, was very sensitive, but a positive ferric chloride reaction, given at a concentration of about 1 in 1,500, provided a most useful warning of imminent coma and was an indication for immediate admission. Thirdly, the services of a chiropodist should be obtained; in his two years' personal experience of such an arrangement the incidence of gangrene had been halved. Lastly, the chest should be x-rayed at the patient's first attendance, and annually thereafter. The rate of incidence of pulmonary tuberculosis was 6.5 per cent, and the condition was most common in the 45 to 50 age group. Prognosis was at least as good as in non-diabetics if the diabetes was controlled and the pulmonary disease diagnosed early. Clinics could be relatively centralized and could deal with about 100 patients in one session, about six being new cases. The co-operation of the district nursing association was of great importance.

On admission, if the ferric chloride test was positive and if the patient could swallow, 50 grammes were given by the mouth and 25 units of insulin were injected every three hours till the urine was free from acetone bodies. Diets were weighed daily at first, later weekly. Actual menus were provided by the dietitian, about half a dozen alternatives being possible for each meal. Treatment was by diet alone for the first week if there was not much

accidentally introduced it behaved like a new disease and affected the susceptibles in that closed community until they were exhausted. At the other extreme, in an urban community like London, where the disease recurred as regularly as clockwork every two years, one could almost predict the very week in October when the disease became epidemic and began to spread from district to district and school to school. In New York the periodicity curve of measles appeared to be undergoing a state of evolution similar to that experienced in London in 1912-18. Two successive years of epidemicity were followed by one of non-epidemicity, and these by an epidemic year followed by a non-epidemic one, and then the curve repeated itself by a succession of two epidemic years followed by one of non-epidemicity. What was responsible for this "break-step" phenomenon as well as the persistent lower mortality of measles in New York when compared with that in London could not as yet be explained. Dr. Brincker showed a table giving the figures for New York since 1910, with the comparative figures for London. The figures for the last eight years were as follows:

Year	New York		London	
	Deaths	Death Rate per 1,000	Deaths	Death Rate per 1,000
1930	154	0.02	1,027	0.23
1931	134	0.02	115	0.03
1932	58	0.01	822	0.19
1933	213	0.03	101	0.02
1934	25	0.00	855	0.20
1935	105	0.01	19	0.00
1936	81	0.01	564	0.14
1937	25	0.00	25	0.01

Serum Prophylaxis

Dr. W. GUNN, medical superintendent of the North-Western Fever Hospital, said that at present in this country only the fever hospitals held stocks of convalescent serum, which was usually available in small amounts to public health authorities and to private practitioners. Much larger stocks of adult measles or normal serum were maintained by general and fever hospitals and by certain public health authorities. At least two commercial firms which specialized in the manufacture of biological products made, or were prepared to make, immune measles serum from blood collected under proper conditions by private practitioners or public health authorities. Placental extracts had been prepared by the Lister Institute and by the L.C.C. serum laboratories, Belmont. He touched on difficulties not yet solved—namely, the estimation of serum potency, the determination of the fact of invasion following exposure, and the problem of human controls, including the disturbing factors of chance and latent immunization by subclinical attack.

After showing some tables, Dr. Gunn said that it would be deduced that those concerned were rather disappointed in their results, which seemed to get worse with each epidemic, instead of better. The probable explanation was twofold. It related first to the selection of donors. When the work started this selection was most carefully done, but with an increasing number of workers the same care was not always exercised, and sometimes cases of rubella in adults crept in. The second reason was that not enough care was taken in the recording of the data, so that as the scope and range of the investigations extended the reliability of the results diminished. He was afraid that the scope of the method would not be greatly improved until, first, the serum was readily available at all times when required, and, secondly, deliberate exposure was practised whenever circumstances called for

it. Whether legal consent to the practice of prevention and attenuation of measles by serum was necessary in hospital work was a matter of opinion. The consent of the parents or of those *in loco parentis* should always be obtained if possible, but if this would result in undue delay one should proceed without it. The legal aspect of inoculating children without consent had not yet, so far as he knew, come before the courts, but it might well come about that failure to use the method would at some time or other be accounted negligence, and therefore one was between the devil and the deep sea.

Discussion

Sir ARTHUR MACNALT said that Dr. Gunn had alluded to an early report of his which he worked on more than twenty years ago, when they were all very much concerned to reduce the mortality of measles. The main recommendations made at that time were to impress upon parents the seriousness of measles as a disease, to endeavour as far as possible to prevent the child contracting the disease before the age of 5 years, to ensure precautions being taken in the home against the complications, especially respiratory, of measles, and to emphasize the grave after-effects through lack of attention to the eyes and ears. These instructions from the Local Government Board did gain a wide circulation through the efforts of school nurses and health visitors, and the position had been greatly improved by the measures for infant and child welfare. It was to be hoped that the further researches, such as Dr. Gunn had carried out, would reduce the mortality to a still greater extent.

Dr. J. E. MCCARTNEY said that the donors of serum at L.C.C. institutions were healthy adults. So far as was known no untoward result had followed the administration of the serum. Well over 100 litres had been used. Had any form of virus infection taken place the fact would have been notified. Dr. W. A. DALEY asked whether the progressive reduction in the death rate from measles was due to the fact that the virus had changed in its potency. Was measles like small-pox in the respect that there were viruses of different character or strength? Was the improvement due to the increased resistance of the individual to attack or to the efforts made to impress parents that complications should be prevented? Further, did chill in itself precipitate an attack of bronchopneumonia, and what was it that caused some children to develop bronchopneumonia while others escaped? Measles had been known for many hundreds of years, but yet he felt that the knowledge of the subject was still somewhat patchy. Dr. R. A. O'BRIEN referred to the difficulty of ensuring a supply of serum. There was a wave of measles all over the country at present, and there were agitated demands for the serum which was not available. Convalescent serum was difficult to get, and there was no central organization for obtaining adult serum. Dr. RICHARD HAMBURGER said that bronchopneumonia was the principal danger for the younger child, and the high incidence of this condition might perhaps be explained by the fact that these children were always lying on their back during their illness, and thus a hypostatic state was favoured.

Dr. S. MONCKTON COPEMAN, as a member of the London County Council, spoke of the administrative problems which the biennial epidemic of measles, now at its height, imposed. He also said that an endeavour was being made to bring into force the general notification of measles in London. It had been suggested by opponents of compulsory notification that it would mean more cases coming under the care of the authorities, and therefore the difficulties of hospital accommodation and nursing would be increased. But it might, he thought, have the opposite effect, because if, as a result of notification, cases could be dealt with in the extremely early stages, extension in the home or school might be prevented and thus the total numbers would be lessened.

more fatal than any other single disease except cancer. It was necessary to impress on everyone the importance of seeking treatment as soon as there was reason to fear infection and of learning how to prevent the spread of infection. Venereal diseases were another scourge on which a special attack was being made at this stage of the health campaign. These diseases were particularly insidious in their effects. There was no sphere in which the perils of ignorance and neglect were more terrible or the spread of knowledge more necessary. It was essential that all cases should be promptly discovered and treated, and that the patient who was under treatment should persevere until his system was certainly free from the poison. The family doctor was still the first line of defence against ill-health, and his co-operation in helping to expand the health services was invaluable, just as the health services could also help the doctor—for example, the tuberculosis service. Co-operation was, perhaps, the most important requirement of all in the improvement of health and happiness.

Epsom College

The Council of Epsom College will shortly proceed to elect one or more St. Anne's scholars. Candidates must be fully nine years of age, and must be orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of the scholarships is dependent on the means of the applicants, the locality and fees of the schools selected. Application must be made by May 1, 1938, on a form to be obtained from the Secretary of the College, 49, Bedford Square, London, W.C.1.

Appropriation of London Public Health Institutions

Six public health institutions under the administration of the London County Council remain to be appropriated for the reception of the sick. These are the Fulham, St. Mary Abbots, Hackney, St. Leonard's, St. Allege's, and St. Pancras institutions. There are still some able-bodied healthy and infirm inmates in these institutions in addition to sick patients, but during the next few weeks all the former will be transferred to public assistance establishments, and by April 1 the appropriation of the six institutions will be effected. Each of them adjoins and is within the curtilage of a hospital of the same name. With the appropriation of these six institutions the Council has completed its task, first entered upon in 1929, of removing as soon as circumstances permitted its hospital service from the ambit of the Poor Law. After appropriation the whole of the available accommodation will be utilized for sick patients. Certain medical staffing arrangements are proposed, to be reviewed at the end of two years. The medical superintendents of the hospitals to which the institutions are attached have in five cases had an additional allowance as medical and administrative heads of the institutions, and this is now to be incorporated in the basic salary in four of the cases and to be subject to the usual increment. In the fifth case, that of Hackney Hospital, the scale of salary of the medical superintendent is £1,200-£50-£1,450, and an additional allowance of £50 a year has been received in respect of the institution. On appropriation the combined institution will provide accommodation for a large number of sick patients, approximating to that of Lambeth Hospital (£1,250), and the scale of salary is to be the same as for Lambeth Hospital—namely, £1,400-£50-£1,650. In three of the institutions the position ranking next to that of the medical superintendent is to be upgraded.

It was announced in the *American Heart Journal* for December, 1937, that this was the last issue to appear under the editorship of Dr. Lewis A. Conner, under whom the journal has arrived at its present high position. He has been succeeded by Dr. Fred M. Smith, Professor of Medicine in the State University of Iowa.

Correspondence

Raw or Pasteurized Milk

SIR.—The important question, Should raw or pasteurized milk be given to children? is much to the fore at the present time, and although the medical profession generally is strongly in favour of pasteurized milk, governmental action has long been delayed. It is true that the Board of Education has repeatedly urged that efficiently pasteurized milk, where such is available, should be supplied in schools; and that the Government has announced its intention of introducing legislation which will enable local authorities, if they so wish, to secure that all but tuberculin-tested milk is pasteurized in their areas. This is a minimum measure, and it is to be hoped, therefore, that the Government's proposals will be in no way weakened during their passage through Parliament.

Any lingering doubts should be removed by the report from the *Journal of Dairy Research* for October, 1937, by Wilkie, Edwards, Fowler, and Wright on the relative value of raw and pasteurized milk in the feeding of calves, from which I quote the following from the "summary and conclusions":

1. Bull calves from tuberculin-tested Ayrshire herds were fed on raw or commercially pasteurized milk up to 12 weeks of age, in amounts strictly in relation to their body weight. This diet was supplemented from the eighth week by hay at the rate of 2.3 lb. per head per day. The milk used was mixed milk from untested herds, the raw and pasteurized milk being derived from the same bulk sample.

3. No appreciable differences were noted in the skeletal growth of the two groups. Marks awarded by experienced stock judges showed consistent differences in favour of the pasteurized-milk-fed group, although the significance of such differences cannot be assessed.

4. Inoculations of grouped daily aliquots of raw milk twice weekly into duplicate guinea-pigs resulted in finding viable tubercle bacilli in 70 per cent. of the samples, and *Br. abortus* in 38 per cent. of them. The pasteurized milk samples were uniformly negative to both tests.

The differences in tuberculous infection of the two types of milk were reflected in the results of tuberculin tests and post-mortem examinations on the calves at the conclusion of the experiment. Twenty-four out of thirty-six calves fed on raw milk reacted to the test, and the presence of tuberculous lesions was confirmed in twenty-three by post-mortem examination. One calf in the pasteurized-milk-fed group reacted to the test, but exhaustive post-mortem examination and inoculation of glandular material into guinea-pigs failed to confirm the presence of any tuberculosis.

5. This work has failed to show any significant differences in the nutritive value of raw and of pasteurized milk for the rearing of young calves. The use of pasteurized milk, however, had a clear advantage in that it preserved the animals from infection through drinking milk containing living tubercle bacilli.

Again, in the report on tuberculous disease in children by John W. S. Blacklock (issued by the Medical Research Council in 1932) we find it stated:

"Of twenty-eight cases of tuberculous cervical adenitis, ten were infected with the human type of bacillus and eighteen (64.3 per cent.) with the bovine. . . . In twenty-six cases of tuberculosis of bones and joints, seventeen were due to infection with human strains and nine (34.6 per cent.) with bovine, the incidence of the latter being practically the same in town and country."

It will be remembered that within the last two years the Royal College of Physicians reported its unanimous opinion in favour of all milk sold in Great Britain being

acetonuria. Insulin was given if acetone was present in the specimens of urine taken before and after breakfast.

Factors in Prognosis

Dr. B. A. YOUNG emphasized the importance of estimating the prognosis of a diabetic in relation to (1) his financial position, (2) his intelligence, and (3) the skill of his medical attendant. The increase in the number of diabetics over the age of 50 was due to the ageing of the population in general, and to the increased duration of life of diabetics. He referred to the difficulty under some authorities of securing any reasonable degree of continuity of treatment. He mentioned the general practitioner's appreciation of information relating to the dosage of insulin, the dietary, etc. He advocated periodic lectures for district nurses, and stressed the importance in poor localities of high carbohydrate diets, owing to their cheapness as compared with high fat or protein diets.

Dr. Young exhibited models used by him to illustrate portions of different foodstuffs, which he had found of value in the treatment of the less intelligent diabetic. Definite schemes for large municipal authorities were advocated with clinics centralized to promote continuity and standardization of diabetic treatment.

distant countries. It had grown in size and in efficiency, and while the annual cost in 1914 had been £60,000, in 1937 it was £180,000. The new extensions would mean still greater cost.

Glasgow Rheumatic Clinic

Speaking at the annual meeting of the Glasgow Orthopaedic and Rheumatic Clinic on February 24 Sir Hector Heisterington, Principal of the University, said that the morbid conditions with which this institution was concerned were receiving more and more attention from the public, the medical profession, and medical science. It was certain that there were few cities and districts which had a greater need of this service than Glasgow and the western district of Scotland. By reason of the climate and of the nature of the main industries, illness and accident in that area called for treatment by the methods offered in the institution. They were discovering to-day that a higher standard of physical well-being was possible, and that to remedy conditions which did not seem at first sight to be very serious added greatly to human efficiency and happiness. The report of the institution showed that 3,044 patients had been treated during the year, involving 104,700 separate treatments. The expenditure had been £6,300, to which the patients themselves had contributed about £5,000.

Local News

SCOTLAND

Edinburgh Medical Officer of Health

The Public Health Committee of Edinburgh has unanimously recommended the appointment of Dr. William George Clark, at present deputy medical officer of health for Edinburgh, to succeed Dr. John Guy, who is due to retire from the post of medical officer of health for Edinburgh in October. Dr. Clark graduated M.B., Ch.B. at Glasgow in 1910 and took the D.P.H. of Cambridge in 1920. After holding posts as house-physician and house-surgeon in Glasgow Royal Infirmary and assistant medical officer in the Belvedere Hospital, Glasgow, and Brook Hospital, London, Dr. Clark became assistant medical officer in Woolwich Tuberculosis Dispensary and was later appointed assistant medical officer of health in Glasgow. From this post he was appointed deputy medical officer of health for Edinburgh in August, 1935. It was agreed by the Public Health Committee that the salary should be at the rate of £1,500 per annum rising by five annual increments of £50 to £1,750. It was also resolved that the medical officer of health might, with the consent of the committee, accept any appointment as professor or lecturer in connexion with the instruction of students, provided this did not interfere with the discharge of his primary duties.

Edinburgh Royal Medical Society

The annual dinner of the Royal Medical Society of Edinburgh, now in its 201st year, was held on February 24. Dr. G. J. Cleland, senior president of the society, presiding. Mr. W. J. Stuart, in proposing the toast of "The Royal Medical Society," reviewed the changes that had taken place in clinical teaching during the past forty years. He felt that at the present time students did not get enough to do in the wards. Mr. John R. Little, chairman of the managers of the Royal Infirmary, replying to the toast of "The Royal Infirmary," said that its principal difficulties at the present moment were financial, although they also greatly lacked adequate publicity. The Infirmary was not a parochial but a national institution, receiving patients from all over Britain and indeed from

ENGLAND AND WALES

Rheumatism Research in Leeds

The third annual report of the Leeds Advisory Committee on Research into Rheumatism has now been issued; it relates to the year 1937. Dr. D. H. Collins, the committee's research fellow, states that work is continuing on the reactions of the peripheral circulation in rheumatism to temperature influences. He mentions the great advantage conferred by the direct association of abundant specialized clinical material with the resources of the scientific departments of a university medical school. New apparatus and further technical assistance have been obtained for the histological study of rheumatic bones and joints, and the accumulated data from clinical and radiological examinations are expected to contribute to the fundamental pathological knowledge, which has been so scanty hitherto as regards rheumatism. Eight papers have been published during the last three years. A second research fellow, Dr. W. Goldie, was appointed last March, and a follow-up investigation was undertaken of cases of arthritis treated by gold injections at the Leeds Public Dispensary and Hospital. Research is now being conducted on the incidence of antibodies in the blood of patients with rheumatoid arthritis to the *Streptococcus haemolyticus* and other bacteria; the influence of gastric acidity on the incidence of toxic reactions in cases treated by gold; the excretion of gold in man; the blood changes produced by gold injections; and the investigation of a patch test for hypersensitivity to gold salts. An attempt is also being made to reproduce rheumatic lesions experimentally in animals by dietetic and infective means. Lord Harewood, chairman of the Advisory Committee, believes that the work of the committee is capable of considerable development in association with the Empire Rheumatism Research Council.

Co-operation in Health Services

Dr. Thomas Carnwath of the Ministry of Health, when opening the King's Lynn Health Week, paid a tribute to the work of the Central Council for Health Education in helping to organize the activities of the week. The last half-century, he said, had seen tuberculosis pass from being "normally incurable" to "normally curable," but only if treatment was begun in time. The standardized death rate from tuberculosis had declined from 2,453 per million in 1885 to 657 in 1937. It was still, however,

under my care to the Princess Elizabeth of York Hospital for Children have all been treated with eumydrine and with uniformly successful result, the vomiting in no case having persisted longer than ten days after its inception. While not in any way wishing to detract from the success which follows surgical intervention, as revealed in Mr. Levi's series, I should be astonished if such excellent results are the experience of the average paediatrician with surgical measures. At any rate, when I review all the examples I have had submitted to operation, the mortality rate is much higher than the 2 per cent. obtained by Mr. Levi. And I might further add that I have compared the results of surgical and medical treatment in cases from the same class of material (as, for example, hospital or private), and find that there is no difference in the recovery rate.

If I personally had any criticism to make of Dr. Braithwaite's communication it would be regarding the basis on which he made his diagnosis. From the evidence supplied by Dr. Braithwaite I should be doubtful if all his patients were in reality suffering from hypertrophic pyloric stenosis. Dr. Braithwaite did not depend, as I think most paediatricians would, on the presence of a palpable tumour, but he took as the pathognomonic feature the radiological findings, which of all the signs of the disease are the most fallacious. Anyone who takes the trouble to submit a series of infants with and without hypertrophic pyloric stenosis to a radiological investigation will discover that there is such variation in the motility of the stomach in both of these conditions, and that no help in diagnosis is possible in this way. It is no doubt for this reason that there is such a want of unanimity among radiologists regarding the particular radiographic features which are diagnostic of hypertrophic pyloric stenosis.—I am, etc.,

London, W.1, Feb. 28.

LEONARD FINDLAY.

Excision of the Patella

SIR.—I read with interest in the *Journal* of February 19 two articles on "fractured patella." Mr. G. O. Tippet supports Mr. Brooke in excision, but gives us as a fourth indication "congenitally displacing patella," which Mr. H. Jackson Burrows condemns urgently, and with this condemnation I certainly concur. My experience of Brooke's operation is limited to three cases, but I give them to support his theory.

Twelve years ago a youth of 18 was admitted to one of my beds with a compound comminuted fracture of the left patella, and septic arthritis of the knee-joint had already supervened. Immediate operation, with total excision of contaminated tissues and all patellar fragments and drainage of the joint, led, to my delight, to full function of the joint in four to five weeks.

In April, 1937, a young man of 26 came under my care with a patella refractured within six months of a fibrous union in poor position. I excised his patella and he did equally well.

A month later I was called to a hospital in the district to treat a fractured patella in an old man of 83 with a grossly comminuted patella, which I removed *in toto*. This week, while consulting his doctor on a family surgical emergency, I heard that he now mounts the same ladder in his draper's shop to deliver the hosiery as before.

This, I am sure, speaks well for Brooke's operation, so ably supported by Professor Hey Groves, and I venture to predict it is the operation of the future in selected cases.

I trust that the operation of wiring of the patella is now an anachronism, and that routine cases should be treated by catgut apposition.—I am, etc.,

Oxford, Feb. 19.

HUGH WHITELOCKE.

SIR.—Mr. G. O. Tippet ends his article on this subject (*Journal*, February 19, p. 383) with the words: "Lastly, we must note Brooke's claim that the power of extension of the knee is better without a patella than with one." If this be so I foresee the likelihood of stretching the crucial ligaments with consequent instability of the knee-joint. The possibility of such an undesirable end-result might well be kept in mind by those contemplating the routine adoption of this seemingly rather drastic measure.—I am, etc.,

Onchan, Isle of Man, Feb. 24.

P. W. HAMPTON.

Contraceptives and Fertility

SIR.—As a member of the medical subcommittee of the National Birth Control Association I should like, if I may, to reply to the letters from Mr. V. B. Green-Armytage and Mr. G. H. Alabaster in the *Journal* of February 19 (p. 419). There seems to be some misconception in their minds as to the point which we were attempting to make. Surely everyone who has dealt with cases of sterility—and many such cases come to the birth control clinics—is in agreement with Mr. Green-Armytage and Mr. Alabaster when they stress the importance of cervicitis and abnormal cervical secretions as factors in the production of infertility. We did not wish to raise the moral, social, and obstetrical issues involved in the deliberate postponement of pregnancy, for again we are probably in agreement with your correspondents that there is much to be said on all these counts in favour of early child-bearing. The mere postponement of the first pregnancy, by whatever means, is in itself conducive to sterility, since fertility in the female decreases rapidly with age. The point which we do not consider proven and about which we wish to join issue with Mr. Green-Armytage is his contention that the use of certain contraceptives (caps and acid chemicals) before the first pregnancy increases the incidence of cervicitis. His suggestion that infection of the cervical canal commonly follows the use of a cap is a grave one and has far-reaching implications, yet it is unconvincing. Might not the bacteria introduced during normal coitus be equally culpable? Those of us who draw our patients from rural areas, where the use of chemical and mechanical contraceptives in early married life is still extremely rare, can quote many cases of nulliparous women who are found on examination to have cervical erosions and other evidence of cervicitis. With regard to his point about the upsetting of the physiological pH of the vagina, there does not at present appear to be any satisfactory evidence that the introduction of acid substances into the vagina has more than a transient effect, owing to the excellent buffering action of the vaginal and cervical fluids, nor is there evidence that the mere lowering of the vaginal pH *per se*, excepting by solutions more strongly acid than those used in contraception, can cause erosion of the cervix and cervicitis. These points are actually being investigated by the committee.

If the things of which Mr. Green-Armytage complains are liable to induce cervical infection and subsequent sterility in nulliparae, then why will they not do so equally in multiparae whose cervixes are already more or less damaged? Yet all the evidence accumulated at the birth control clinics, from thousands of cases, indicates that

pasteurized, and suggested that even Certified and Grade A milk should be similarly treated as a counsel of perfection in the interests of the public.

We have all seen cases similar to the following.

A few years ago a lady consulted a paediatrician about her child, who was going for a holiday on a farm. He told her that it was necessary for the child's milk to be obtained from the mixed milk of at least three cows, and essential that it be boiled before use. The reasons were explained to the mother. Upon arrival at the farm the mother saw a cow which she described as having a kind and pathetic face, and arranged for the milk from this cow alone to be given to her child. Unfortunately it was given raw, after all the injunctions to the contrary. Within four months the child was dying of generalized tuberculosis, although previously there had been no indications of this disease. The cow was killed and found to be riddled with tuberculosis.

The evidence in favour of all milk being pasteurized is overwhelming, and I have no doubt that at no distant date the sale of any milk other than pasteurized will be looked upon as a criminal offence, as it is a safe milk and its nutritive value is fully equal to raw milk.

It is the duty of every authority or other body responsible for the health of the people living within its area to consult the medical officer of health attached as to what procedure is essential, and I have no doubt that the medical officers of health, who have all the knowledge and experience necessary to form an unbiased judgment, would give a very decided lead in favour of universal pasteurization of milk. With tuberculosis so rife it is important that strong action should be taken immediately by all those responsible (including Government action) for the supply of pure and safe milk to the inhabitants of Great Britain. Hesitation should be unthinkable.—I am, etc.,

London, W.1, Feb. 21.

BERNARD MYERS.

Insulin-tannic-acid-zinc Suspension

SIR,—The observations of Drs. C. N. Jenkinson and K. J. G. Milne on the above new compound published in the *Journal* of February 19 (p. 380) call for a few remarks. They conclude (1) that the compound is unpleasantly painful to most patients, but (2) that otherwise it shows retarding qualities similar to those of zinc-protamine-insulin, and "can effectively replace zinc-protamine-insulin in the treatment of diabetic patients." With the first conclusion I am in painful agreement, as I injected an experimental tannic-acid-insulin preparation into myself about a year ago to my intense discomfort. With the second claim I cannot agree after a careful study of the details of the nine cases in Table I, which hardly support their conclusion but in my opinion contradict it. For instance, in Cases 1 and 2 no fasting blood sugars are given to show the retarding effect after twenty-four hours, and in Cases 3 and 4 the fasting blood sugar shows the prolonged effect of zinc-protamine-insulin to be greatly superior. Cases 5, 6, 7, and 9 are too mild to show any clear comparison, as the fasting blood sugar is nearly normal with all types of insulin; and in Case 8 the doses of insulin are insufficient to show any effect, and all the fasting blood-sugar concentrations are equally high. I regret to be so sweepingly critical, but I have considered all the nine cases. Moreover, a study of the blood sugar at three to six hours mostly shows the new compound to act more quickly and strongly than zinc-protamine-insulin. I believe my reading of the authors' figures to be fair. Protamine is cheap enough, and I doubt whether the point they make that tannic acid is cheaper still would count for much in their commercial price.—I am, etc.,

London, W.1, Feb. 21.

R. D. LAWRENCE.

After-effects of Modern Treatment of Carcinoma

SIR,—I was much interested in Mr. Percy Furnivall's description of the results of x-ray therapy as illustrated by his own personal experience (*Journal*, February 26, p. 450). I have often advised patients suffering from various forms of malignant disease to submit to x-ray treatment, and in a considerable proportion of cases the results, so far as the actual tumour is concerned, have been satisfactory. I have been dismayed, however, to note that all too often the general state of the patient after this form of treatment has been lamentable.

An early case of breast cancer in a woman in the late thirties was treated by surgery followed by repeated exposure to x rays. Two or three years after this treatment had ceased she presented the dried-up "wizened" appearance of a very old lady. She had been a particularly "alive" woman and strove frantically to keep in touch with her many interests, but her physical state proved too much for her and life became devoid of all interest. She lingered on for ten years, and then developed a tiny carcinoma in the shrunken remnant of the remaining breast. This was removed, but twelve months later there appeared many subcutaneous nodules and the patient died.

This case is an outstanding example of the devitalizing results which I have again and again seen following x-ray therapy, especially in cases in which repeated full doses of x rays have been administered. Radium beam therapy appears to be replacing to an increasing extent treatment by the insertion of radium, but I fear the effects of this method are likely to be as disastrous as prolonged x-ray therapy has sometimes been. My radiologist friends can tell me of no experimental work on animals which is being done with a view to discovering what effect on general well-being the exposure to repeated doses of x rays has on healthy individuals. I should be glad to know if any of your readers can give any information on this point. I feel sure that the best type of individual has little use for a life which is a mere existence, and if research should indicate that repeated exposure to x rays spread over a long period of time produces senility within a year or two, then probably this form of treatment should be discarded in favour of methods which get it "over and done with" quickly. It is known that ultra-violet rays produce senile changes, and there seems reason to fear that x rays do the same in a much greater degree.—I am, etc.,

Bradford, Feb. 26.

JAMES PHILLIPS.

Infantile Pyloric Stenosis

SIR,—Mr. David Levi, in his criticism (*Journal*, February 26, p. 486) of Dr. J. Vernon Braithwaite's communication on the treatment of infantile pyloric stenosis by antispasmodics (February 12, p. 334), would seem to have overlooked the fact that by the use of eumydrine or other antispasmodic, hospitalization of the infant, which, as he truly says, is fraught with no little danger, becomes unnecessary. Indeed, this to my mind is one of the great advantages of the eumydrine treatment. It is so simple that it can be easily carried out at home. It consists merely in the administration before the feeds, breast or bottle as the case may be, of the drug in an aqueous solution, in bulk amounting as a rule to no more than one teaspoonful.

I also think that Mr. Levi underestimates the effect of the eumydrine method of treatment. In my experience it is as good as any other, surgery not excepted. The last six examples of hypertrophic pyloric stenosis admitted

either by Mr. Harold Murphy, K.C., in his report, or by the Minister of Health in his recent letter to the Croydon Corporation. May one not add that most medical officers of health, when faced with such an epidemic, would welcome both the guidance and the support which they could obtain from such a committee?

Moreover, Sir, co-operation is not limited either in time or in direction. In any area there either is a co-operative spirit or there is not. The tragedy of Croydon was due to lack of co-operation and co-ordination not in one direction but in many. Do we want another Croydon? If not, then I suggest that it is the duty of all of us, both medical officers of health and general practitioners, to help to perfect the co-operation which would make another such tragedy impossible.—I am, etc.,

London, S.W.18, Feb. 28.

F. GRAY.

* The letter from the Ministry of Health to the Croydon Corporation will be found at page 530 this week.—ED., B.M.J.

Abortion and the Law

SIR,—In the recent discussion on "The Law relating to Abortion" (*Journal*, February 19, p. 408) Mr. Justice Humphreys stated that it was in 1837 that abortion was made a statutory criminal offence. This is not quite accurate. Two Acts of Parliament relating to abortion preceded the 1837 Act.

The first (43 Geo. III c. 58) was passed in 1803. By this Act the attempt to procure abortion on a woman quick with child by means of drugs was punishable by death, whereas if the woman were not quick with child the punishment was transportation or imprisonment, whether the attempt was made by drugs or instruments. There seems to have been a remarkable oversight, for the Act does not make it any crime to attempt to procure abortion on a woman quick with child by means of instruments. The first trial under this Act, known as Lord Ellenborough's Act, took place in 1811. The accused was charged with the administration of savin to a woman for the purpose of procuring abortion. He was acquitted. The next Act was passed in 1828 (9 Geo. IV c. 31). By this Act the offence was still a capital one if the woman were quick with child, but if she were not quick with child the crime was not punishable by death. Many pretty legal arguments took place over the exact meaning of the phrase "quick with child." This Act remedied the omission previously referred to.

Then followed the 1837 Act mentioned by Mr. Justice Humphreys, which altered the law in two important respects. There was now no distinction between women quick with child and women not quick with child, and the offence was no longer punishable with death. Finally the two Acts of 1861 and 1929 define the law on abortion at the present time. This last measure, the Infant Life Preservation Act, 1929, was passed to remedy a curious defect in our law, for while it was criminal to destroy a child by procuring abortion or to kill it directly after birth, Mr. Justice Talbot, in a case before him, held that it was no offence to cause the death of a child during the actual process of birth. The Act makes the procuring of abortion legal under certain circumstances—namely, that it is done to save the life of the mother and that the seventh month of pregnancy has been reached. This still leaves the main question of the legality of therapeutic abortion for preserving the life or health of the mother during the first seven months of pregnancy, or for preserving the health of the mother after seven months (for it is legalized only after seven months, and then only for

saving the life, not the health, of the mother), in an undecided state.

The law having defined certain circumstances under which it is legal to procure abortion, it may well be argued that, by implication, it may not be done under any other circumstances. Are we as safe from the hand of the law as Mr. Justice Humphreys suggests?—I am, etc.,

Hove, Feb. 20.

L. A. PARRY, F.R.C.S.

Oblique Osteotomy for Fracture of Neck of Femur

SIR,—I have read with interest the article by Mr. T. P. McMurray in the *Journal* of February 12 (p. 330), but I feel that some criticism is needed. Mr. McMurray describes the Smith-Petersen operation for the introduction of the Smith-Petersen pin. This is now out of date and has been superseded by other methods, one of the most popular being that of Mr. Ernest W. Hey Groves. I have had experience of this method in approximately one hundred cases. The three criticisms which Mr. McMurray levels at the Smith-Petersen operation can be considered in connexion with the Hey Groves method as follows:

(1) There is no operative shock with the Hey Groves method. The patient's general condition improves immediately the operation has been performed, and it can be carried out on patients up to 85 years of age without the slightest fear of complications. If patients can stand treatment at all they will stand this method. The time taken to operate is very short, and after it has been done several times the operator can manage with one x-ray only. (2) I have never seen the pin slip out when walking has begun. The date for the starting of walking is very important. People with decalcified bones should be kept in bed until there is bony union, although young patients with hard bones, between 15 and 40, can walk the next day. (3) In my experience disintegration of the small proximal fragment occurs only after an open operation when the capsule is opened and the blood supply to the head is further embarrassed. In none of my cases has it happened after operation by the closed method. Henderson's 25 per cent. of aseptic necrosis followed the open operation, using the Smith-Petersen incision.

In those cases in which the pin was correctly placed union took place in every instance. In those cases in which the pin was incorrectly placed—4 per cent.—the pin was removed and either reinserted correctly or else McMurray's osteotomy was performed. In cases of failure McMurray's osteotomy is of great value. In those cases which cannot be treated by the closed method because reduction cannot be obtained—this has occurred only twice in my experience—McMurray's osteotomy is performed. In my opinion the intracapsular fractures of the transcervical type are no longer a problem. It is much easier to produce perfect results in this type of fracture, by means of the Hey Groves technique, than it is in Colles's fracture in aged patients. There have been many discussions on this question of intracapsular fractures of the neck of the femur, and it would perhaps be advisable to leave the matter alone until surgeons have been able to collect sufficient cases to produce useful statistics.

Another argument in favour of blind intracapsular pinning is in regard to hospital beds. It would be impossible to treat these cases at hospital in plaster for three and a half months, and beds would not be available for such a length of time at any of the Bristol hospitals, since these fractures are numerous. In the Hey Groves method the patient can leave the hospital

the use of caps and chemicals has no tendency to induce sterility—often to the embarrassment of the clinic workers—and that not uncommonly cervices which when seen at the first examination were in a highly infected state clear up after the woman has been using a cap and chemicals for some months. Mr. Green-Armytage is the plaintiff in this case and the onus of proof lies on him. Without a control series of observations on nulliparous women who have used no contraceptives, and an estimate of the percentage of newly married couples (fertile and infertile) using contraceptives, he is expressing nothing more than a pious opinion. Information on this point is being collected by that most valuable body the Population Investigation Committee. We are fortunate in having Mr. A. C. Palmer as the chairman of the medical subcommittee of the N.B.C.A. and Mr. L. Carnac Rivett as a member. I may add that this subcommittee is not biased in favour of contraception, but was appointed in an attempt to safeguard the public, to investigate and evaluate contraceptive methods, appliances, and chemicals at present in use. The conclusions of this subcommittee are not merely conjectural but are based on direct clinical observation of thousands of cases and scientifically conducted experimental work. An effort is being made to arrive at the true facts without prejudice. Methods are submitted to controlled clinical trial; rubber appliances and chemical products are subjected to stringent tests for efficiency and harmlessness before they are placed on the list of approved goods. The subcommittee is at present engaged in an investigation of the effect of chemicals on the cervix, and would be extremely grateful for any relevant facts and figures which Mr. Green-Armytage might care to place at its disposal.—I am, etc.,

Crediton, Devon, Feb. 25. MARGARET C. N. JACKSON.

SIR.—My committee ask me to state that they have decided against publishing a detailed reply to Mr. Green-Armytage's statements about contraceptives. His assumptions appear to be too much a matter of opinion to be suitable for discussion in the Press. I am asked to remind your readers that our clinics are open to attendance by any medical practitioners, and that many thousands of case records are available for reference. The National Birth Control Association maintains that the teaching of contraception should be a matter essentially for the medical profession; and whilst not doubting that indifferent and harmful methods are sometimes employed by the public, it contends that our controlled methods in no way injure health or fertility. This conclusion is shared by all members of the association, including Lord Horder (president), Dr. C. P. Blacker, Mr. Aleck Bourne, Dr. Geoffrey Bourne, Professor F. J. Browne, Mr. Harold Chapple, Mr. C. Lane-Roberts, Sir Walter Langdon-Brown, Mr. A. C. Palmer, and Mr. L. Carnac Rivett.—I am, etc.,

M. A. PYKE,

69, Eccleston Square, S.W.1.
Feb. 28.

Secretary, National Birth
Control Association.

SIR.—It is regrettable that a question relating to the results of birth control in general should degenerate into an attempt to defend the proceedings of any particular society which exists for that proclaimed purpose.

Dr. Joan Malleon (February 26, p. 484) takes the extreme case of a recently married, pregnant woman, maintaining an unemployed husband, to justify the practice of immediate birth control on marriage; but does she really believe that equivalent justification exists in more than a very small fraction of the cases in which immediate birth control is applied? There are grounds for objection

to the insidious surrender of our racial strength to the short-sighted sympathies of birth control societies and their like, and to the profit-seeking activities of commercial companies.

The threat of war to an empty Empire and the economic difficulties which must arise during the shrinkage of our population are issues which ought to be realized now. The subject of birth control is one for national review and national policy, since it is nation-wide in prevalence and of Imperial concern. It is time for the control of birth control.—I am, etc.,

London, W.1, Feb. 27.

GEORGE H. ALABASTER.

SIR.—Surely it is unscientific to speak of "contraceptive measures" having this or that harmful physiological result without explicitly stating which measures were used and by which type of human subject. In 1923 (*Contraception, its Theory, History, and Practice*) I codified more than sixty physiologically, chemically, and physically different types of contraceptives, of many of which not less than hundreds of commercial brands exist. Many of these doubtless have the bad effects described by Mr. Green-Armytage, but it should not be forgotten that I laid down as the slogan of the pioneer birth control clinic—"Never put in the vagina what you would not put in your own mouth"—and hence the contraceptive measures used at the C.B.C. clinics do not have the bad effects attributed to "contraceptive measures," unspecified, by Mr. Green-Armytage.—I am, etc.,

C.B.C. Clinic, 108, Whitfield Street,
W.1, Feb. 23.

MARIE C. STOPES.

Co-operation

SIR.—It is very encouraging to find from Dr. Hugh Paul's letter in the *Journal* of February 26 (p. 480) that medical officers of health are giving practical consideration to the methods to be adopted if real co-operation is to be secured. Dr. Paul suggests that a consultative committee would be ineffective if summoned to assist the medical officer of health in an epidemic. This would certainly be the case if the committee met only on those unfortunate occasions; such a committee, somewhat overawed at its sudden importance, would be about as useful as the collection of "yes-men" that follow a Hollywood director and hang with bated breath on his dicta.

On the other hand, it must be evident to anyone who has considered the matter that a consultative committee, meeting whenever it was of advantage to have an exchange of views between the practitioners in an area and the public health officers, must be of the greatest value in securing the happy and successful development of the local health services. A committee, having gained in this way experience in times of peace, would find some useful part to play when war was suddenly declared on some local outbreak of disease.

Co-operation will not be secured merely by talking or writing on the subject; a little goodwill on both sides would soon see these local committees established.—I am, etc.,

London, W.10, Feb. 26.

HORACE A. NATHAN.

SIR.—Dr. Hugh Paul, in the *Journal* of February 26 (p. 480), suggests that a committee representing the general practitioners of a locality would be of no use in the presence of an actual epidemic of infectious disease. If we take the view, which Dr. Paul appears to hold, that a medical officer of health has nothing to learn from such a committee, then we must agree with Dr. Paul's suggestion. It seems, however, that this view is not accepted

Hyperventilation Attacks

SIR.—The hyperventilation attacks recorded by Drs. Russell Fraser and William Sargent in the *Journal* of February 19 (p. 378) recall to mind the case of a woman of 60 who suffered from "fainting fits" when a child.

Soon after the birth of her own child—she was then 35 years old—the developed attacks of tetany of her hands. When I first saw her four years ago I pointed out that her attacks only came on following hyperventilation, and I produced such an attack by forcing her to overbreathe. After that time the attacks became much less frequent. For the past four months I have prescribed acid, hydrochlor. dil., 5j t.d.s., and since that date she has had no further attacks, although previously these were occurring at roughly three-weekly intervals. The attacks were associated with emotional upsets. No attempt was made to deal with the emotional difficulties from the psychological side, and I believe suggestion may be ruled out by the failure of previous medicaments.

In view of the inability of Fraser and Sargent to obtain relief by acid administration I thought that this case might be worthy of report.—I am, etc.,

Ilford, Essex, Feb. 20.

R. N. C. SMITH.

Bug Destruction

SIR.—The article by Mr. S. A. Ashmore and Mr. A. W. McKenny Hughes on coal-tar naphtha for the destruction of bed-bugs in your issue of January 22 will be of great interest to all those connected with public health work. In a previous article on bed-bug control (*Lancet*, May 1, 1937) I made several criticisms of heavy naphtha. While it is now certain that heavy naphtha can be used with safety by the operator (apart from fire risk) and that it is successful in killing adult bugs and nymphs in exposed positions, attention must be drawn to the fact that it is far less toxic to eggs.

The following table shows the toxicity of heavy naphtha, conforming to the published specifications, to eggs laid by bugs reared at 73° F. in this laboratory. The eggs were exposed in wide glass tubes to the saturated air above heavy naphtha in air-tight desiccators. The number of eggs used for each test was approximately fifty and the temperature of fumigation 73° F. After exposure the eggs were removed and kept at the same temperature for observation.

Exposure Time to Saturated Air	Percentage Hatch	Percentage of Nymphs Alive after 18 Days
Controls	97	90
2½ hours' exposure	96	75
15 " "	38	17
24 " "	0*	0

* Six nymphs died on hatching.

When eggs were exposed to air saturated with heavy naphtha at 55° to 65° F. in a desiccator left in the laboratory a complete kill was not obtained even after twenty-four hours' exposure—a 7 per cent. hatch being obtained.

The conditions of test were undoubtedly in favour of the fumigant, as it would be impossible in practice to maintain such concentrations of vapour in dwelling houses. The concentration of naphtha (vol./vol. with air) which can be obtained at 60° F., according to Ashmore and McKenny Hughes in Table I of their article, is of the order of 0.20 per cent., and this was found by them to be lethal to all bugs exposed for twenty-four hours, and a complete kill was ultimately effected with a concentration of 0.10 per cent., although neither the number of insects used nor the temperature during the test was specified (Table II).

It is stated that the concentrations applied equally to eggs, but it is extremely doubtful if a concentration of 0.20 per cent. at 60° F., as estimated on samples of air taken from premises under gas, would be effective in killing eggs concealed behind wainscoting, since a 7 per cent. hatch was obtained under ideal conditions in a sealed desiccator at approximately this temperature after twenty-four hours' exposure. Even at a concentration of 0.25 per cent., obtained with the delayed-action sprinkler, only a small margin of safety is left, and would probably only be completely successful in killing those eggs laid in unconcealed places.

The fact that naphtha is far more effective against the adults and nymphs than against the eggs is contrasted with the behaviour of hydrogen cyanide, which is slightly more toxic to the latter. The belief that eggs were far more resistant than the other stages to hydrogen cyanide is due to the fact that they are often not so well exposed to the fumigant, being laid in concealed places and sometimes protected by cast skins, etc.

Field tests carried out by me with heavy naphtha in six badly infested houses in St. Pancras during June, 1937, have shown that when used in the amount stated—namely, 1 gallon per 750 cu. ft.—a 20 per cent. hatch was obtained from eggs in open tubes exposed to the full action of the vapour in different rooms for a period of twenty-six hours at a temperature of 65° to 70° F. In fairness it must be stated that the premises were in a very bad condition, but much time had been spent in making them as air-tight as possible. The delayed-action sprinkler was not at that date available, but the walls were festooned with blankets and hessian on to which the majority of the naphtha was sprayed.

Although several dozen bugs were collected from the floors of these houses, having dropped from behind the wall-paper above the skirting-boards during fumigation, only one recovered. However, when wall-fittings such as gas-bracket supports were removed live bugs were found behind. The fact that naphtha sometimes fails to kill bugs in such places suggests that in all cases the premises should be stripped.

One of the chief items of expenditure in bed-bug disinfection work is the cost of redecorating and repairing premises. In all contact insecticide disinfection, to be certain of killing all bugs with a single spraying loose wall-paper must be thoroughly stripped and all skirting-boards and picture rails removed or eased away from the walls. If this is unnecessary when using heavy naphtha it is an important point and may outweigh other disadvantages, such as the cost of preparing, sealing, and pre-heating. Although heavy naphtha is relatively cheap the cost of material will be considerable if the full dosage as recommended is to be adhered to—namely, 1 gallon per 750 cu. ft. (500 cu. ft. in furnished houses). In addition, another half-gallon or one gallon is to be sprayed by means of the delayed-action sprinkler on to the cotton screens. The total amount necessary may then become of the order of three to four gallons per room.

The table below gives the disinfection costs of six unoccupied houses in a terrace in St. Pancras. Each house consisted of three floors and a basement, with a total of eight rooms. The total time spent in the preparation of the premises—removing skirting-boards and some floor boards, stripping wall-paper, etc., sealing premises, and subsequent fumigation—was fifteen working days: 163 gallons of heavy naphtha were used—an average of twenty-seven gallons per house.

	£	s.	d.
Cost of naphtha at 2s. per gallon	16	4	0
Materials used for sealing of premises: matchboarding, gummed rolls, etc.	5	8	0
Equipment: pump, gas masks, torches, screening material, etc., 2½% of cost	3	6	0
Wages and expenses of three men for 15 working days	30	12	11
Hire of lorry	1	15	0
	£57	5	11

on the fourteenth day and in some cases need not be in hospital longer than three weeks from the date of admission. Cases can be treated in this way even when they arrive at the hospital with bed-sores, since early ambulatory treatment following the pinning operation allows the bed-sores to heal.—I am, etc.,

KENNETH H. PRIDIE,
Assistant Orthopaedic Surgeon,
Bristol Royal Infirmary.

Fracture Clinic, Bristol
Royal Infirmary, Feb. 24.

Ascorbic Acid in Urine

SIR,—In an interesting article by Dr. G. W. T. H. Fleming and Dr. T. E. Burrows (*Journal*, February 12, p. 333) on the relative efficiency of acetic and sulphuric acids for the preservation of the ascorbic acid excreted in urine, the conclusion is reached that because sulphuric acid rapidly destroys any ascorbic acid added to water or urine the use of sulphuric acid for clinical purposes is of very doubtful value. This would appear to be contrary to the findings of several workers who have carried out investigations on vitamin C excretion using sulphuric acid as a preservative and state that little or no loss of vitamin occurs when the urine is kept for twenty-four hours. My own experience has shown that the original reducing power of the urine can be better preserved by the addition of 2 per cent. sulphuric acid than by 5 per cent. acetic acid. In the following table taken from my notes it will be seen that in six experiments with sulphuric acid the amount of titrable substance remained fairly constant over a period of twenty-four hours (the slight increase in some specimens may be due to a gradual darkening produced in concentrated urines by sulphuric acid), whereas there was a marked decrease in this substance with 5 per cent. acetic acid. Each specimen of urine immediately after voiding was divided into two parts; 2 per cent. sulphuric acid was added to one part and 5 per cent. acetic acid to the other. Titration was carried out according to the method of Birch *et al.* (1933) using a microburette.

Specimen of Urine No.	Reducing Substance in mg. per cent.			
	Acetic Acid 5%		Sulphuric Acid 2%	
	After 1 hr.	After 24 hrs.	After 1 hr.	After 24 hrs.
1	3.1	2.0	4.0	4.4
2	3.4	2.1	4.5	4.4
3	3.0	2.0	4.2	4.5
4	2.5	1.9	3.4	4.2
5	1.8	1.2	2.3	2.3
6	2.5	1.4	3.1	3.1

Although it is doubtful whether the reducing substance estimated in urine treated with sulphuric acid is entirely a product of ascorbic acid, it appears reasonable to assume that for general diagnostic purposes the results are sufficiently reliable. There is no doubt, however, that when greater accuracy is desired the urine must be titrated immediately it is passed.—I am, etc.,

FREDERICK T. THORPE.
Wadsley Mental Hospital, Sheffield, Feb. 21.

SIR,—Drs. G. W. T. H. Fleming and T. E. Burrows, in their paper on a possible discrepancy in the estimation of ascorbic acid in urine published in the *Journal* of February 12 (p.333), raise questions which lie more in

the province of the analytical or bio-chemist. There are opinions expressed in the paper, however, which invite a more general criticism.

In an earlier part they state that "some workers appear to be aware of the destruction of ascorbic acid by sulphuric acid," and in the summary that "sulphuric acid has been shown to destroy ascorbic acid." Both statements are misleading in their assumption that sulphuric acid is the "destroyer." It is well known that ascorbic acid is rapidly oxidized in aqueous and in alkaline solutions to substances which do not reduce indophenol. The authors themselves have found that the loss of ascorbic acid in solution in water is 100 per cent. in twenty-four hours. Would they say, in this case, that water was the destructive agent? Surely the process involved is oxidation, aided in some instances by traces of copper in the water or organic fluids acting as a catalyst. Van Eekelen (1934) has found that the indophenol-reducing power of urine is actually increased by boiling with 5 per cent. sulphuric acid in an atmosphere of carbon dioxide for fifteen minutes. Later the efficacy of acetic acid as a preservative of ascorbic acid in urine is questioned, when Drs. Fleming and Burrows say "even with acetic acid there is such a destruction of ascorbic acid that it is quite obvious the results obtained will be of very doubtful value." Much clinical research has been done using this very method. Harris (1935) has already stated that the loss of ascorbic acid from urine, on the addition of 5 per cent. glacial acetic acid, is 20 to 30 per cent. in twelve to fifteen hours, but is of opinion that "this loss is generally of little practical significance." There are other possible channels of excretion—sweat and faeces—of ascorbic acid, which his method does not take into account, and he makes no claim that the urinary output of ascorbic acid is a measure of the total metabolism of vitamin C in the body. An average finding, using Harris's technique, is that a healthy adult excretes 35 mg. of ascorbic acid in the urine in twenty-four hours. In the twenty-four hours following the administration of a test dose of 700 mg. of ascorbic acid this will rise to 450 mg. At the other end of the scale the corresponding figures for an adult with scurvy might well be 5 mg. and 7.5 mg. Let the authors add their own average loss of ascorbic acid in presence of acetic acid (20 per cent.) to the above, and they will see that the results are still of the same comparative order of values. The advantage of the test dose is that it magnifies the relatively small differences seen in the "resting-levels," especially when these are low or sub-normal. Thus the 20 per cent. loss of ascorbic acid in urine preserved with acetic acid becomes of less importance.

A recent investigation by Scarborough and Stewart (1937) has shown that acid hydrolysis increases the indophenol-reducing power of urine, and this increase is due to the production of extra ascorbic acid, which is present in the urine partly in a reduced form, partly as dehydro-ascorbic acid, and as hydrolysable derivatives of these substances. Some degree of hydrolysis on the part of sulphuric acid may possibly explain the differences that Drs. Fleming and Burrows have found between their results with sulphuric acid and those obtained with acetic acid.—I am, etc.,

R. HARDY.
London, S.E.14, Feb. 20.

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Obituary

A. DOUGLAS BIGLAND, M.D., F.R.C.P.

Physician, Liverpool Royal Infirmary

We regret to announce the death on February 20 of Dr. Douglas Bigland, who had been honorary physician to the Liverpool Royal Infirmary since September, 1934.

Alfred Douglas Bigland, son of the late Alfred Bigland, M.P., was born at Birkenhead in 1887, and from Birkenhead School went to Caius College, Cambridge, taking his B.A. in the Natural Sciences Tripos. He studied medicine at Liverpool, graduating M.B. and Ch.B. Liverp. in 1912, and M.D. soon afterwards. He obtained the M.R.C.P. Lond. in 1919, and was elected F.R.C.P. in 1935. He had been house-physician at the Liverpool Royal Infirmary, and was appointed medical tutor and registrar in 1914, but after the outbreak of war he joined the R.A.M.C. with a temporary commission and served in France, at Suvla Bay, and in Egypt. On returning to civil life in Liverpool Dr. Bigland was appointed lecturer in clinical medicine at the University, and built up a considerable practice. For some years he was honorary physician and medical officer in charge of the neurological department of the David Lewis Northern Hospital, and before his promotion to the senior visiting staff at the Royal Infirmary, caused by the retirement of Dr. J. C. Matthews, he had been honorary physician to out-patients. His other appointments included those of honorary consulting physician to the Lancashire Mental Hospital, Rainhill, and to the Home for Epileptics, Maghull. Dr. Bigland was an active member of the Liverpool Medical Institution and of the Association of Physicians of Great Britain and Ireland, and contributed several papers to the *Lancet* and the *British Medical Journal*. He acted as sectional editor of the Tropical Diseases Bureau, covering the subject of pellagra. In later years he became very interested in asthma, and established a flourishing asthma clinic at the Royal Infirmary.

Dr. Robert Coope writes:

The death of Dr. Douglas Bigland at the age of 51 came after many years of chronic illness. For the past year it was clear to his friends that he was seriously ill, and in the last six months he was largely confined to his house, hoping that he might recover sufficiently to get back to his hospital and consulting practice. In 1923 he became assistant physician to the Liverpool Royal Infirmary, acting as junior colleague first to the late Dr. John Owen and later to Professor John Hay. The rigours of his war service brought on an illness which was ever afterwards to hamper his career, prevent him from developing his full powers, and by its interruptions to his consulting work place him in a position of insecurity and finally cause his death. In 1930 his first wife, Dr. Phoebe Powell Bigland, died after a long illness; shortly after he himself fell ill again, and he had to spend the best part of two years lying on his back. He returned to work again, and in 1934 was elected to a full physicianship at the Royal Infirmary.

He was a most lovable person. *Souffrir passe; avoir souffert ne passe jamais*; his suffering refined and mellowed him to a rare gentleness, and to the end he retained a brave, gay, and lovely spirit. He had learned to enjoy and treasure what he felt were the important things—to do his work to the best of his ability, to earn the gratitude

and confidence of his patients, and to possess the respect and friendship of his students and colleagues. He had long made his peace with the limitations which his illness forced upon him; he had a grand courage to go on as long as ever he could and to accept the fact that he could not do all he wished to do. He was a sound clinician, proud to follow in the clinical tradition of his old teacher, Dr. John Hill Abram, whom he often quoted. To him the patient always came first, and he deliberately made time for those little personal touches which made his patients feel that while he was with them his care and thought were entirely for them individually. He was a good teacher, simple and direct. Perhaps he was at his best at his hospital ward rounds, for in spite of his serious sense of responsibility to patients and students he had a great sense of fun, which bubbled up to the delight of patient, nurses, and students alike. But the peals of merriment which at times interrupted the decorum of a formal ward visit brought confidence to the patient and usually rammed home for the student some fundamental piece of clinical knowledge. A little over three years ago he married again, and to his wife and the two daughters of his first marriage goes out the sympathy of his many friends.

DENIS A. SHEAHAN, M.D., M.Ch.

Dr. Denis A. Sheahan was born at Drinagh, Buttevant, Co. Cork, in 1861, the eldest son of Timothy Sheahan. He studied medicine at the Queen's College, Cork, and at Dublin, and obtained the degrees M.D., M.Ch. of the Royal University of Ireland in 1884 and the M.A.O. in 1885. He practised for a short time at Oswestry in Shropshire and later in London. In 1888 he was appointed medical officer to Portsmouth Dockyard, and set up in practice for himself in Commercial Road in the city, and by assiduous attention to his professional duties he quickly established a very extensive practice and remained there for nearly forty-five years, retiring in 1931. During the time he was in Portsmouth he was well known throughout the city for his great kindness to his patients, and to the citizens in general for his uprightness and high sense of honour. He gave very freely of his services, and his zeal for the welfare of his patients and his capacity for taking pains earned for him the esteem of all those who sought his aid and advice. He truly never spared himself, being constantly—both by night as well as by day—at the service of those who needed him. Dr. Sheahan joined the British Medical Association fifty-one years ago, and was an active member of the Portsmouth Division. He represented the Southern Branch of the Association on the Council from 1918 to 1924, and acted as representative in the Representative Body from 1915 to 1924, his work and energy in this capacity being much appreciated by the members of the executive and by his colleagues in the Division. He was medical officer for the prevention of cruelty to children for many years, and in this work he took much interest, his love and his sympathy for little children being a great stimulus in helping him to alleviate the sufferings of the less fortunate among them.

Dr. Sheahan (writes a colleague) had great power as a raconteur; his native wit and readiness in repartee on many occasions caused much amusement to those with whom he came in contact. He was a keen student of Nature, and was frequently to be seen during a few leisure hours on a Sunday afternoon strolling in the country lanes or in the fields. It is perhaps difficult to imagine the pleasure and the ecstasy which he derived from observing the workings of the bee or the butterfly, or the

The foregoing figures do not take into account the cost of technical supervision of the work.

There is no doubt that the dilapidated state of the houses was the chief reason for the high cost of their disinfection, since a considerable time was spent in rendering them relatively gas-tight. Although the cost of naphtha was a considerable item in the expense the labour cost is also very considerable, and it would be of great value to public health authorities to be given detailed costings of actual disinfections by the naphtha process.

There is no doubt that the heavy naphtha process is a much safer method of disinfection of vacated properties than hydrogen cyanide. On the other hand, it cannot be applied to occupied dwellings, particularly tenements tenanted by several families. In such cases an efficient contact insecticide, if properly applied by an electric or other suitable sprayer, can be used with complete safety and success. It is, however, important that the insecticide used should not only kill adults and nymphs but should also be highly effective as an ovicide. Practical experience has shown that the process is very economical in time and material, and, above all, thorough disinfection can undoubtedly be achieved.—I am, etc.,

J. M. HOLBORN, B.Sc., F.R.E.S.

Jeyes' Laboratories, Plaitow,
E.13, Feb. 14.

Otitis Externa

SIR,—I read with interest the article on "hot-weather ear" by Flight Lieutenant George Morley in the *Journal* of February 19 (p. 373). During fifteen years of practice in Hong Kong I came across many cases of otitis externa caused by *B. pyocyaneus*, often as a result of bathing in sea water which was contaminated by sewage. I found that treatment with an autogenous vaccine alone, without any local application, cleared up most of these cases. In this condition it is often difficult to introduce a preparation into the ear on account of the extreme swelling, which may completely occlude the meatus.—I am, etc.,

London, W.1, Feb. 22.

J. C. MACGOWN.

Correct Footwear

SIR,—I am surprised that none of your recent correspondents has drawn attention to the fact that practically the whole range of deformities and disabilities of the feet seen in adult life, and often present in aggravated form in women patients, are to be discovered on systematic examination of young children's feet. Routine examination in toddlers' clinics of infants from the age of 2 upwards has disclosed conditions which undoubtedly are due to the wearing of incorrect shoes at this age and are not self-correcting but generally escape notice unless looked for, because of the absence of associated discomfort when the feet are still very young and pliant.

School children's feet (examined barefoot) confirm the existence and persistence of these deformities, and the fact of their prevalence, though complaints of pain and weakness continue to be rare during school life. The earliest and commonest premonitory defect is a deflection outwards of the terminal phalanx of the great toe (produced by too short shoes or shoes with a too rounded toe), and the mechanism which subsequently produces ingrowing toenail, hammer-toe, overlapping outer toes, hallux valgus, spreading of the anterior arches, and corns or blisters, in the young child, is quite clear to those who look and think the matter out. Valgus heel and flat-foot proper may follow from other defects in the type of shoe used or from a combination of bad shoeing with other conditions.

Appearance and efficiency demand that such a widespread departure from perfect form and functioning should

not be left to take its chance amongst the ills to which we become accustomed in "civilized" life. It is obviously useless to tackle a problem of this kind by concentrating on the adult, and I would heartily support those who say that it can only be put right by providing correct lasts and fittings for the generality of the population by willing co-operation of our own profession with the shoe-producing trade. It is we who have stood by and let deformities develop, not seeking to educate the manufacturers on fundamental points, and it is we—not the vain of either sex—who must bear the responsibility if the conditions causing deformity are allowed to continue. Let us combine and secure for the coming generations "physically fit" feet by applying our scientific knowledge to the care of the feet from babyhood.—I am, etc.,

London, S.W.1, Feb. 22.

MARGARET EMSLIE.

Early Diagnosis of Pulmonary Tuberculosis

SIR,—According to Dr. Geoffrey Marshall (*Journal*, December 4, 1937, p. 1103), "When the patient comes to the specialist it is usually because there has been some conclusive symptom, or because an examination of the sputum or an x-ray photograph of the chest has established the diagnosis." To the general practitioner and those less conversant with the study of radiology the final words of such a statement might be rather misleading; and I feel sure that what was implied must have been: "... some conclusive symptom, or because an examination of the sputum together with an x-ray examination of the chest has established the diagnosis." There is no question that an x-ray examination is a most essential link in the chain of clinical evidence, but an x-ray film can in no way be considered a photograph. If it were so many of our difficulties would be at an end. Dr. Geoffrey Marshall agrees that a lesion found during x-ray examination of the chest should immediately indicate the necessity for further investigations to prove the existence of the tubercle bacillus as the causative organism, and that a diagnosis based on radiology alone is, to say the least, most unwise. Yet every radiologist is familiar with the question—"Is it tuberculosis?" I consider that the most significant remark in Dr. Marshall's address is: "The wise physician will view and discuss these appearances with the radiologist; the wise radiologist will leave the responsibility of diagnosis to the physician." To this I would add "and to the pathologist."—I am, etc.,

Sydney, Australia, Jan. 20.

D. G. MAITLAND.

Pure English

SIR,—Feeling certain qualms for previous frequent use of the anomalous word "sympathicolytic," I recently took to using what must seem to etymological analysts the more correct form—namely, "sympatholytic." I find that this has been criticized. As the clinician has an interest in the term as well as the physiologist, I hope you will permit me to attempt to justify the use of the shorter word. It is a compound of three Greek words, *σῖν*, *πάθος*, and *λύσις* (anglicized lysis). The French use the word *sympatholytique*. Taking the root "patho-" of the middle word they logically add the suffix at once. Sympathetic in French nomenclature is *sympathique*, and consequently they with more reason than the English might have inserted an *ico* or *ique* between root and suffix. Where does *ico* come from in the English compound? If necessary to make an insertion let it at least be *etico*.—I am, etc.,

Cork, Feb. 18.

D. T. BARRY.

Medical Notes in Parliament

In the House of Lords on March 1 the Blind Persons Bill and the Population Statistics Bill were read the second time. The Poor Law (Amendment) (No. 2) Bill passed through committee, and the National Health Insurance (Amendment) Bill was brought from the Commons and read a first time. On the same day Lord Strabolgi introduced a Bill for the registration of hairdressers and to regulate the practice of hairdressing, and it was read a first time.

The Parliamentary Medical Committee met on March 1, Sir Francis Fremantle in the chair. The committee agreed to ascertain when the Ministry of Health Estimates would be discussed and to discover whether a whole day could be given to a debate on the health aspects of this Vote. The committee also considered an inquiry to learn whether the Minister of Health would institute a financial inquiry into the claim by the dental profession that an extension of dental treatment, especially of adolescents, would repay the Government.

The Conservative Parliamentary Agricultural Committee, meeting at the House of Commons on March 1, discussed the policy of the British Medical Association on milk. The committee thanked the Minister of Agriculture for his statement on the advertisements of the B.M.A. regarding milk pasteurization. According to a statement authorized by the committee, Mr. Morrison had characterized these advertisements as a distortion of the facts. It was stated to the committee that the Association's advertisements still appeared in certain journals and in certain milk shops, and that the Minister should be asked what further corrective measures could be taken. Professor Basil Buxton of the Royal Veterinary College then addressed the committee on the recent outbreak of foot-and-mouth disease. He remarked on its virulent character, and said at one time there seemed a likelihood that the disease might become endemic, with similar disastrous results to those on the Continent. Britain had been spared that calamity. He supported the policy of slaughter.

The second reading of the Increase of Rent and Mortgage Interest (Restrictions) Bill, which proposes to modify the rent restrictions on some classes of houses, was down for second reading in the House of Commons on March 2, and the committee stage of the Housing (Financial Provisions) Bill was set down for the following day.

Health and Medical Services in the West Indies

On February 23 the House of Lords debated the conditions in the West Indian colonies. During the discussion Lord OLIVER said the infant death rate in Barbadoes was now rather better because infant clinics had been set up and the people fed their children more sensibly. Barbadoes and "all those places" were riddled with infantile paralysis, which was simply a poverty disease. Earl FORTESCUE, replying for the Government, said the main deficiencies in the nutrition of the West Indian labouring classes were in animal proteins and vitamins, and the main reasons were poverty and ignorance. Much could be done by propaganda and instruction in schools to dispel the ignorance.

During the discussion by the House of Commons in Committee of Supply, on February 28, of the Vote on Account for the Civil Estimates Mr. ORMSBY GORE said that the whole organization of the medical department in Trinidad had got to be improved, and improved quickly. It was impossible to allow doctors who were carrying out their duty to the State of insisting on the standards laid down by the State with regard to housing and sanitation to be at the same time in private practice and in receipt of private fees, either from employers or anybody else. He would be accused of forcing

D.P.H. men and the like on the Colony, but he was determined to do it. It was essential that the major recommendations of the Commission's report should be carried out.

Dental Health of the Community

On February 23 at the House of Commons the Health and Housing Committee of Conservative Members received a deputation on the dental condition of the people. It was led by Mr. B. E. Astbury, general secretary of the Charity Organization Society, and by Mr. Grant of the National Dental Aid Fund. Mr. ASTBURY said applications to the Charity Organization Society for dental treatment had increased in a few years by 60 per cent., but no public appeal had been practicable. Proper dental care could save much of the £2,000,000 bill for drugs, but the Ministry of Health said no further money was available for such purposes. Mr. Astbury proposed that, as a beginning, there should be a thorough dental inspection before the entry of a boy or girl into employment insurance benefit. He said much social work, such as the maintenance of rheumatism clinics, was made necessary by neglect of teeth. He held that more should be spent from the national health insurance funds on dental fitness, and he pointed out that under the national physical fitness scheme nothing was to be spent on teeth.

Mr. GRANT said three-fourths of the industrial population had dental defects. The Prudential Society said that half the sickness of the industrial population—especially rheumatism, tuberculosis, and cancer—was due to teeth. He wished dental treatment to be continued after school.

Scottish Voluntary Hospitals

On March 1 Mr. ELLIOT, replying to Mr. Kennedy, said he was aware that some of the Scottish voluntary hospitals had financial difficulties, but there was no evidence that the voluntary system as a whole was unable to meet its commitments. The many important and difficult problems involved in the report of the Committee on Health Services, published in 1936, were being carefully examined, but he was not in a position to make a statement. Replying to Mr. Gallacher on the same date Mr. Elliot said no request for financial assistance from the Buckhaven Hospital, Fife, had yet reached him. There was no provision under which he could give assistance towards its maintenance.

Nutrition of the South African Native

Mr. MACDONALD, replying to Mr. Leach on March 1, said he had seen a Press report of the evidence given by Dr. E. H. Cluver, deputy chief health officer of the Union, to the Native Labour Committee in South Africa that three-quarters of the native population was underfed and that tuberculosis was increasing. Active steps were being taken to improve the diet of the natives in the High Commission Territories, such as an extensive scheme in Basutoland to promote the cultivation of vegetables, and in Bechuanaland the expenditure of large sums of money to improve the water supplies and the teaching of the value of green foodstuffs. The question of nutrition in these Territories was being examined by the committee of the Economic Advisory Council appointed to advise on nutritional matters in the Colonial dependencies generally. The position with regard to tuberculosis, which was closely linked with the problem of nutrition, was being carefully watched.

Rehousing of Tuberculous Persons.—Miss WILKINSON, on February 24, asked the Minister of Health to consider making provision in the new Housing Bill for a special subsidy to local authorities for the rehousing of persons suffering from tuberculosis who lived under housing conditions prejudicial to their health. Sir KINGSLEY WOOD answered that under existing Housing Acts local authorities could provide houses for persons suffering from tuberculosis. Any houses so provided obtained the benefit of the existing subsidies. In addition, the authorities might grant rebates from rent in suitable cases. He did not consider any special subsidy necessary.

swallow or the stoat. Indeed one felt of him that he was thus "never less alone than when alone" observing and meditating on the beautiful works of the Creator so wonderfully portrayed. He died at his home in Portsmouth on February 3, and in accordance with his lifelong wish his remains were conveyed to Ireland, and he was buried in the churchyard at Lisgriffin, Buttevant.

We much regret to announce the death of Dr. J. F. WALKER of Southend-on-Sea, who among many activities in the British Medical Association, both local and central, was chairman of the Charities Committee at headquarters for ten years. An obituary notice will appear later.

The Services

THE KEOGH BANNER

Ceremony at R.A.M. College

An interesting ceremony took place in the Library of the Royal Army Medical College on February 18 on the occasion of the unveiling of the Banner and Crest of the Knight Grand Cross of the Order of the Bath which had been bequeathed to the College by the late Sir Alfred Keogh.

The Director-General (Lieutenant-General Sir James Hartigan, K.C.B.) welcomed the assembly to the unveiling by Lady Keogh of the Banner bequeathed by her distinguished husband, which had until recently hung in the Henry VII Chapel in Westminster Abbey. It was particularly appropriate that the Banner should find its resting-place in the College, as it was largely due to the foresight and initiative of Sir Alfred that the College was first established. It was unnecessary to refer in any detail to Sir Alfred Keogh's career, but he would venture to express the opinion that to no other person did the corps owe so much. (Applause.) He was Director-General first, from 1905 to 1910, a time of great activity in the reorganization of the Army. During that period the College was built and opened, and postgraduate teaching was introduced into the Service; the Army School of Hygiene was first established, and the Territorial Army Medical Service was brought into being. His second period of office was during the great war, and it was a fact now recognized by all that both the Army and the nation were fortunate in having at the head of their Medical Services in that period an officer of such outstanding administrative ability. It was fitting, Sir James Hartigan continued, that they should honour a great man, and he would like to assure Lady Keogh that the memory of her most distinguished husband was held in the highest esteem by all ranks of the Royal Army Medical Corps. They rejoiced to think that the new barracks at Aldershot had been named the Keogh Barracks.

Lady Keogh pulled a silken cord revealing the Banner, charged with the late Sir Alfred Keogh's Coat of Arms—Or, a lion rampant, gules, surmounted by his crest, the whole being hermetically sealed in a stout oak frame with plate glass. Lady Keogh after the unveiling said: "Just before my husband died he told me that he wished his banner to go to this mess. I hope that it will remind you and future generations of all he did for his corps. From the time he was made a member of the Reorganization Committee in 1901 he never ceased to use all his energy and the whole force of his character to helping to make the Royal Army Medical Corps into a thoroughly scientific and efficient branch of the Army, and it is only recently, since I have been going through old letters and papers, that I realize what an uphill and arduous task he had—at any rate during his first years at the War Office. He never spoke of his work at home. He never spared himself, and he was completely without

personal ambition; but he thought no honour too great for the corps of which he was proud and in which he had great faith. Just before he died he said: 'I loved the soldier—he is the best fellow in the world, and I have done my best for him.' He said what had been the leading principle of his life. I wonder if any man could have faced that terrible war if he had not felt certain that if he were wounded or ill he would have all the skill and care that modern medical science could give. I am happy to think that my husband was at the head of that humane and courageous body of men who, as a dear friend of his wrote, alleviated and repaired the damage of war."

The Commandant (Major-General W. P. MacArthur, C.B.) accepted the Banner and Crest on behalf of the Royal Army Medical College and thanked Lady Keogh for unveiling the Banner: "An act which makes the ceremony a memorable occasion to us all."

MENTIONS IN DISPATCHES

The names of Major-General N. H. Hamilton, C.B., C.I.E., C.B.E., D.S.O., I.M.S., Colonel R. E. U. Newman, O.B.E., M.C., late R.A.M.C., Lieutenant-Colonel R. K. Mallam, O.B.E., R.A.M.C., Lieutenant-Colonel P. J. Ryan, M.C., R.A.M.C., Lieutenant-Colonel S. Arnott, R.A.M.C., Major J. D'A. Champney, R.A.M.C., Major T. W. Davidson, R.A.M.C., Colonel A. A. McNeight, I.M.S., Lieutenant-Colonel R. N. Khosla, I.M.S., Captain G. K. Graham, I.M.S., Captain M. M. Mansfield, I.M.S., Captain V. M. Albuquerque, I.M.S., Captain M. G. Leane, I.M.S., Captain R. B. Davis, I.M.S., and Captain T. Kapur, I.M.S., have been brought to notice by His Excellency the Commander-in-Chief in India for distinguished services rendered in connexion with the operations in Waziristan, North-West Frontier of India, January 17 to September 15, 1937.

The names of Major D. G. Sukumar, I.M.S., Captain W. F. Cooper, I.M.S., and Lieutenant P. W. Suraj, I.M.S., have been brought to notice by His Excellency the Commander-in-Chief in India for distinguished services rendered in connexion with the operations in Waziristan, North-West Frontier of India, November 25, 1936, to January 16, 1937.

Universities and Colleges

UNIVERSITY OF OXFORD

Miss Jean Orr-Ewing, B.M., B.Ch., has been appointed to a Tutorship in Natural Science at Lady Margaret Hall.

UNIVERSITY OF LONDON

At a meeting of the Senate held on February 23, Mr. R. S. Pilcher, M.S., F.R.C.S., was appointed as from October 1 to the University Chair of Surgery tenable at University College Hospital Medical School.

The title of Professor Emeritus of Pathology in the University was conferred on Dr. A. E. Boycott, F.R.C.P., F.R.S., formerly Graham Professor of Pathology at University College Hospital Medical School.

Mr. Herbert Lightfoot Eason, M.D., M.S., F.R.C.S., Principal (late Vice-Chancellor) of the University of London, Professor Edward Mapother, M.D., F.R.C.P., F.R.C.S., Medical Superintendent and Professor of Psychiatry, Maudsley Hospital, and Mr. Clifford Sidney White, M.D., F.R.C.P., F.R.C.S., F.C.C.O.G., Senior Obstetric Surgeon, University College Hospital, were elected to the Fellowship of University College, London.

A special University Lecture in physiology on "Some Remarks on Vestibular Physiology" will be given at University College, Gower Street, W.C., by Dr. A. P. H. A. D. Kleijn, professor of rhinology, laryngology, and otology in the University of Amsterdam, on Tuesday, March 15, at 5 p.m. The lecture, which will be delivered in English, has been arranged under a scheme for the exchange of lecturers between England and Holland. It is addressed to students of the University and to others interested in the subject, and will be illustrated with lantern slides. Admission is free, without ticket.

EPIDEMIOLOGICAL NOTES

Diphtheria and Scarlet Fever

There has been a decided decline in the incidence of both scarlet fever and diphtheria for all five countries from which returns of notifications are made, with the single exception of scarlet fever in Scotland, where notifications rose from 471 in the previous week to 490 in the week under review. The chief increases were found in Edinburgh, where 43 (33) cases were notified during the week under review, Renfrew county 18 (7), Lanark county 22 (11). The figures in parentheses denote the numbers notified in the previous week. During the week there were in Scotland no deaths from scarlet fever.

Measles

During the week under review deaths in the 125 great towns numbered 31 compared with 40 in the previous week, the principal towns affected being Greater London 6 (7), administrative county of London 5 (6), Liverpool 4 (15), Manchester 3 (6), Bristol 1 (2). The figures in parentheses denote the deaths in the previous week. During the week 1,551 cases were reported from the L.C.C. elementary schools, compared with 1,417 in the previous week. The average daily admissions to the L.C.C. fever hospitals were 61, compared with 53 for the previous week, and the number of measles patients in the L.C.C. fever hospitals on February 25 was 1,361, compared with 1,168 in the previous week. Details of notifications are available for Bermondsey 25, Stepney 34, Shoreditch 2. Particulars of the conditions of notification in the London boroughs where compulsory notification is in force were given on this page in last week's issue.

In Scotland notifications of measles rose from 1,551 to 1,691, while the deaths for the whole country declined from 20 to 15. Increases of notifications of measles were chiefly seen in Glasgow 1,345 (1,245), in Dundee 47 (38), in Paisley 74 (44); while decreases were noticed in Edinburgh 102 (121), Aberdeen 8 (10). The deaths from measles for the week were: in Glasgow 12, Edinburgh 2, and Dundee 1, compared with 17, 2, and 0 respectively in the previous week. In Northern Ireland the number of measles cases notified declined from 617 to 384; the figures for Belfast were 362, compared with 577 in the previous week. There were 20 deaths in Belfast, scattered over the majority of the urban districts. During the week there were 2 deaths from measles in Dublin.

Corrigenda

In the Registrar-General's weekly return No. 7 certain corrections are made of the figures given in the previous week's returns. For the week ended February 12, 1938, the notifications for England and Wales should read: cerebrospinal fever 33, diphtheria 1,872, dysentery 215, encephalitis lethargica 1, enteric fever 71, ophthalmia neonatorum 101, acute primary and influenzal pneumonia 1,129, acute polio-encephalitis 1, acute poliomyelitis 6, puerperal fever 6, puerperal pyrexia 204, relapsing fever 1, scarlet fever 2,426.

The seventeenth meeting of the well-known society entitled Les Journées Médicales de Bruxelles will be held from April 16 to 20 in order that on the last day the members of this congress may be able to join in the celebrated Floralies Gantoises. Besides the usual scientific discussions there will be an international exhibition of science and art with special reference to their applications in the practice of medicine, surgery, pharmacy, and public health. The fee for participation has been fixed at 100 francs, and for ladies 50 francs. The programme includes a banquet, a gala, and an equestrian display; special social events are being arranged for ladies. More detailed information may be obtained from the general secretary of the congress, Dr. René Beckers, Rue Belliard 141, Brussels.

Medical News

The eleventh British Congress of Obstetrics and Gynaecology will be held in Edinburgh on April 4, 5, and 6, 1939. All those desirous of reading papers are asked to communicate at an early date with the senior local secretary, Dr. E. Chalmers Fahmy, 7, Chester Street, Edinburgh, 3.

Lord Horder will deliver an address on "Human Reactions to Noise" at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Tuesday, March 8, at 5.30 p.m.

Professor John MacMurray will deliver a lecture on "A Philosopher's View of Modern Psychology" at the next meeting of the Medical Society of Individual Psychology at 11, Chandos Street, W., on Thursday, March 10, at 8.15 p.m. Visitors are welcome.

Mr. F. W. Gamble will deliver the Harrison Memorial Lecture on "Facing Realities" before the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Tuesday, March 8, at 8.30 p.m., and will receive the Harrison Medal which is awarded biennially to commemorate Colonel E. F. Harrison, a distinguished analytical chemist who was appointed Director of Chemical Warfare in 1918. Colonel Harrison conducted, on behalf of the *British Medical Journal*, the analyses of a number of secret remedies, the results of which were published in these columns at intervals from 1934 to 1912. The analyses were later reprinted by the British Medical Association in book form under the titles of *Secret Remedies* (1909) and *More Secret Remedies* (1912). Both volumes have been out of print for some years.

A symposium on "Industrial Disease," arranged by the London Jewish Hospital Medical Society, will take place at the London Jewish Hospital, Stepney, Green, E., on Thursday, March 10, and will be opened by Dr. H. B. Morgan, Mr. D. C. Norris, and Mr. J. L. Smyth. The president, Professor Samson Wright, will take the chair. Tea will be served at 3.15 p.m.

An address entitled "The Doctor in the Home" will be given to senior students of the twelve medical schools in London and to those who have qualified in the last two years by Sir Kaye Le Fleming, M.D., Chairman of Council of the British Medical Association, on Tuesday, March 8, at 5.30 p.m., in the Great Hall of B.M.A. House, Tavistock Square, W.C. Tea in the Members' Lounge from 5 to 5.25 p.m. A film illustrating the work of the Association will be exhibited at 5.15 p.m., and after the address there will be a "talkie" film dealing with physical fitness education, a subject to which Sir Kaye will allude.

The next meeting of the German Pharmacological Society will be held in Berlin from April 23 to 28 under the presidency of Professor Flury of Würzburg. The subjects for discussion are local anaesthesia, cancerogenic substances, coffee and caffeine. Further information can be obtained from the Pharmakologisches Institut, Dorotheenstrasse 48, Berlin, N.W.7.

A sessional meeting of the Royal Sanitary Institute will be held at Hereford Town Hall on Friday, March 11, at 5 p.m., when discussions will take place on "Changing Values in Public Health Administration," to be opened by Dr. A. Middleton Brown, and on "Some Problems of Rural Housing," to be opened by Mr. H. F. Long.

A meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, March 18, at 8.30 p.m., when Dr. J. E. Wilson will read a paper on "How to Breathe." The Fever Hospital Medical Service Group of the Society will meet at 1, Thornhaugh Street, W.C., on Friday, March 25, at 4 p.m., when Dr. V. D. Allison and Dr. R. Cruickshank will open a discussion on "The Spread of Streptococcal Infections as Ascertained by Type Determinations."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended February 19, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	41	5	6	5	2	45	11	9	6	—		
Deaths		2	1				5	2				
Diphtheria	1,590	179	261	44	35	1,156	167	234	53	33	1,208	185
Deaths	39	3	8	1	3	35	2	6	3	—		
Dysentery	185	63	71	—	1	59	8	26	—	—		
Deaths												
Encephalitis lethargica, acute	3	—	—	—	—	10	—	—	—	—		
Deaths							1					
Enteric (typhoid and paratyphoid) fever	17	3	2	5	1	30	—	8	5	—	30	—
Deaths	2	—	—	—	—	—	—	—	—	—		
Erysipelas			74	5	4			71	10	5		
Deaths		3					4					
Infective enteritis or diarrhoea under 2 years	55	17	5	3	2	39	11	7	4	2		
Deaths												
Measles			1,691		384*			84		1		
Deaths	31	5	15	2	22	9	—	1	—	—		
Ophthalmia neonatorum	108	9	35		—	93	6	36		—		
Deaths												
Pneumonia, influenzal§	1,073	94	13	21	10	1,881	86	66	57	2	1,884	190
Deaths (from Influenza)	42	4	2	2	—	423	33	49	37	14		
Pneumonia, primary			247	12				254	10			
Deaths		25		30	21		19		38	9		
Polio-encephalitis, acute	—	—	—	—	—	—	—	—	—	—		
Deaths												
Poliomyelitis, acute	6	—	1	1	—	5	—	—	—	—		
Deaths							1					
Puerperal fever	4†	4	11	2	3	46	9	22	2	1		
Deaths		1‡					2‡					
Puerperal pyrexia	162	9	18		—	136	15	24		—		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,287	147	490	100	78	1,587	184	359	72	42	1,728	242
Deaths	3	—	—	—	—	4	1	—	2	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			42	1	9			755		14		
Deaths	20	3	1	1	2	43	9	14	6	4		
Deaths (0-1 year)	465	86	65	59	31	445	70	85	38	26		
Infant mortality rate (per 1,000 live births)	78	71				71	58					
Deaths (excluding stillbirths)	5,194	1,020	701	245	193	5,971	972	854	313	188		
Annual death rate (per 1,000 persons living)	12.8	12.8	13.0	16.6	17.1	14.9	12.1	15.9	21.3	18.0		
Live births	6,204	1,156	927	294	226	6,375	1,194	868	382	243		
Annual rate per 1,000 persons living	15.3	14.6	18.9	19.9	20.0	15.9	14.9	17.7	26.0	23.3		
Stillbirths	272	36				268	41					
Rate per 1,000 total births (including stillborn)	42	30				40	33					

(i) 122 great towns in 1937.
(ii) 12 " " " "
(iii) 9 " " " "

* 362 cases in Belfast alone.
† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Deaths from puerperal sepsis.
§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

179 Pleural Exudate following Artificial Pneumothorax

B. PAPANIKOLAU (*Z. Tuberk.*, 1937, 78, 1-2, 7) states that pleural exudate is present in 60 per cent. of cases of artificial pneumothorax and is its most common complication. It is more often seen in incomplete pneumothorax, following fatigue, after infection of the respiratory passages, or where the patient's living conditions are unhygienic. It is rare for a pleural exudate to occur a year or more after the production of an artificial pneumothorax. The exudate is always tuberculous in origin. There is a definite relationship between the clinical manifestations and the manometric pressure: when the latter is positive the symptoms are acute, but as the pressure becomes negative they lessen in intensity. A pleural exudate may have a bad influence on the general condition of the patient; it may give rise to adhesions between the pulmonary and costal surfaces of the pleura; secondary infection of the exudate may threaten the life of the patient; and the efficiency of the lung may be seriously impaired. In the acute stage the exudate should under no circumstances be removed. The production of a negative pressure improves the clinical manifestations rapidly. If secondary infection occurs endopleural wash-outs and surgical measures are indicated.

180 Thrombo-angiitis Obliterans

E. VERDELLI (*Arch. ital. Anat. Istol. patol.*, 1937, 8, 2, 200) records exhaustive post-mortem investigations in a case of thrombo-angiitis obliterans (Buerger's disease) in a rheumatic male subject, aged 30, a moderate smoker and drinker, who after an initial syndrome of migratory phlebitis had gangrene of both feet successively, disappearance of the radial pulse, and immediately before death acute abdominal symptoms explicable by the recent thrombosis of the superior mesenteric artery found at necropsy. The histological findings confirmed the view that the disease is not due to primary venous thrombosis (Buerger himself in the end abandoned this contention) but is a systemic malady of uncertain causation, characterized by a chronic endovascular inflammation: the intimal thickening is a compensatory adaptation of a non-inflammatory nature. The hypothesis of an acute inflammatory causation has probably arisen from histological examinations confined to amputated members. In Verdelli's patient the vascular lesions were chiefly arterial, the vessels being obstructed or occluded by the proliferated intima and by fibrous tissue in which elastic elements were rare; recanalization was well marked, sclerosis of the media and adventitia was less pronounced, and inflammatory signs in the latter were rare. The vessels chiefly affected were those in the limbs, and the iliac, splenic, mesenteric, and small visceral arteries, including those of the liver; the coronary, pulmonary, and cerebral arteries were little changed. Fibrosis secondary to the vascular lesions was well marked in liver and spleen, and present to some extent in the kidneys and in the pancreas.

181 Hodgkin's Disease

F. HARBITZ (*Tidsskr. norske Laegeforen.*, November 15, p. 1167; December 1, p. 1232; December 15, p. 1279, 1937; and January 1, 1938, p. 13) notes that Hodgkin's disease has figured in the vital statistics of Norway since 1927, and that during the eight-year period 1927 to 1934 the notifications of death from this disease have numbered 152 (eighty males and seventy-two females). Professor Harbitz has performed post-mortem examinations on about

fifty cases, and he has investigated during the eleven-year period 1926 to 1936 a total of 122 cases (sixty male and sixty-two female). If due account be taken of the dwindling number of persons in the higher age groups it would seem that the disease grows somewhat in frequency with increasing age, but it occurs at all ages. It is equally common in rural and urban communities and in different occupations, and in Norway, as well as in Sweden, its incidence does not correspond geographically with that of tuberculosis. Indeed in those parts of Norway in which the incidence of tuberculosis is highest that of Hodgkin's disease is comparatively low. The converse is also true. But Hodgkin's disease shows no very high rate of incidence in any locality or in certain families. Professor Harbitz calculates that the average duration of the disease is between two and three years, although it may last as long as twelve years before terminating fatally. In acute cases the disease may prove fatal in only three to four months. Whether it runs an acute or chronic course it invariably ends in death, although x-ray treatment may prolong life. Though Professor Harbitz is sceptical as to the chances of recovery, spontaneously or after treatment, in well-defined Hodgkin's disease, he wonders if there may not be abortive and ill-defined forms of it which terminate in spontaneous recovery as in the case of tuberculosis. He regards the disease as a chronic infection due to a hitherto unknown virus, and though the disease may occasionally be associated with, and may even activate, tuberculosis, he does not believe they have a common aetiology.

Surgery

182 Post-operative Prostatic Changes

H. A. ZIDE (*Proc. Mayo Clin.*, December 8, 1937, p. 769) draws attention to the statements that have been made about the ultimate effect of prostatic operations on the remaining tissue. In order to ascertain whether an increased possibility of malignancy or an increased degree of infection follows transurethral resection as compared with the enucleation type of operation, he has examined microscopically the tissue removed. This was done in eighty-five cases of benign prostatic hypertrophy in which two or more operations had been performed at intervals of three or more months, with the object of determining the changes that had occurred. In eleven of these cases suprapubic enucleation had been undertaken, and in seventy-four a transurethral resection, nearly always of the cold-punch type using the Braasch-Bumpus resectoscope. There was no evidence of abnormal mitosis or malignancy in the parenchyma of the prostatic tissue removed at the second operation. The tissue obtained was studied in regard to evidence of infection, malignancy, and changes in amount and character of the parenchyma, smooth muscle, and fibrous stroma. The investigations showed that the changes in smooth muscle tissue and fibrous stroma after operation are almost parallel; in 30 per cent. of cases both had increased. A decreased quantity of fibrous stroma was present only after transurethral resections, and may indicate a clearing up of infection after this type of operation. There was no evidence from the number of lymphocytes that prostatitis was more frequent after transurethral resection, but it was found that an increase of lymphocytes occurred in those cases in which the second operation did not take place for six months or longer. The results showed that in the series studied there were no early malignant changes, and malignancy was not seen in any case at the time of the second operation. There was therefore no evidence to suggest that there was an increased tendency to the development of carcinoma following transurethral resection as com-

The result of the contest for the Scottish Universities seat, which became vacant by the death of Mr. Ramsay MacDonald, was as follows: Sir John Anderson (Nat. Govt.), 14,042 votes; Miss Frances Melville (Ind.), 5,618 votes; Professor Dewar Gibb (Scot. Nat.), 5,246; and Sir Peter Chalmers Mitchell (Ind. Prog.), 3,868 votes. The National Government candidate secured a majority of 8,424 votes over the next candidate, as compared with 7,359 at the last election.

A meeting of the Harveian Society of London will be held at 26, Portland Place, W., on Thursday, March 10, at 8.30 p.m., when Sir Arthur Hurst will deliver the Harveian Lecture on "Physical Basis of 'Biliousness,' 'Wind round the Heart,' and Some Other Popular Maladies."

We are asked to remind readers that the International Congress on Rheumatism and Hydrology will be held at Oxford from March 27 to 30, followed by the International Congress on Rheumatic Diseases at Bath from March 31 to April 3. Details were published in the *Journal* of January 8 (p. 84). All inquiries about the Oxford Congress should be addressed to the General Secretary, 109, Kingsway, London, W.C.2, and regarding the Bath Congress to the Joint Honorary Secretary, Dr. G. D. Kersley, 6, The Circus, Bath.

The British Health Resorts Association will hold a conference at Hastings on Saturday, March 19, when the two subjects for discussion will be "Horticulture and the Health Resort" and "The Place of the Health Resort in Surgery—Pre-operative and Post-operative."

The Medical Students Committee of the National Union of Students, in co-operation with the Medical Office of the International Confederation of Students, is arranging a tour to Sweden for British students from April 16 to 28. The cost is £14 15s., and the last day for registration is March 14. In addition to general sightseeing, students will have the opportunity of visiting leading hospitals and clinics in Gothenburg, Stockholm, and Uppsala. Information may be obtained from the National Union of Students, 3, Endsleigh Street, London, W.C.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Treatment of Ascites

Professor RUTHERFORD MORISON, F.R.C.S., writes from St. Boswells-on-Tweed with reference to "Perplexed's" request (February 12, p. 370) for advice concerning a patient with ascites: "It has surprised me that no one has answered his query because his patient, although 70 years of age, is almost certain to be cured by omentopexy." Professor Morison encloses a reprint from the *British Medical Journal* of

January 20, 1912, containing his paper on the "Operative Cure of Ascites due to Liver Cirrhosis," read before the Surgical Section of the Royal Society of Medicine. The first paper by Sir David Drummond and Professor Morison in connexion with the subject appeared in the *British Medical Journal* of September 19, 1896.

Dr. W. SUTHERLAND writes: There is in my practice a woman aged 45, with primary carcinoma of the body of the uterus, on whom I have performed paracentesis one hundred and five times. The abdomen is emptied every twelve days, and thirty pints of fluid are removed. As the patient is able to go about her daily duties after tapping it seems that I may carry my score well into the second century.

Primary Vaccination at the Age of 12

Dr. S. H. DE G. PRITCHARD, in reply to "Chelsea" (February 19, p. 432), writes: In spite of experience of war service, three years' residence in the tropics, and vaccinating candidates for the Navy and such public services as the Post Office, I have not so far come across this particular problem of post-vaccinal encephalitis. I have performed primary vaccination in hundreds of patients over this age, and I have yet to meet any untoward effects. Were I in "Chelsea's" place I should not hesitate to vaccinate my own son. Personally I always use Jenner lymph. With regard to the memorandum by the Ministry of Health, I have always understood that such cases of encephalitis as have arisen have invariably followed vaccination with lymph prepared from some animal other than the calf, and so far I have not seen recorded a single case of this condition following vaccination with calf lymph. I believe that the rabbit is the villain, and as a matter of interest I should like to know if my belief is shared by others.

LETTERS, NOTES, ETC.

"The Evolutionary Theory"

Surgeon Rear-Admiral CHARLES M. BEADNELL (Egham, Surrey) writes: In the *Journal* of February 26 (p. 497) Colonel G. F. Rowcroft states that Haeckel "admitted that many of his illustrations were deliberately faked in order to make them fit the theory (of evolution)." I should like proof of this astounding assertion. It is true that certain intolerant opponents of the theory of evolution accused the great zoologist of having forged his illustrations of foetuses and embryos with the intent of misleading his readers, but it is equally true that the accusation was indignantly refuted, not only by Haeckel himself but by leading biologists of his day, many of whom were disbelievers in the then new theory of evolution. Diagrammatic illustrations never can represent an actuality, but merely help readers towards an understanding of what that actuality is; the venomous charge brought against Haeckel in this respect could with equal logic be levelled against any writer of a scientific work illustrated by diagrams. Haeckel's books popularizing science have sold in thousands, and are still selling, and their author, far from being a "subtle" writer indulging in "numerous fallacies," is a master of the clear exposition of truth. Colonel Rowcroft seems to be somewhat inconsistent when he says that he believes in evolution "in the sense of progress," while denying that man has evolved from a more primitive ancestry. In any case his definition of evolution is not in accord with that of modern science, which regards it as an ever-present flux and reflux between relatively complex and relatively simple states of matter and energy. There can be no progress—that is, no advance towards higher differentiation—in the absence of some antecedent retrogression. Evolution includes both progressive and retrogressive processes; each is a *qua non* complementary to the other. In this sense evolution is not a hypothesis, is not even a theory; it is an established fact. Breeders of animals and plants rely on its principles; in transmuting the elements, physicists demonstrate it in their laboratories, while astronomers see it in the vast laboratories of the suns and nebulae. Whether it be within the crust of the earth, beneath the shell of the egg, or inside the mother's womb, the evidence of the truth of evolution is overwhelming.

Corrigendum

In the *Journal* of February 19 we published at page 420 a letter by Captain Kenneth Lindsay on the "Expulsion of Placenta Praevia in Advance of Foetus." In this letter "on admission to the second hospital at 10 p.m." should have read "on admission to the hospital at 10 p.m."

Radiology

187 Kymographic Study of Kienbock's Phenomenon

THOYER-ROZAT and J. BERNARD (*J. Radiol. Electrol.*, November, 1937, p. 499) have examined by means of kymography the movements of the liquid level in hydro-pneumothorax (Kienbock's phenomenon). Their studies revealed that the mechanism of the movements of the liquid level in the ordinary hydro-pneumothorax differs from that seen following phrenicectomy. In the first case the affected hemithorax contracts transversely during inspiration, and the mediastinum, which is drawn towards the affected side, forces the liquid column to rise, but the two halves of the diaphragm move synchronously. In paralysis of the diaphragm, however, the dome of the diaphragm, which has lost its tone, passively follows the variations of the abdominal pressure, with the result that the fluid level rises in inspiration through a decrease of the vertical diameter of the affected hemithorax.

188 Cerebral Arteriography

H. DAVIES (*Brit. J. Radiol.*, December, 1937, p. 871) describes the technique of cerebral arteriography as carried out at the National Hospital, Queen Square, London, and gives a summary of the different arteriographic appearances in the normal brain and in cases of cerebral tumour or aneurysm. He does not believe that the doses of thorotrast used in cerebral arteriography have a delayed deleterious effect on the body. For the diagnosis of tumours of the temporal lobe and cerebellum, which derive their main blood supply from the basilar trunk, the author's advice is to inject this vessel through the subclavian artery; but as the thorotrast is being injected against the blood stream that part of the artery which is distal to the point of injection is compressed, and this makes the thorotrast flow up the vertebral artery and the basilar trunk. With this technique the branches which supply the cerebellum can be clearly seen.

189 Value of Pitressin

L. W. PAUL and S. R. BEATTY (*Amer. J. Roentgen.*, November, 1937, p. 776) recommend the use of pitressin for the elimination of gas in radiography of the urinary tract and of the gall-bladder. For the examination of the urinary tract one ampoule of pitressin (20 pressor units) was given at 8 a.m. A similar dose was given again at 10 a.m. and the radiographs were taken at 11 a.m. A somewhat different procedure was employed in gall-bladder cases. The films were examined as soon as developed. Cases in which the gall-bladder was obscured by gas were given one ampoule of pitressin subcutaneously and repeated radiographs were taken thirty minutes later. The authors met with no serious reaction from the drug, but most patients experienced abdominal cramps and about one-half had an intestinal evacuation following the injection. A few showed "blanching phenomena." The use of the drug, however, is contraindicated in cases of high blood pressure and in cardiac disease. Contraction of the gall-bladder due to pitressin was usually slight and did not interfere with the radiographic examination.

190 Relief of the Gastric Mucosa

A. E. COLCHER (*Radiology*, November, 1937, p. 615) suggests a new technique for the study of the relief of the gastric mucous membrane: 50 to 100 c.cm. of air are injected into the empty stomach by means of a gastric tube, the amount of air varying according to the size of the stomach. The patient is then given four to six ounces of the standard barium meal. The usual radiosopic and radiographic examinations are carried out in the erect position. In the next stage of the process the author uses an adaptable radiographic couch, with a head-rest and

a shoulder-rest, and foot-straps which are applied over the insteps. This allows the patient to be rocked without discomfort from the erect position down to a Trendelenburg position of not less than 45 degrees. Thus when the patient is in the Trendelenburg position the air displaces the barium at the pylorus and the barium displaces the air at the fundus. In rotating the patient to the Trendelenburg position he is made to remain horizontal for at least fifteen minutes to allow for dilution of gastric secretion and cohesion of the barium to the gastric mucosa. Occasionally there is a normal gas-bubble large enough to allow the examination to be carried out without intubation. The author reports a number of observations made by the use of this method, and he believes that it constitutes an easily applied refinement of radiographic procedure.

191 Oesophageal Changes of Aortic Origin

C. A. VIANA-GIURIA (*Arch. Uruguay. Med.*, November, 1937, p. 551) states that radiological examination of the oesophagus is of value not only because it enables its lesions to be localized and in a large proportion of cases facilitates an aetiological diagnosis, but also because it throws light on extrinsic thoracic processes, especially in the mediastinum. The author accepts the following classification by Chaliier of the varieties of dysphagia due to aortic aneurysm: (1) reflex dysphagia, caused by involvement of the recurrent laryngeal nerves, giving rise to atony or spasm of the oesophagus; (2) dysphagia from inflammation of the mediastinal connective tissue, which spreads secondarily to the walls of the oesophagus; (3) dysphagia from direct compression; (4) dysphagia due to rupture of an aneurysmal sac, with formation of a pseudo-aneurysm. Viana-Giuria also describes under the name of "sitius aortae arcus aortae" a congenital abnormality of the aorta and oesophagus, of which he records an illustrative case.

192 Transvesical and Intravenous Pyelography

A. HERZOG and L. ALT (*Z. Urol.*, 1937, 31, 12, 807) point out that transvesical and intravenous pyelography are not rival but complementary methods in renal diagnosis. They illustrate their statement by describing a case of renal carbuncle under their care. The patient had had pain in the right loin for fourteen days. Her temperature was raised and a leucocytosis was present. Little information was to be obtained from the urine. Transvesical pyelography produced a normal pyelogram. Intravenous pyelography showed that there was present in the kidney a destructive process which was pushing the calices apart but which had not broken into them. The diagnosis, confirmed at operation, of an inflammatory expansive process in the renal parenchyma—namely, carbuncle—was made on the strength of both transvesical and intravenous pyelograms.

193 X-Ray Therapy of Rheumatic Heart Disease

R. L. LEVY and R. GOLDEN (*Amer. J. med. Sci.*, November, 1937, p. 597) describe the results of x-ray therapy after eleven years in forty-eight cases of active rheumatic heart disease. The object was to distribute throughout the cardiac area approximately 60 r, as measured in air, corresponding to about one-tenth of the old erythema dose. Treatments were given at intervals of two weeks for four sittings. A period of one to three months was then allowed to elapse and the series of four irradiations repeated. The number of treatments ranged from three to twenty-five and averaged nine. In general those receiving the larger number of treatments fared best. Of forty-eight patients twelve died within six weeks to seven and a half years after treatment, seven showed temporary improvement, and in two no relief was obtained. Of thirty-six living, twenty-five were benefited by treatment and three obtained no relief; in eight cases x-ray therapy was not considered to have been the cause of recovery.

pared with enucleation of the suprapubic type. It was also seen that the prostatic tissue removed at the second operation resembled closely that obtained at the primary operation.

183 Reconstruction of the External Ear

H. GILLIES (*Rev. Chir. structur.*, October, 1937, p. 169) points out that the difficulty of reconstructing the external ear lies in the provision of an adequate supporting framework. Various methods have been tried, including mechanical supports, grafts of costal cartilage or cartilage from the undeveloped ear, and have proved unsuccessful. Homologous grafts of cartilage were also tried, but it was found that although signs of good repair did appear the recipient's blood vessels would not enter the donor skin, and so the graft sloughed away. A two-stage operation has been carried out with heterologous cartilage from the mother or some other female. From the appropriate ear was taken that part of the cartilage which lies above the external auditory meatus and includes part of the conchal support. In the first operation an incision is made in the donor ear parallel to the margin of the helix on its posterior aspect, and the skin is peeled off the cartilage on both sides. The whole of the cartilaginous block is isolated down to the level of the external auditory meatus, and is then cut across, washed in saline, and kept in a wet saline cloth. The skin incision is sutured, and a mould of the natural ear hollows is constructed to support the skin during healing. The reconstruction of the recipient's ear is carried out in two stages, with a three-months interval between each operation. The technique is fully described and illustrated and the value of using a block cartilage graft is stressed. It is suggested that the method will be technically improved and will become a standard procedure.

184 Tuberculosis of the Abdominal Lymphatic Glands

G. H. COLT and G. N. CLARK (*Surg. Gynec. Obstet.*, December, 1937, p. 771) analyse the results of 269 consecutive operations (239 cases), over a period of ten years, for the removal of abdominal lymphatic glands in young adults. Only twenty-eight of the patients could not be traced or examined. Five deaths were due to the operation, three to strangulation, and two to phthisis. The results were excellent in 148 cases, good in twenty-four, poor in fourteen, and bad in fifteen. There were three ventral hernias and two keloid scars. The risk of causing general or local tuberculosis by the operation appears to be very small. With one possible exception no evidence was found in the abdomen of the portal of infection. The "adhesion threshold" is low, there being evidence that the formation of adhesions is far more frequent than in non-tuberculous subjects. Intraperitoneal saline tends to prevent them. A causal connexion between the atrophic appendix and tuberculosis is considered to be unlikely. Out of ninety-three appendices examined only one might have been considered tuberculous. The formation of a sigmoid band, which is found in about 40 per cent. of the cases, or a Jackson's membrane is considered to be due to the organization of lymph where it collects in a peritoneal watershed; this might occur in the foetus. The rate at which calcification occurs is not known. The diagnosis is based on the special variety of the pain, with remissions, as described by the late W. H. Carson; the cause of this has not been explained. Acidosis independent of vomiting is usual during the acute attack. The association of caseation with intestinal obstruction and the formation of bands and adhesions is instanced. The latter occur in over 25 per cent. of the cases. A second operation is often necessary, but should not be undertaken until at least two years after the first, if possible. Carson's dictum that "these operations may be very difficult and trying" is an understatement for the average surgeon. The disease is preventable, and its natural course is towards calcification and cure.

Therapeutics

185 X-Ray Treatment of Rheumatic Diseases

A. KEMEN (*Fortschr. Ther.*, December 13, 1937, p. 684) regrets that deep x-ray therapy has not been much used in rheumatic diseases, and states that at Aix-la-Chapelle during 1936 536 cases were treated with very good results, immediately and in a "follow-up" examination of 200 cases undertaken four to six months later. The term "rheumatic diseases" includes, as well as inflammatory conditions in or near joints, neuritis, myositis, etc., and degenerative arthroses. In general the results were better in cases in which foci of sepsis had been eliminated. In Bechterew's disease (seventy-seven cases with improvement in sixty-seven) three fields were irradiated (200 to 250 r) at two-day intervals, with a repetition fourteen days later; control radiological examinations showed few if any bony changes, so that the improvement is attributed chiefly to diminution of muscular spasm. In the group labelled "chronic polyarthritis due to focal sepsis" (ninety-six cases, with improvement in eighty-four) cases with ankylosis were excluded; since the condition is thought to be due to absorption of toxins via the perineural lymphatics and the cerebrospinal fluid, with subsequent affection of vegetative nerves, irradiations were given to all the sympathetic ganglia in average doses of one application of 200 to 250 r to each of nine fields. Cure was attained in sixteen out of seventeen cases of cervical or brachial neuromyalgia by two or three direct irradiations of the plexus. Coming to degenerative conditions, Kemen records 109 cases improved out of 132 cases of spondylitis deformans (three or four applications, each of 150 to 200 r) and eighty-two and seventy-three improved in cases of arthritis deformans of the hip and knee respectively; for the hip three fields were employed, with 1,200 to 1,500 r in six sessions at six-day to ten-day intervals, and for the knee four fields, with a total dosage of 600 r. In the spine and hip early cases are found unsuitable for x-ray therapy, which gives the best results in cases that are radiologically seen to be of at least moderate severity. The results were especially good in humero-scapular peri-arthritis which had resisted other treatments. In treatment of sciatica irradiations of the lumbar spine (300 to 350 r, repeated after nine days) precede those directed at the nerve trunk.

186 Fatal Atophan Intoxication

N. KNAPPER (*Nederl. Tijdschr. Geneesk.*, January 1, 1938, p. 34), who records an illustrative case, states that in Holland Klinkert in 1926 was the first to draw attention to the dangers of the use of atophan. In the early stage it has an irritating effect upon the liver and may cause a toxic nephritis. In a case recorded by Pinkhof fatal liver atrophy developed after the administration of 27 grammes in the course of six weeks. In one of Tak's cases severe and persistent urticaria set in after taking 2 grammes in three days, and another of his patients after 13 grammes in the course of thirteen days developed dyspepsia followed by jaundice which lasted for six weeks. In America the first fatal case was described in 1925, and up to 1926 200 cases of atophan intoxication have been reported, with eighty-eight deaths. On the other hand, Snijder and his colleagues have treated 2,500 patients with cinchophan (the American name for atophan) in the course of ten years without any damage to the liver, and regard the occurrence of acute yellow atrophy after the use of atophan as a mere coincidence. Knapper's case was that of a woman, aged 60, who after taking 100 mg. of atophan daily for twenty-five days for rheumatoid and gouty symptoms developed acute yellow atrophy, the diagnosis of which was confirmed at necropsy.

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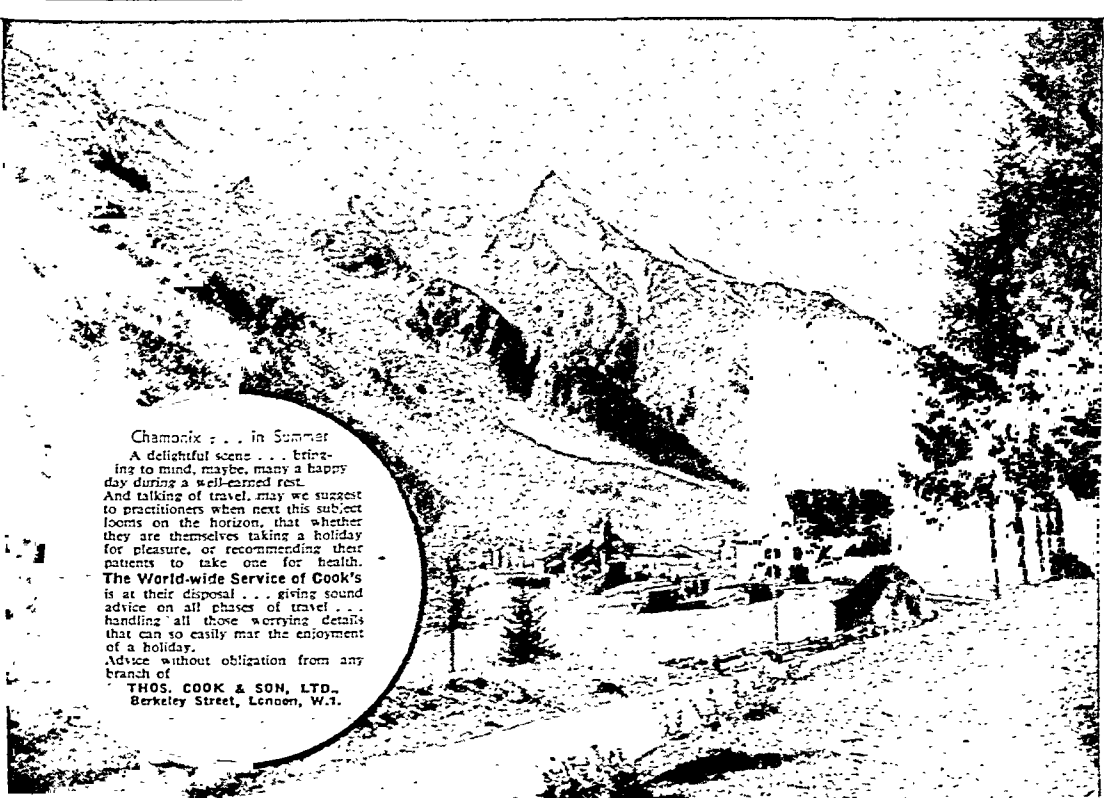
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The authors point out that a just appraisal of the therapeutic benefit of irradiation is difficult owing to the nature of rheumatic heart disease. They believe they have shown, however, that subsidence of carditis appeared in chronic affections soon after the institution of x-ray therapy. Cardiac pain was strikingly relieved in a number of cases. Patients without signs of congestive heart failure and without aortic insufficiency fared best. No harmful results were noted, although unpleasant irradiation reactions occurred in 50 per cent. of cases. The manner in which improvement is initiated is unknown, but it is believed to be due to an altered response of the cardiac tissues induced by the rays. The authors are convinced that x-ray therapy deserves a place in the treatment of properly chosen cases of chronic, early, non-congestive, active carditis of rheumatic origin.

hypogastrium and vaginal haemorrhage, though they were not always associated, as shown by the fact that thirteen patients had pain only. The other symptoms were malaise, vomiting, and collapse, and in thirty-five cases pain in the right shoulder. Painful defaecation was present in seven, and dysuria in twenty-three. No diagnostic value could be attached to the results of examination of the blood or urine. In every case the affected tube was removed, and in fourteen patients the other tube as well, with or without the fundus uteri. Only one death occurred, due to peritonitis following rupture of the tube. In twenty-seven cases the operation was performed on the day of admission, in twenty-four on the day after, in nineteen within a week, and in eleven more than a week after admission.

Obstetrics and Gynaecology

194

Perineal Cross-section

R. K. HOWAT (*J. Obstet. Gynaec. Brit. Emp.*, December, 1937, p. 1094) describes a simple method of limiting perineal rupture by cross-section of the perineum. When rupture occurs with the head well advanced he advocates a transverse incision $\frac{1}{2}$ in. to $1\frac{1}{2}$ in. in length through the thickness of the perineum, the mid-point at the line of rupture, which will then extend into and be stopped by the cut. The incision, which is approximately one inch anterior to the distended anal margin and lies parallel to the transverse perinei and almost tangential to the anal and vaginal sphincters, falls short of the levatores ani as they are forced apart by the biparietal diameter of the head. In comparison with episiotomy, Howat claims an advantage for perineal cross-section, for no incision need be made until rupture has occurred, this rupture is not extended but is checked by delivery, as in episiotomy, and there is no division of muscle.

195 Follicular Hormone in Kraurosis Vulvae

E. TSCHERNE (*Zbl. Gynäk.*, January 15, 1938, p. 169) has investigated histologically the affected skin in a case of kraurosis vulvae before and after treating the vulva with oestroglandol, an ointment each gramme of which contains 1,000 units of crystallized oestrin. A 20-gramme tube of ointment was used up during the course of treatment. The ointment was rubbed into the vulva once or twice daily for three weeks. By the end of that time all the ulcerated areas were cicatrized and the itching had completely disappeared. Histological examination showed a remarkable improvement in the condition of the skin and an absence of inflammatory changes.

196

Tubal Pregnancy

A. J. M. DUYZINGS (*Nederl. Tijdschr. Geneesk.*, December 25, 1937, p. 6128) records his observations on eighty-one cases of tubal pregnancy treated in the obstetrical department of the Royal Hague Hospital from 1930 to 1935. In twenty-four the ovum was implanted in the isthmus and in fifty-five in the ampulla, while in two the situation was unknown. As regards the ages of the patients, seven were between 20 and 24, seventeen between 25 and 29, twenty-five between 30 and 34, twenty-six between 35 and 39, four between 40 and 44, and one between 45 and 49; in one the age was not known. Sixteen were primiparae; in fifteen it was the second pregnancy, in ten the third, in eight the fourth, in twenty from the fifth to the ninth pregnancy, four had had ten or more pregnancies, and in eight the parity was unknown. No fewer than four patients showed evidence of an old haematosalpinx at the operation. In three of these patients the repetition of the tubal pregnancy occurred without a normal pregnancy having intervened. The chief symptoms were pain in the

197 Reticulocyte Count in Lactating Mothers

S. SHIRAISHI (*Tohoku J. exp. Med.*, October, 1937, p. 510) has studied the number of reticulocytes and their distribution according to Heilmeyer's groups in 210 apparently healthy lactating women, whose milk gave positive (normally healthy), weakly positive, or negative (state of avitaminosis B) Arakawa reactions. In twenty-five women whose milk gave normally or strongly positive Arakawa reactions the mean reticulocyte count was 4 per 1,000 of erythrocytes, and the distribution was that seen in normal healthy persons, Type III being the commonest, while cells of Types O and I were not seen. In the weakly Arakawa-positive group (sixty-five women) the mean count was 8 per 1,000, the Type III cells were still the commonest, but cells of Type I were found. In the Arakawa-negative group (120 women) the mean count was 11.4 per 1,000 erythrocytes, none being below 5 per 1,000 erythrocytes; cells of Type II were commonest and cells of Type I were more frequent. Thus the increase was mainly due to an increase in the reticulocytes of Types I and II. The author concludes that mothers secreting milk negative to Arakawa's reaction show an increased reticulocyte count due to an increase of young reticulocytes, probably an early sign of avitaminosis B.

198 Experimental Hyperplasia of the Endometrium

A. LIPSCHÜTZ (*Gynéc. et Obstét.*, November, 1937, p. 403) discusses at length the changes in animals caused by complete ablation of one ovary and almost complete ablation of the other. In the rat and the guinea-pig the microscopical appearance of the endometrium corresponds to that of cystic hyperplasia in women. The proliferation of the uterine glands is remarkable. The mucosa is filled with glandular cavities of different diameters which may form true cysts; the epithelium of the endometrium is hypertrophied; and the cysts are lined with flattened epithelium. In the cavities are desquamated cells and leucocytes. The tunica propria, in which the glands proliferate, also increases. The vessels are dilated and there is extravasated blood around them. Pigment is found just beneath the endometrial epithelium. The uterine cavity is almost always dilated. It is probable that this cystic hyperplasia of the endometrium is due to the persistence of the follicular phase of the ovary; the keratinization of the vaginal cells and the great thickness of the keratinized layer are evidence in favour of this theory. The vaginal mucosa resembles that of pregnancy. The changes suggest a mixture of the signs of oestrus and of pseudo-pregnancy. The changes in the sexual organs indicate an irregular interference with the two fundamental ovarian phases—the follicular and the luteinizing. Despite the prolongation of the follicular phase of the ovary from its function rarely becomes monophasic—that is, follicular; generally it remains biphasic as in the normal ovary.

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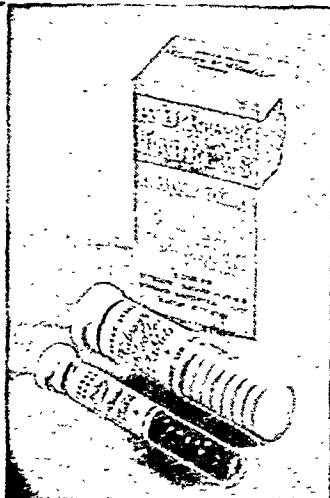
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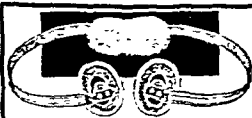
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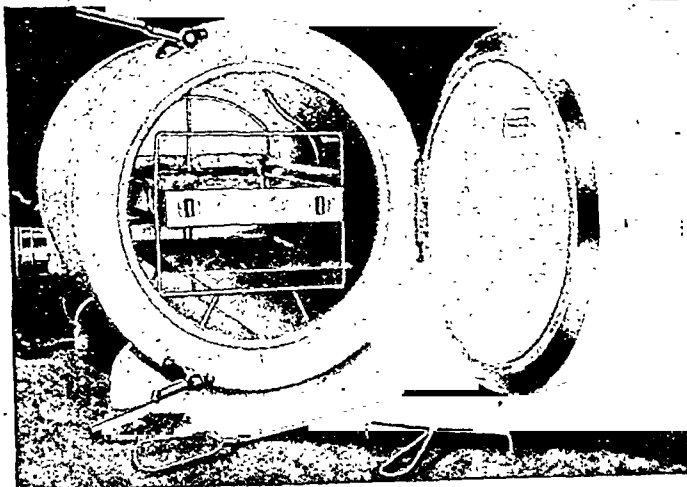
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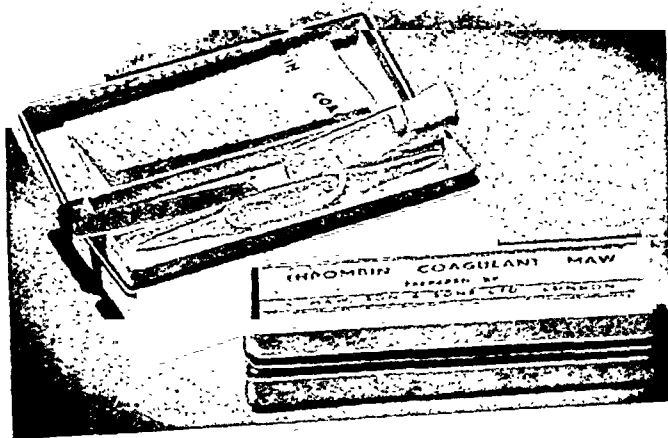
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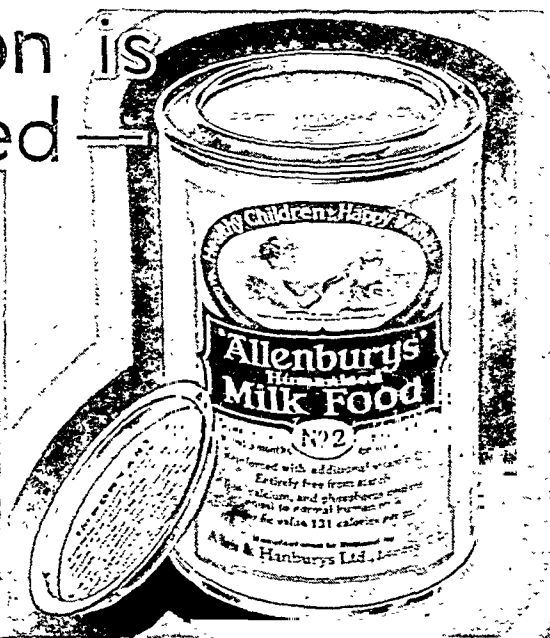
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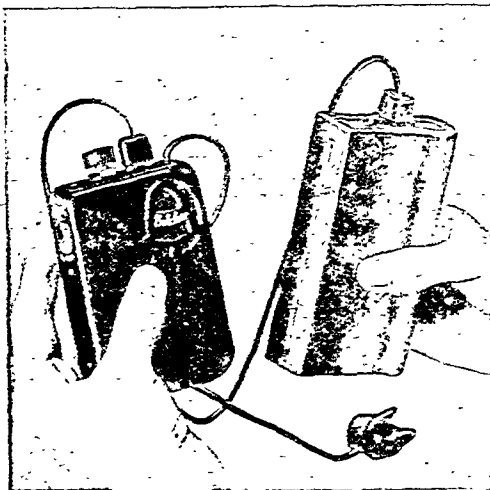
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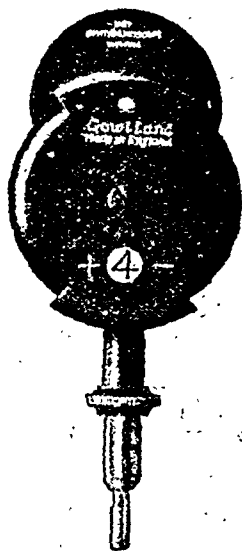
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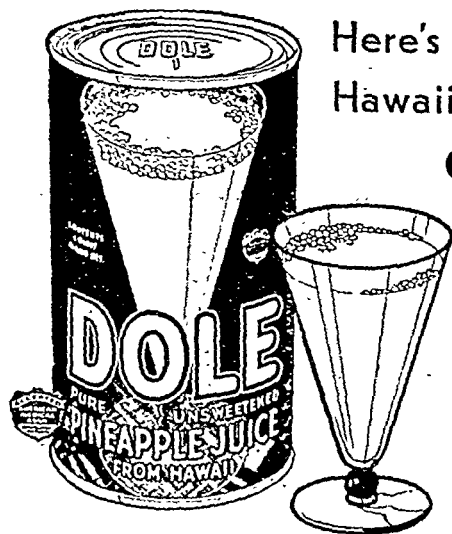
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Telephone: Springfield 1160-L.

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Treasurer: SIR LIONEL FAUDEL-PHILLIPS, BART.

Physician-Superintendent: J. G. PORTER PHILLIPS, M.D., F.R.C.P.

This REGISTERED HOSPITAL is situated at Monks Orchard, in some 250 acres of park, pleasure and farm grounds. Application can be considered on behalf of patients of the educated classes in a presumably curable condition. With a view to early treatment voluntary or uncertified patients are admitted. Patients who can contribute 5 guineas weekly towards the cost of treatment and maintenance may be received as vacancies arise. The Committee will also consider applications for admission at lower rates, and in certain cases will be prepared to admit patients free of charge. The comfort of sensitive patients is greatly enhanced by the fact that the majority are given single bedrooms. **TREATMENT ON MODERN PRINCIPLES**—Every facility for specialised investigation and treatment is provided in the Lord Wakefield of Hythe Science and Treatment Unit, including RADIOLOGICAL and DENTAL DEPARTMENTS, BIO-CHEMICAL, PATHOLOGICAL and PSYCHOLOGICAL LABORATORIES. The Medical Staff have access to a panel of Consultants in cases which present unusual symptoms requiring specialised investigation and treatment. Under the direction of qualified officers HELIO-THERAPY, HYDRO-THERAPY and ELECTRO-THERAPY are administered in the Physio-Therapy Department. **INSULIN TREATMENT**—For special cases of mental disorder Insulin Treatment is being carried out with good results and suitable cases are accepted. **OCCUPATIONAL THERAPY**, in the form of various Arts and Crafts, is actively encouraged from the medical aspect, and under the guidance of a competent instructor this department has proved most effective as a therapeutic factor in all stages of mental illness. The promotion of physical fitness is a prominent item of treatment, and this is enhanced by arrangements for patients to take part in Outdoor and Indoor Sports and Entertainments, and special attention is drawn to the physical drill and dancing classes which form part of the regular hospital routine. Application should be made to the PHYSICIAN-SUPERINTENDENT.

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Telegrams: "Alleviated, London."

Telephone: Rodney 2641-2642.

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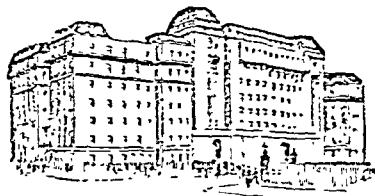
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GENERAL PRACTITIONERS' WEEK

MARCH 21st to 26th, 1938

During this week the teaching work of the Hospital, both in the Out-patient Dept. and in the Operating Theatres, will be restricted to that most helpful to those engaged in general practice and every endeavour made to meet the problems met with by general practitioners in so far as they relate to the throat, nose and ear.

Detailed programme obtainable from C. GILL-CAREY, F.R.C.S.Ed., Dean.

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Recognized by the University of London, the Conjoint Board, and other Bodies granting degrees and diplomas in OPHTHALMOLOGY.

The Practice of the Hospital is open to qualified Medical Practitioners and registered Students of Medicine.

Classes are held periodically and include the following subjects: OPERATIVE SURGERY, THE PATHOLOGY AND BACTERIOLOGY OF THE EYE, THE REFRACTION OF THE EYE, THE FUNDUS OCULI, METHODS OF EXAMINATION, MEDICAL OPHTHALMOLOGY, CLINICAL LECTURES, ORTHOPTIC DEPARTMENT: For Medical Practitioners desirous of taking a practical course in Ocular Muscle Training. Students are also accepted for a year's training in Orthoptics.

The Medical School Prospectus, which contains full information, together with particulars of the CRUISE CLINICAL RESEARCH SCHOLARSHIP and GUTHRIE PRIZE, can be obtained from the DEAN or SECRETARY of the Hospital, High Holborn, W.C.1.

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Particulars and forms of application can be obtained from the Secretaries at the above address.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)
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The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

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THE LONDON SCHOOL OF DERMATOLOGY

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Conducted by the Honorary Staff of the Hospital, together with the Physicians in charge of the Dermatological Departments of the London Teaching Hospitals. Lectures and Demonstrations twice weekly during October and November, and again during January and February, and four times weekly during May. General Practitioners desiring to attend any particular lecture or occasional lectures can do so without paying a fee. Clinics daily at 2 p.m. and 6 p.m. Saturdays 2 p.m. only. The Laboratory is particularly well equipped and arrangements can be made for classes, individual instruction or for research work. Enquiries: The Dean or Secretary of the School.

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UNIVERSITY OF LONDON

A Lecture on "THE RÔLE OF DICARBOXYLIC ACIDS IN METABOLISM" will be given by PROF. DR. P. E. VERKADE (Professor of Chemistry and Chemical Technology in the Nederlandse Handelshoogeschool, Rotterdam) at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on THURSDAY, MARCH 16th, at 5 p.m. The Chair will be taken by Prof. A. C. CHITTALL, F.R.S. (Professor of Biochemistry in the University). Lantern illustrations.

ADMISSION FREE, WITHOUT TICKET.
S. J. WORSLEY, Academic Registrar.

UNIVERSITY OF OXFORD**DIPLOMA IN OPHTHALMOLOGY.**

The next Examination begins on June 26th, 1938. The two months' Course of Instruction starts on April 24th, 1938. For further information apply to—The Dean of the Medical School, University Museum, Oxford.

P. H. ADAMS, M.B. (Oxon) Ophth.
Reader in Ophthalmology.

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LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

INCORPORATING THE ROSS INSTITUTE.

POSTS OVERSEAS FOR MEDICAL MEN

A register is kept in the School of medical men who are prepared to be considered for posts overseas, and the School is frequently asked to advise plantation and mining companies when such posts fall vacant.

The salaries offered are attractive; conditions of service are governed by standardised forms of contract; and many of the posts offer to medical men a most interesting field in which to practise their profession.

It is desirable that candidates for posts overseas should hold a diploma in tropical medicine and hygiene. The course provided by the London School for the Conjoint Board's Diploma lasts six months and the tuition fee is £40. The course may be taken from October to March or from January to June. There are generally more vacancies in the course commencing in January.

The Director of the Ross Institute is always glad to interview medical men who would like information regarding the possibilities of a career overseas if they will be good enough to make an appointment to call on him. Enquiries may be addressed to

SIR MALCOLM WATSON, Director,
Ross Institute of Tropical Hygiene,
London School of Hygiene & Tropical
Medicine,
KIPPER STREET, GOWER STREET, W.C.1.

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Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

GUY'S HOSPITAL MEDICAL SCHOOL.

DIPLOMA IN ANAESTHETICS.

A COURSE OF INSTRUCTION in preparation for the MAY EXAMINATION for the DIPLOMA in Anaesthetics of the Conjoint Examining Board in England will commence on Monday, APRIL 25th, provided that there is a minimum number of seven entrants. The Course will cover a period of three weeks and will include lectures in Physiology, Anatomy, Pharmacology, Clinical Investigations, and Anaesthetics.

The Course will be open to men and women graduates. The fee for the Course will be £15 15s. 0d. Further information may be obtained from the Dean, Guy's Hospital Medical School, London Bridge, S.E.1.

UNIVERSITY OF LONDON

A Lecture, entitled "SOME REMARKS ON VESTIBULAR PHYSIOLOGY," will be given by PROF. DR. A. P. H. A. DE KLEIN (Professor of Rhinology, Laryngology and Otology in the University of Amsterdam), at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on TUESDAY, MARCH 15th, at 5 p.m. The Chair will be taken by Prof. H. H. Woollard, D.Sc., M.D., B.S. (Professor of Anatomy in the University). Lantern illustrations.

ADMISSION FREE, WITHOUT TICKET.

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ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Council invite applications for the following Annual Examinations.

	Number to be elected.	Number to be re-elected.
FOR THE FELLOWSHIP.		
Anatomy	4	4
Physiology	4	4

FOR THE LICENCE IN DENTAL SURGERY.

Board of Examiners in Dental Surgery (Surgical Section) Examiners must be Fellows of the College, and will be required to examine in General Anatomy and Physiology, and in General Surgery and Pathology .. 6 6

UNDER THE CONJOINT EXAMINING BOARD.

Elementary Biology	4	4
Anatomy	3	2
Physiology	2	1
Midwifery	4	4
Pathology	4	3
Public Health Part I. (Bacteriology and Parasitology)	1	1
Public Health Part II.	1	1
Pathology and Tropical Hygiene (D.T.M. & H. Part I.)	1	1
Ophthalmic Medicine and Surgery	3	2
Psychological Medicine	1	2
Laryngology and Otology	3	2
Medical Radiology	2	2
Anaesthetics	1	1
Child Health	1	1

* Candidates must hold a medical qualification registrable in this country.

Applications must be in writing and must reach the Secretary by Tuesday, March 29th.

KENNEDY CASSELLS,

5th March, 1938.

Secretary.

THE ROYAL SOCIETY

MOSELEY RESEARCH STUDENTSHIP.

Applications are invited by the Council of the Royal Society for a MOSELEY RESEARCH STUDENTSHIP of the value of £30 per annum awarded for "the furtherance of experimental research in pathology, physics and chemistry, or other branches of science, but not in pure mathematics, astronomy, or any branch of science which aims merely at describing, cataloguing, or systematizing."

Preference will be given on this occasion to applications with reference to research in a Biological subject having some bearing on the problems of pathology.

Applicants should give the names of two referees. Testimonials will not be considered. The subject of the proposed research and the place at which it would be carried out should be given.

The appointment will be for two years in the first instance and may in exceptional cases be renewed from year to year up to a maximum of five years in all.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than May 1st, 1938.

February, 1938

THE ROYAL SOCIETY

FOULERTON RESEARCH FELLOWSHIP.

Applications are invited by the Council of the Royal Society for a FOULERTON RESEARCH FELLOWSHIP IN MEDICAL SCIENCE. Candidates, who must be of British nationality and of pure parentage, should supply the usual personal data and give the names of two referees. Testimonials will not be considered. Applicants and referees at a distance may write direct to the address given below without first obtaining forms. The subject of the proposed research and the place at which it would be carried out should be given.

The appointment will be for two years in the first instance as from October 1st, 1938, and may be renewed annually up to a total of five years. It will be subject to the conditions governing Royal Society Research Appointments. The award will be £100-£200 per annum, with experimental benefits.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than May 1st, 1938.

February, 1938.

EXPERIENCED COACHING IN PHYSIOLOGY, Pathology, and Microscopy. M.D. (Lond.), M.R.C.P.(Lond.), B.S., F.R.C.S. (Lond.). All exams. Clinical Pathology. 7202, B.M.A. House, Tavistock Square, W.C.1.

INDIAN MEDICAL SERVICE

RECRUITMENT OF EUROPEAN OFFICERS

Applications are invited from Medical Men for Permanent Commissions in His Majesty's Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or of £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

British subjects of pure European descent who are under 32 years of age and who are registered under the Medical Acts in Force in Great Britain and Northern Ireland are eligible to apply

CAREERS.

The Indian Medical Service offers a permanent career with wide opportunities of medical experience, including clinical, preventive, specialist and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of Civil Officials and for general medical administrative purposes: to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

RATES OF PAY.

Years of Service	Rank	Basic Pay Rs. per mensem	Overseas Pay £ per month	Total £ per annum
1	Lieutenant	450	15	555
2	"	500	25	750
3	Captain	550	25	795
4	"	550	25	795
5	"	600	25	840
6	"	600	30	900
7	"	700	30	990
8	"	700	35	950
9	"	700	35	1050
10	"	700	35	1050
11	Major	800	35	1140
12	"	800	40	1200
13	"	800	40	1200
14	"	800	40	1200
15	"	800	40	1200
16	"	950	40	1335
17	"	950	40	1335
18	"	950	40	1335
19	"	1100	40	1470
20	"	1100	40	1470
21	Lieut. Col.	1350	40	1695
22	"	1350	40	1695
23	"	1350	40	1695
24	"	1500	40	1830
25	"	1500	40	1830

Note.—(1) The rupee is at present stabilized at a rate equivalent to 1s. 6d.

(2) An officer promoted to the rank of Lieut.-Colonel before completion of 20 years' service will receive pay at the rate of Rs. 1200 per mensem (basic) plus £40 per month overseas pay.

Extras.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side, which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

ANTEDATES IN COMMISSION.

Candidates possessing certain higher medical qualifications or holding the Diploma in Public Health may be granted an antedate in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate. Persons holding or about to hold resident posts at recognized hospitals may

be seconded in those posts for a period. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to 18 months.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £75 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice so long as it does not interfere with their proper duties.

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed 12 months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a postgraduate nature. During such leave, study allowance, at present fixed at the rate of 12s. a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s. a day in the United States of America and Canada, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pensions are as follows:—

After 17 years' service for pension ..	Per annum.
" 18 ..	£372 0s.
" 19 ..	£403 0s.
" 20 ..	£423 0s.
" 21 ..	£465 0s.
" 22 ..	£502 0s.
" 23 ..	£539 10s.
" 24 ..	£576 10s.
" 25 ..	£614 0s.
" 26 ..	£651 0s.
" 27 ..	£697 10s.
" 28 ..	£744 0s.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges. Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot, lasting approximately three months, prior to their embarkation for India on first appointment. Information as to the rates of pay admissible during this period and subsequently up to arrival in India is contained in the memorandum referred to below.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the UNDER-SECRETARY OF STATE FOR INDIA, MILITARY DEPARTMENT, INDIA OFFICE, LONDON, S.W.1. The Selection Committee will meet at the India Office early in April next, and the selected candidates, unless seconded for hospital appointments, will be required to join a course of instruction commencing about 1st May, prior to sailing for India in September, 1938. Applications should reach the India Office as soon as possible.

ROYAL ARMY MEDICAL CORPS

Applications are invited from medical men for appointment to commissions in the Royal Army Medical Corps.

Candidates will, for the present, be selected for commissions without competitive examination, and will be required to present themselves in London for physical examination and interview on, or about, 22nd April, 1938. They must be registered under the Medical Acts, and normally must not be over the age of 28 years.

Successful candidates will, in the first instance, be given short service commissions for five years. During the 4th year of this period they will be given the opportunity of applying for permanent commissions in either the Royal Army Medical Corps or the Indian Medical Service. Those not selected will retire on completion of five years' service with a gratuity of £1,000.

Candidates who are successful will, unless they are seconded to complete a hospital appointment, assemble at the Royal Army Medical College, London, on 2nd May, 1938.

Particulars of the Conditions of Service in the Royal Army Medical Corps, pay and allowances, and forms of application, may be obtained on application, either in writing, or personally, to the Assistant Director General, Army Medical Services, The War Office, London, S.W. 1.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

During 1938, the Secretary of State for the Colonies proposes to select a number of Medical Officers to fill vacancies, the majority of which will occur in Tropical Africa and Malaya.

QUALIFICATIONS.—Candidates must be British subjects of European parentage, under 35 years of age, and must possess a medical qualification registrable in the United Kingdom. Preference will be given to candidates who have held Hospital or Public Health appointments, or who have special knowledge of anaesthetics, radiology, surgery, medicine, ophthalmology, gynaecology and midwifery, diseases of the ear, nose and throat, venereal diseases, etc.

SALARY.—Initial salaries vary from £600 to £700, and rise by increments to a maximum of between £1,000 and £1,200.

PRIVATE PRACTICE.—Private practice is not allowed as of right, but in the case of some appointments it is permitted on certain conditions.

QUARTERS.—In Tropical Africa, free quarters, or an allowance in lieu, are provided. In Malaya, quarters are provided at an annual rental not exceeding 6% of the officer's salary.

PASSAGES.—Free first-class passages are provided on first appointment and when proceeding on and returning from leave. Assistance is also given towards family passages.

TERMS OF APPOINTMENT.—The appointments are pensionable, subject to a probationary period which varies from two to three years.

COURSES OF INSTRUCTION IN TROPICAL MEDICINE AND HYGIENE.—Selected candidates will normally be required to attend a course of instruction leading to the Diploma in Tropical Medicine and Hygiene before proceeding overseas.

DUTIES.—Although Medical Officers are appointed in the first instance for general service, there are opportunities for work in special branches of medicine and surgery, in public health, and in medical research.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 2, Richmond Terrace, Whitehall, London, S.W. 1.

COUNTY COUNCIL OF MIDDLESEX APPOINTMENT OF OBSTETRIC SURGEONS

Applications are invited from registered Medical Practitioners for the following appointments on the pensionable staff. The appointments are senior ones in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments who have devoted their time wholly or chiefly to the practice of obstetrics and gynaecology. The successful candidate will work under the direction of the Medical Superintendent of the respective hospital, and the whole of their time must be given to their official duties. They must be prepared to undertake the teaching of students, if required, and to carry out such other duties as the County Council may from time to time direct.

REDHILL COUNTY HOSPITAL. Edware.

SENIOR OBSTETRIC SURGEON

Salary £850 per annum, rising by annual increments of £50 to £1,350 per annum, together with a non-resident cash allowance of £150 per annum in lieu of emoluments.

NORTH MIDDLESEX COUNTY HOSPITAL. Silver Street, Edmonton, N.18.

OBSTETRIC SURGEON

Salary £500 per annum, rising by annual increments of £50 to £750 per annum, and after eight years' service, by two further increments of £50 to £850 per annum, together with a non-resident cash allowance of £150 per annum in lieu of emoluments.

The successful candidates will be required to reside within a short distance of the hospitals to which they are appointed. In the case of an unmarried officer, if accommodation is available, full residential emoluments may be provided in lieu of the non-resident allowance.

The above salaries are inclusive, and any fees received by the officers appointed must be paid over to the County Council.

The appointments, which will be subject to medical examination, will be held during the pleasure of the Council, and are terminable by three months' notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Obstetric Surgeon."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 28th, 1938.

COUNTY COUNCIL OF MIDDLESEX. TUBERCULOSIS MEDICAL OFFICER.

Applications are invited for the above appointment on the pensionable staff. Salary £750 per annum, rising by annual increments of £50 to £1,000, together with out-of-pocket travelling expenses.

Candidates must be registered Medical Practitioners who have held resident appointment in a general hospital for at least six months, and have had special practical experience in the diagnosis and treatment of tuberculosis in sanatoria or otherwise.

The officer appointed will be required to devote his whole time to his official duties, to work under the administrative control of the County Medical Officer of Health, and to reside in such district as may be required.

The duties will include the charge of tuberculosis dispensaries, the general arrangement for the treatment of tuberculosis patients otherwise than in sanatoria, and such other duties as the Council may direct.

The appointment, which will be subject to medical examination, will be held during the pleasure of the Council and is terminable by three months' notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Tuberculosis Officer." Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

COUNTY COUNCIL OF MIDDLESEX. ANAESTHETIST.

WEST MIDDLESEX COUNTY HOSPITAL. Isleworth.

Applications are invited from registered Medical Practitioners for the above appointment. Candidates must have held resident appointments in a general hospital, and must be specially skilled and experienced in the administration of anaesthetics by modern methods. The officer appointed will be required to administer anaesthetics, and to carry out such other duties as may be allotted to him.

Salary £400 per annum, rising by annual increments of £25 to £475 per annum. The successful candidate will be required to reside within a short distance of the hospital, and will be paid a cash allowance of £100 per annum in lieu of residential emoluments.

The appointment (which will be subject to medical examination, will be held during the pleasure of the Council, and will be terminable by one month's notice on either side) is for a period of four years, at the end of which period the officer will leave the Council's service. In special cases the Council may decide to retain an officer on the established staff, in which case the salary will be increased to £500 per annum, which will be the maximum for a non-resident officer in this grade.

The officer appointed will work under the control of the Medical Superintendent, will devote the whole of his time to official duties, and will have no rights under the Council's superannuation scheme.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Resident Anaesthetist, West Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

N.B.—The West Middlesex County Hospital is a General Hospital with accommodation for approximately 500 acute and 600 non-acute cases.

COUNTY COUNCIL OF MIDDLESEX

Applications are invited for the appointment of RESIDENT ASSISTANT MEDICAL OFFICER at WEST MIDDLESEX COUNTY HOSPITAL, ISLEWORTH. Candidates must be registered medical practitioners who have held resident appointments in a general hospital.

The officer appointed will work under the direction of the Medical Superintendent and will devote the whole of his time to his official duties.

Salary £400 per annum, rising by annual increments of £25 to £475 per annum with board, lodging and laundry.

The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by one month's notice on either side.

The appointment, which does not at present carry any superannuation rights, is for a period of four years, at the end of which period the officer will leave the Council's service. In a special case the Council may decide to retain an officer on the established staff, in which case the salary will be increased to a maximum of £500 per annum.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Assistant Medical Officer, West Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

PUBLIC HEALTH DEPARTMENT. CITY OF CHESTER. CITY HOSPITAL.

JUNIOR RESIDENT MEDICAL OFFICER required for the above general hospital. Salary £200 per annum, with full residential emoluments. The appointment will be for one year.

Applications, stating age, qualifications and previous experience, together with copies of three recent testimonials, should be sent to the Medical Officer of Health, Town Hall, Chester, by March 20th, 1938.

J. H. DICKSON,
Town Clerk.

COUNTY COUNCIL OF MIDDLESEX. PHYSICIAN.

Applications are invited from registered medical practitioners for the pensionable appointment of Physician to the COUNTY SANATORIUM, HAREFIELD. Applicants are expected to hold high qualifications, and to have devoted themselves wholly or chiefly to the practice of clinical medicine, with special experience in the treatment of pulmonary tuberculosis.

The successful candidate will work under the direction of the Medical Superintendent, and the whole of his time must be given to his official duties. He must be prepared to act as consultant to general medical practitioners outside the sanatorium if called upon so to do, to undertake the teaching of post-graduate students if required, and to carry out such other duties as the Council may from time to time direct.

The appointment is non-resident, and the successful candidate will be required to reside within a short distance of the sanatorium. The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Salary £1,000 per annum (including living-out allowance of £150 per annum), rising by annual increments of £50 to £1,500. The salary is inclusive, and any fees received by the officer appointed must be paid over to the Council.

The Harefield County Sanatorium, which accommodates 375 patients (men, women and children), has just been completely rebuilt and embodies many new features in hospital construction.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Physician, Harefield County Sanatorium."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

COUNTY COUNCIL OF MIDDLESEX.

NORTH MIDDLESEX COUNTY HOSPITAL. Edmonton.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment. Candidates must be registered Medical Practitioners who have held resident appointments in a General Hospital. The duties of the appointment will be partly clinical and partly general. Salary £250 per annum, with board, lodging and laundry, valued at £100 per annum.

The officer appointed will work under the direction of the Medical Superintendent, and will devote his or her whole time to official duties.

The appointment (which will be subject to medical examination, and is terminable by one month's notice on either side) is for a period of six months in the first instance, and may be extended for an additional six months.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 19th. Relationship to any member or officer of the Council must be disclosed in the application.

Application forms are not provided. Envelopes must be endorsed "Junior Assistant Medical Officer, North Middlesex County Hospital." Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z,"
Clerk of the County Council.

Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

NORTHAMPTON GENERAL HOSPITAL. (351 Beds.)

There will be the following seven vacancies for Resident Medical Officers:

On March 1st. 1 HOUSE SURGEON to the Ear, Nose and Throat Department.

On April 1st. 1 HOUSE PHYSICIAN, 3 HOUSE SURGEONS, 2 CASUALTY OFFICERS.

Salaries will be at the rate of £150 per annum, with board, residence and laundry. Candidates, who must be duly qualified and registered, must be males, and of British nationality.

The successful candidate will be cleared for a period of six months (House Surgeon to the Ear, Nose and Throat Department 7 months), and will be eligible for re-election for a further period of 6 months.

Applications, stating age, qualifications, etc., with copies of three recent testimonials, must reach the undersigned not later than the first post on Wednesday, March 9th, 1938.

GORDON S. STURDRIDGE, M.B.,
February 14th, 1938. Superintendent.

EXAMINING BOARD IN ENGLAND

BY THE
ROYAL COLLEGE OF PHYSICIANS
OF LONDON
AND THE
ROYAL COLLEGE OF SURGEONS
OF ENGLAND

Notice is hereby given that the following Examination will commence on the date stated below.
DIPLOMA IN TROPICAL MEDICINE AND HYGIENE,
Friday, April 1st.

Candidates who have fulfilled the necessary conditions, and who desire to present themselves for Examination, must give notice in writing to the Secretary, Examination Hall, 8/11, Queen Square, London, W.C.1, at least twenty-one days before the date of the Examination, transmitting at the same time such Certificates as may be required by the Regulations of the Board.

HORACE H. REW, Secretary.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

LICENCE IN DENTAL SURGERY.

Notice is hereby given that the **SECOND PROFESSIONAL EXAMINATION** will commence on Friday, March 25th, 1938. Candidates are required to give at least twenty-one days' notice of their intention to present themselves for the Examination to the Director of Examinations, Examination Hall, 8/11, Queen Square, London, W.C.1, from whom all particulars relating thereto may be obtained.

HORACE H. REW,
Director of Examinations.

ST. MARY'S HOSPITAL INSTITUTE OF PATHOLOGY AND RESEARCH.

Applications are invited from qualified Medical Practitioners for a **RESEARCH STUDENTSHIP**. This will be tenable for six months, and may be renewed for a second period of six months.

The Institute comprises the following departments: Anatomy and Embryology, Physiology, Pathology, Chemical Pathology, Clinical Bacteriology, Systematic Bacteriology, and Immunology.

The student, who will receive an honorarium at the rate of £200 per annum, may elect to carry out his researches in any one of these departments and would be required to work under the direction of the head of the department concerned.

Preference will be given to old St. Mary's Students.

For further particulars apply to the Secretary, Institute of Pathology and Research, St. Mary's Hospital, Paddington, W.2 to whom applications must be sent not later than March 14th.

RADIUM BEAM THERAPY RESEARCH,
at the Radium Institute,
1, Riding House Street, London, W.1.

ASSISTANT MEDICAL OFFICER, resident, salary £150. Six months' appointment from March 18th, 1938. Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be sent to the Secretary, Radium Beam Therapy Research, not later than March 7th.

The selected candidate will assist with the working of two five-gramme Radium units, and will have the opportunity of combining post-graduate studies with this appointment.

APPLICATIONS FOR MEDICAL PRACTITIONER.

Applications are invited by the **DISTRICT COUNCIL OF KAROONDA, SOUTH AUSTRALIA**, from duly qualified medical practitioners, who are members of the British Medical Association, for private practice in Karoonda and surrounding district, under a guarantee by the Council of £800 per annum.

Applications, stating age and qualifications, and accompanied by copies of credentials, should be in the hands of the Agent General and Trade Commissioner for South Australia, British Industries House, Marble Arch, London, W.1 (from whom further particulars can be obtained), by March 29th, 1938.

By Order of the Council,
Karoonda, E. R. MIELL,
South Australia District Clerk
January, 1938.

**CITY OF BRADFORD.
SANATORIUM—GRASSINGTON.**

ASSISTANT MEDICAL OFFICER required. Appointment tenable for one year at a salary of £175 per annum, plus board and lodgings.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned not later than March 23rd, 1938.

Town Hall, Bradford, N. K. FLEMING.
February 26th, 1938.

**DERBYSHIRE COUNTY COUNCIL
ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH.**

Applications are invited for the post of Assistant County Medical Officer of Health. Candidates must possess a qualification in Public Health, have had both practical and administrative experience of the medical inspection of school children, the organization of school clinics and infant welfare centres, and have a sound knowledge of the provisions of the Midwives Acts and the rules of the Central Midwives Board.

The Officer appointed will be required to devote the whole of his time to the duties of the office, and to work under the direction of the County Medical Officer.

The salary will be £700, rising by annual increments of £25 to £800 a year, and the appointment will be subject to the approval of the Minister of Health and the Board of Education.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

The appointment will be terminable by three months' notice on either side.

Applications, stating age, qualifications and previous experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th, 1938. Application forms are not provided.

County Offices, W. M. ASH,
Derby, County Medical Officer of Health
February 18th, 1938.

**DERBYSHIRE COUNTY COUNCIL.
DREBY HALL ORTHOPAEDIC HOSPITAL.
(147 Beds.)****JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER.**

Applications are invited for the post of Junior Resident Assistant Medical Officer at the above Institution. Preference will be given to candidates who have held resident Hospital appointments, and who are competent anaesthetists. Orthopaedic experience is not essential, but will be considered an additional qualification. Married quarters are not provided.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, with board, residence and laundry.

The successful candidate will devote the whole of his time to the duties of his office.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to pass a medical examination.

Application forms may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, on or before March 16th, 1938.

New County Offices, W. M. ASH,
Derby, County Medical Officer.
February 15th, 1938.

**COUNTY OF KENT.
VENEREAL DISEASES CLINIC.
CANTERBURY.**

Applications are invited from registered medical practitioners (male), who are duly qualified in accordance with the regulations of the Ministry of Health, for the **PART-TIME** appointment of **MEDICAL OFFICER** of the above-mentioned clinic, which is at the Kent and Canterbury Hospital.

One half-day session will be held each week, and the remuneration will be at the rate of three guineas a session, with an allowance for travelling.

The appointment will be terminable at any time by one month's written notice on either side.

Applications, stating age, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should reach the County Medical Officer of Health, Sessions House, Maidstone, not later than March 17th, 1938.

Sessions House, W. L. PLATTIS,
Maidstone, Clerk of the County Council.
February 26th, 1938.

**CITY OF NORWICH.
ASSISTANT MEDICAL OFFICER OF
HEALTH AND ASSISTANT SCHOOL
MEDICAL OFFICER, etc**

Applications are invited for the post of Assistant Medical Officer of Health and Assistant School Medical Officer, to include the duties of Medical Officer with residence at the Isolation Hospital. Salary £600 per annum (including emoluments, valued at £150 per annum), rising by annual increments of £25 to £700 per annum. Board allowance at the rate of £60 per annum granted when absent from hospital on leave. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922. For particulars apply to the Medical Officer of Health, 63, St. Giles Street, Norwich, by whom applications for the post must be received not later than March 21st.

**CITY OF BIRMINGHAM
COLESHILL HALL****DEPUTY MEDICAL SUPERINTENDENT.**

Coleshill Hall, a colony for Mental Defectives of all ages and both sexes, consists of 12 divisions, five miles apart, situated at Coleshill and Marston Green respectively, each about 100 miles from Birmingham.

Applications are invited for the whole-time appointment of Deputy Medical Superintendent for the Colony, aged 40 to 45, with experience in institutional administration. Salary according to experience (Scale £200-£700 per annum), subject to satisfactory service, plus emoluments consisting of unfurnished house, fuel, light and laundry valued for superannuation purposes at £20 per annum. An additional £50 per annum will be granted if holding a recognized qualification in psychological medicine. All fees, allowances and remunerations received other than the foregoing must be repaid to the City Council.

The candidate appointed will be required to pass satisfactorily a medical examination and to be subject to the provisions of the Asylums Officers' Superannuation Act, 1909, as modified by the Asylums and Certified Institutions (Officers' Pensions) Act, 1918. The appointment will be subject to one month's notice on either side.

Application forms may be obtained from the Medical Superintendent, Coleshill Hall, Coleshill, near Birmingham, and must be returned to him not later than Monday, March 7th, 1938.

Council House, F. H. C. WILTSHEIRE,
Birmingham, 1 Town Clerk

**CITY OF BIRMINGHAM
SEELY OAK HOSPITAL. (520 Beds.)****RESIDENT PHYSICIAN.**

Applications are invited for the above whole-time appointment from fully qualified registered medical practitioners who have had good medical experience, and who should hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or who should be members of the Royal College of Physicians of London.

Furnished quarters, rations, laundry and attendance will be provided, or alternatively a cash allowance will be paid if the officer appointed should be non-resident.

Salary will be £650, rising by annual increments of £50 to a maximum of £900 per annum, together with the emoluments stated above.

The appointment will be dependent on the candidate passing a medical examination, and be subject to the Birmingham Corporation's Superannuation Scheme and the Birmingham Municipal Officers' Widows' and Orphans' Pensions Scheme (if applicable). The appointment will be terminable by one month's notice on either side.

Further particulars of the appointment may be obtained from the Medical Superintendent of the Hospital.

Applications, stating age, experience and qualifications, accompanied by copies of recent testimonials, and endorsed "Physician," should be sent to the Medical Superintendent not later than Wednesday, March 23rd, 1938.

The Council House, F. H. C. WILTSHEIRE,
Birmingham, 1 Town Clerk

**CITY OF STOKE-ON-TRENT.
STANFIELD SANATORIUM.****RESIDENT MEDICAL OFFICER.**

Applications are invited for the post of Resident Medical Officer (Male) at Stanfield Sanatorium. Candidates must be single. Previous institutional experience in Tuberculosis will be an advantage.

Salary at the rate of £25 to £40 per annum, rising by annual increments of £25 to £40 per annum, together with board and lodging. The successful candidate will act under the immediate direction of the Tuberculosis Officer.

Applications, endorsed "Resident Medical Officer," together with copies of three recent testimonials, to be sent to the undersigned not later than Monday, March 21st, 1938.

Town Hall, L. B. SHAPPEY,
Stoke-on-Trent, 1 Town Clerk
March 4th, 1938

**CITY OF SHEFFIELD
ASSISTANT TUBERCULOSIS OFFICER**

Wanted, a male (unmarried) Assistant Tuberculosis Officer to reside at Winter Street Sanatorium and to devote his whole time to the Medical Tuberculosis Scheme.

Salary £350 per annum, rising to £400 per annum by annual increments of £25, with board, residence and laundry.

The office has been designated as an extra post under the Local Government and Other Officers' Superannuation Act, 1922.

Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be sent on or before March 15th, 1938, to the Medical Officer of Health, Town Hall, Sheffield.

CITY AND COUNTY OF BRISTOL

ASSISTANT MEDICAL OFFICER OF HEALTH FOR AIR-RAID PRECAUTIONS.

The Corporation of Bristol invite applications for the post of Assistant Medical Officer of Health for Air-raid Precautions.

The gentleman appointed must have received training in Air-raid Precautions and have knowledge of anti-air work. He will be required to devote the whole of his time to his duties and will not be allowed to engage in private practice. He will work under the direction of the Medical Officer of Health.

The appointment will be temporary in the first instance and will be for a period of two months on either side, and the selected candidate will be required to pass a medical examination.

The salary will be £500 to £700 per annum, according to experience.

Applications must be made on a prescribed form, which may be obtained from the undersigned and must be delivered to the Council House, Bristol, not later than March 15th, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Canvassing of members of the Council, either directly or indirectly, will be disqualifying.

The Council House, JOSIAH GREEN,
Bristol, Town Clerk.
February, 1938.

COUNTY BOROUGH OF OXFORD

ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER (Male)

Applications are invited for the above post at a salary of £500 per annum, rising by increments of £25 to £700 per annum, plus a motor car allowance in accordance with the scale adopted by the City Council.

Candidates must have had at least three years professional experience and special experience in ante-natal and Maternity and Child Welfare work and in the work of the School Medical Service. The person appointed will be required to devote his full time to the duties and not to engage in private practice.

The duties to be performed will be under the direction of the Medical Officer of Health.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to undergo a medical examination.

Forms of application can be obtained from the Medical Officer of Health, Greyfriars, Paradise Street, Oxford, to whom they must be returned completed on or before March 26th, 1938.

Town Hall, Oxford. A. HOLT, Town Clerk

COUNTY BOROUGH OF SMETHWICK.

St. Chad's Hospital, Birmingham

HOUSE SURGEON.

Applications are invited from registered Medical Practitioners for the appointment of House Surgeon at the Council's Municipal Hospital. The appointment will be for a period of six months from April 6th, 1938, with salary at the rate of £150 per annum with the usual emoluments. If the successful candidate is reappointed for a further period of six months, the salary will be at the rate of £200 per annum. St. Chad's Hospital contains 145 beds, and the cases treated include general medical, acute surgical and maternity patients. It is staffed by the Honorary Consultants of the Birmingham teaching hospitals.

Form of application may be obtained from the Medical Superintendent, St. Chad's Hospital, Haxley Road, Birmingham, 16, to whom application, endorsed "House Surgeon" and accompanied by copies of three recent testimonials, must be delivered not later than March 17th, 1938.

Canvassing, directly or indirectly, will disqualify Council House, FRANK CHAPMAN,
Smetwick, Town Clerk.
February 25th, 1938.

COUNTY BOROUGH OF DERBY.

DERBY CITY HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Assistant Resident Medical Officer (male) at the above hospital of 300 beds. This hospital provides treatment for acute medical and surgical cases, obstetrics and children's diseases, etc. Vacancy will occur near the end of April, and applicants should state when they are free to commence duties.

Candidates must be registered in Medicine and Surgery. The appointment is for a period of six months; two months' notice of termination of duties may be given on either side.

Salary at the rate of £200 per annum, with board and residence.

Applications, stating age, experience, and accompanied by three recent testimonials, should be sent to the undersigned as soon as possible.

Public Health Department, GORDON LILICO,
1, Derwent Street, Medical Officer of Health,
Derby.

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL.

ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified persons for the appointment of Assistant Medical Officer (resident) at a commencing salary of £350 per annum, rising by £25 per annum to £425 per annum together with emoluments valued at £125 per annum.

The person appointed should have had special experience in obstetrics and will be responsible, under the direction of the Medical Superintendent, for the Obstetric and Children's Wards and Ante-natal Sessions. The Department is supported by a Consultant.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, stating age, professional qualifications and experience, accompanied by not more than three copies of testimonials, should be sent to the Medical Officer of Health, Health Department, Council House, Walsall, not later than March 26th, 1938.

March 3rd, 1938

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL.

JUNIOR ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified persons for the appointment of Junior Assistant Medical Officer (resident). The appointment will be for a period of 12 months and the salary is at the rate of £150 per annum, together with the usual emoluments.

The person appointed will be required to act under the general direction of the Medical Superintendent, and carry out the duties of Casualty Officer and Resident Anaesthetist.

Applications, stating age, professional qualifications and experience, accompanied by not more than three copies of recent testimonials, should be sent to the Medical Officer of Health, Health Department, Council House, Walsall, not later than March 26th, 1938.

March 3rd 1938

COUNTY BOROUGH OF WALSALL.

MANOR HOSPITAL.

CONSULTING OBSTETRICIAN AND GYNAECOLOGIST.

Applications are invited for the above appointment from gentlemen of recognized Consultant rank. The gentleman appointed will be required to conduct a consultative ante-natal and gynaecological clinic once monthly at the Manor Hospital, for which a fee of £3 4s. per session will be paid. The gentleman appointed will also be required to act as Consultant Obstetrician at the Hospital, a fee of £5 5s. being paid for each emergency visit.

Applications to be sent to the Medical Officer of Health, Council House, Walsall, not later than March 26th, 1938.

WEST BROMWICH AND DISTRICT GENERAL HOSPITAL (INCORPORATED).

APPOINTMENT OF CASUALTY HOUSE SURGEON.

Applications are invited for the post of Casualty House Surgeon. Candidates (Male) must be doubly qualified and unmarried. Salary at the rate of £200 per annum, with board, residence and laundry.

Appointment is for six months, and the successful candidate will be required to take up his duties on March 31st next.

Applications, stating age and qualifications, with copies of recent testimonials, should be sent to the undersigned at once.

C. J. ADAMS,

House Governor and Secretary.

February 21st, 1938

HERTFORD COUNTY HOSPITAL.

(169 Beds, 3 Residents.)

Applications are invited for the post of HOUSE PHYSICIAN (male). Salary £150 per annum, with board, residence and laundry. Duties to include Casualty. The appointment is for six months in the first instance.

Applications, together with copies of three recent testimonials, should be forwarded to the undersigned not later than March 15th, 1938.

PERCY G. BROOKS,

Secretary.

WARNEFORD GENERAL HOSPITAL,

Leamington Spa. (164 Beds.)

Required a RESIDENT HOUSE PHYSICIAN to commence on March 24th. Six months' appointment. Salary £150 per annum with board and laundry.

Applications from qualified registered Medical Practitioners, stating age and full particulars, together with three testimonials, should be sent to the undersigned by Wednesday, March 9th, 1938.

EDWARD L. WIRGMAN,

House Governor and Secretary.

WARWICKSHIRE COUNTY COUNCIL.

DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications are invited from registered medical practitioners not over 45 years of age holding the Diploma of Public Health for the post of DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER. Previous administrative experience will be considered an advantage.

The salary is at the rate of £750 per annum, rising by annual increments of £50 to a maximum of £950 per annum, and is subject to a deduction of 5 per cent. in respect of contributions under the Local Government and Other Officers' Superannuation Act, 1922.

The person appointed will be required to use his own motor car in the service of the Council and will be paid in respect of such use a mileage allowance in accordance with the Council's scale from time to time in force. Subsistence allowances according to scale will also be paid.

The appointment is subject to the production of a medical certificate in a form satisfactory to the County Medical Officer of Health. Forms of application and statement of the duties and terms of appointment can be obtained from the County Medical Officer of Health, Shire Hall, Warwick, to whom applications with copies of not more than three recent testimonials should be sent not later than Monday, March 28th, 1938.

Canvassing, directly or indirectly, will be a disqualification.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall, Warwick.
February 26th 1938.

NORFOLK COUNTY COUNCIL

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from medical practitioners holding a diploma in public health or similar qualification.

The salary will be £600 per annum rising, on satisfactory service, by yearly increments of £25 to £700, with travelling expenses in accordance with the Council's scale. The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the salary will be subject to the statutory deduction for this purpose. The successful applicant will be required to pass a medical examination.

The Officer appointed will act under the County Medical Officer as Medical Officer to the County Isolation Hospital (non-resident) as Assistant School Medical Officer for a small area, Medical Officer to Infant Welfare Centres, and will be required to perform such other duties as may be assigned to him. He will be required to reside at East Dereham.

The appointment will be subject to three months' notice by either side.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they should be returned, accompanied by copies of three recent testimonials, not later than March 15th, 1938.

H. C. DAVIES,
County Officer, Clerk of the County Council,
Thorpe Road, Norwich.

NORFOLK COUNTY COUNCIL

APPOINTMENT OF TEMPORARY MEDICAL OFFICER.

Applications are invited from medical practitioners with special experience of mental deficiency in children.

The salary will be at the rate of £600 per annum, with travelling expenses in accordance with the Council's scale, and the appointment is expected to last for about twelve months.

The Officer will be required to act under the County Medical Officer. The duties will be the examination of all dull and backward children in the county, and the completion of the Board of Education Report Form for those who are mentally defective.

The appointment will be subject to one month's notice by either side.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they must be returned, accompanied by copies of not more than three recent testimonials, not later than March 15th, 1938.

H. C. DAVIES, Clerk of the County Council,
Thorpe Road, Norwich.

KENT AND CANTERBURY HOSPITAL.

Canterbury.

HOUSE SURGEON (required (male, unmarried). Six months' appointment, commencing end of March 1938. Salary £125 per annum, with board, residence and laundry. The hospital is recognized under F.R.C.S. regulations.

Applications, together with copies of testimonials, should be sent immediately to the undersigned.

J. F. KENT,
Superintendent and Secretary.

SEATON VALLEY URBAN DISTRICT COUNCIL.
WHITLEY AND MONKSEATON URBAN DISTRICT COUNCIL.
LONGBENTON URBAN DISTRICT COUNCIL.
APPOINTMENT OF WHOLE-TIME MEDICAL OFFICER OF HEALTH.

Applications are invited for the appointment of a Whole-time Medical Officer of Health for the combined area consisting of the above-mentioned Urban Areas, at a commencing salary of £900 per annum, plus car or travelling allowances, in the first instance amounting to £100 per annum. The Medical Officer appointed will be required to furnish to the Joint Committee a record of his mileage and out-of-pocket expenses at the end of each twelve months, when the question of the expenses to be paid during the ensuing year will be considered.

The successful applicant will also be required to serve as Medical Superintendent of the Earsdon Joint Isolation Hospital Board, which Board receives and treats the whole of the infectious diseases occurring within the above area, together with the Boroughs of Blyth and Wallsend. The additional salary to be paid in connexion with the Hospital appointment will be £200 per annum.

The total population of the three combined areas is 76,490; the population of the Hospital District is 153,568.

Applicants must be registered in the Medical Register as a holder of a Diploma in Sanitary Science, Public Health or State Medicine, in addition to the statutory qualifications, and the successful applicant shall be restricted by the terms of his employment from engaging in private practice as a Medical Practitioner.

The successful applicant will be required to submit to the Ministry of Health and the County Council the appropriate information required under the Local Government Act, 1933, and the Sanitary Officers' (Outside London) Regulations, 1935, report to and attend the appropriate Committees of the above authorities, perform the duties imposed on a Medical Officer of Health by statute and by any orders, regulations or directions from time to time made or given by the Minister and any By-laws or instructions of the Local Authorities applicable to his office.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the passing of a medical examination.

The appointment will commence on the first day of August, 1938, and may be determined by the Medical Officer of Health appointed by three months' notice.

The successful applicant will be required to reside in the area above mentioned.

Applications, stating age and qualifications, together with copies of not more than three recent testimonials, to be sent in to the undersigned by first post on Saturday, March 19th, 1938.

Dated this 11th day of February, 1938.
 Council Offices **ARTHUR S. RUDDOCK,**
 Whitley Bay. Clerk to the Joint Committee.

LANCASHIRE COUNTY COUNCIL.

PARK HOSPITAL, DAVYHULME,
 near MANCHESTER.

APPOINTMENT OF SECOND RESIDENT MEDICAL OFFICER.

Applications are invited from registered Male Medical Practitioners for the appointment of Second Resident Medical Officer at the above Hospital. Candidates must be unmarried.

Candidates must have had previous hospital experience, and preference will be given to candidates who have had experience in diseases of the ear, nose and throat, and children's diseases.

Salary £300 per annum, together with usual residential allowances.

The appointment will, in the first instance, be for a period of six months, the successful applicant being eligible for reappointment for a further period of six months at the end of that period.

The Hospital comprises 500 beds for acute cases, is fully equipped in every respect, and is recognized as a complete Training School for Nurses.

The appointment will be terminable by one month's notice on either side.

Forms of application may be obtained from the County Medical Officer of Health, Hospital and Medical Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded so as to be received not later than Saturday, March 12th, 1938.

GEORGE ETHERTON,
 Clerk of the County Council.

County Offices, Preston.
 February 28th, 1938.

FREE EYE HOSPITAL, SOUTHAMPTON.

The Committee require the services of a duly qualified **HOUSE SURGEON** to enter on duties on April 1st, 1938. Salary £150 per annum, with board, residence and laundry. Post-graduate experience in Ophthalmology is desirable. Applications, with three recent testimonials, to reach the Secretary by March 19th, 1938.

LONDON COUNTY COUNCIL.

Applications invited from MEDICAL PRACTITIONERS of at least one year's standing to undermentioned positions. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.
ASSISTANT MEDICAL OFFICER (Grade II).
 —Salary £350-£425, with board, lodging and washing.

(a) **ST. LUKES HOSPITAL, LOWESTOFT, SUFFOLK.**—Experience in the treatment of non-pulmonary tuberculosis desirable.

There is no accommodation for a woman officer.
ASSISTANT MEDICAL OFFICER (Grade II).
 —Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(b) **HIGH WOOD HOSPITAL FOR CHILDREN, BRENTWOOD, ESSEX.**—Experience in children essential and in tuberculosis desirable.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2A, County Hall, S.E.1, returnable by March 14th. Canvassing disqualifies.

THE URBAN DISTRICT COUNCIL OF DAGENHAM.

DEPUTY MEDICAL OFFICER OF HEALTH (Male).

Applications are invited from duly qualified medical men for the post of Deputy Medical Officer of Health. Preference will be given to candidates possessing the Diploma of Public Health or an equivalent qualification.

Commencing salary £600 per annum, rising by annual increments of £25 to £750, subject to superannuation deductions. The gentleman appointed will be required to devote the whole of his time to the duties of the office, which consist mainly of work in the Maternity and Child Welfare Department, but may also include duty in any section of the health services of the district.

Experience in ante-natal and maternity and child welfare work is essential. Opportunities will be available for acquiring experience in Public Health administration.

Application forms and further particulars obtainable from the Medical Officer of Health at the under-mentioned address upon receipt of a stamped addressed foolscap envelope. Closing date, March 14th, 1938. Canvassing disqualifies.

Civic Centre, F. W. ALLEN,
 Dagenham, Essex. Clerk of the Council.
 February 15th, 1938.

THE ROYAL EASTERN COUNTIES' INSTITUTION FOR THE MENTALLY DEFECTIVE, COLCHESTER.

ASSISTANT MEDICAL OFFICER (Male)

Applications are invited for the above post from unmarried male Medical Practitioners, not over 36 years of age. Total beds over 1,700.

The medical man appointed will be stationed at the new Extension, Turner Village, and will be required gradually to assume responsibility for administrative work connected with that extension, which has at present over 400 beds. For that reason the commencing salary has been fixed at £400 per annum, together with furnished apartments, board, laundry and attendance. No deductions. Previous specialization in Mental Deficiency is not essential.

A Research Department, with a Medical Director and other staff, working under the Medical Research Council and the Rockefeller Foundation, is attached to the Institution. New laboratories are completed, and there is every facility for research work.

Apply before March 9th, giving age, nationality, full details of qualifications, and copies of testimonials, to the Medical Superintendent, Royal Institution, Colchester.

EAST SUSSEX COUNTY COUNCIL.

SOUTHLANDS HOSPITAL,
SHOREHAM-BY-SEA.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from fully qualified male registered Medical Practitioners (unmarried) for the post of Assistant Resident Medical Officer at Southlands Hospital, Shoreham-by-Sea, near Brighton. The appointment is for one year. Salary £300 per annum, with board, residence and laundry. The Hospital (350 Beds) is a general hospital, under the administration of the East Sussex County Council. The duties of the post will be mainly concerned with surgical cases (including children) and the administration of anaesthetics, but there are also opportunities for medical and obstetrical experience.

Applications should be made on a form obtainable from the undersigned at the County Hall, Lewes, and must be returned to him by Tuesday, March 8th, 1938.

HUGH J. T. McILVEEN,
 Clerk of the County Council.
 County Hall, Lewes
 February, 1938.

COUNTY OF DORSET.

MEDICAL OFFICER OF HEALTH
 for Shaftesbury Borough, Shaftesbury, Sturminster and Sherborne Rural Districts and Sherborne Urban District and
ASSISTANT COUNTY MEDICAL OFFICER

Applications are invited from medical practitioners not exceeding forty years of age for the joint whole-time appointment of Assistant County Medical Officer and Medical Officer of Health for the Shaftesbury Borough, Shaftesbury, Sturminster and Sherborne Rural Districts and the Sherborne Urban District (population about 31,000). The appointment as Medical Officer of Health will, in the first instance, be in respect of the first three named districts only and in respect of the last two named districts when vacancies occur.

The salary for the combined appointment will be £800 per annum, together with a travelling allowance of £100 per annum, an office allowance of £50 per annum, and necessary out-of-pocket expenses according to the scales now in force.

Applicants must be qualified in accordance with Article 8 of the Sanitary Officers' (Outside London) Regulations, 1935, and hold the Diploma in Public Health or similar qualification.

The candidate appointed will, as regards his duties as Assistant County Medical Officer, come under the direction of the County Medical Officer of Health, and will be required to perform such duties as may be from time to time prescribed. As regards his duties as Medical Officer of Health, he will be subject to the control and direction of the District Councils concerned.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination. He will also be required to reside within the area for which he is Medical Officer of Health, and to take up his appointment on July 1st, 1938.

Candidates must apply on the prescribed form to be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than Saturday, March 12th, 1938.

Canvassing in any form will be a disqualification.
C. P. BRUTON,
 Dorchester, Clerk of the County Council.
 February 15th, 1938.

SURREY COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICER

Applications are invited for the appointment of an Assistant Medical Officer (Male). Applicants must possess a qualification in Public Health, and should have had experience in the Medical Inspection of School Children and in Maternity and Child Welfare work.

The officer appointed will be required to undertake such other Public Health duties as may be allocated to him. He will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote his whole time to the work.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Staffing Regulations of the Council, which provide, inter alia, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for receipt of applications, Wednesday, March 9th, 1938.

Canvassing, directly or indirectly, will disqualify.
DUDDY AUKLAND,
 County Hall, Clerk of the County Council.
 Kingston-upon-Thames.
 February 21st, 1938.

DEVON MENTAL HOSPITAL

Required, **JUNIOR ASSISTANT MEDICAL OFFICER (male)**, unmarried, who must be fully qualified and registered. Preference will be given to candidates who either have or are about to obtain a Diploma in Psychological Medicine and who have held resident hospital appointments. The Hospital is fully equipped with complete theatre, bacteriological laboratory, etc.

Salary £140 per annum, rising to £175 per annum, with £40 in addition to be paid for board, the D.P.M., and board, apartment, laundry and attendance, valued at £100.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1920. Form of application to be forwarded to the Clerk of the Devon Mental Hospital, from whom it must be completed and returned not later than March 24th, 1938.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.

Applications are invited for the post of **FOURTH PHYSICIAN** (male) to the Hospital. Candidates must be Graduates in Medicine, Members of the Royal College of Physicians, London, or shall proceed to obtain that Diploma, and must not be engaged in general practice. The successful candidate will have charge of beds and will do two Out-patient Clinics per week, and there is an honorarium of fifty guineas attached to the post.

Applications, with copies of not more than four testimonials, should reach the House Governor not later than March 11th.

Candidates will be required to call upon Members of the Medical Staff, whose names, together with the Standing Orders relating to the post, will be forwarded by the House Governor.

W. H. SIDNELL,

February 21st, 1938. House Governor

KING GEORGE'S SANATORIUM FOR SAILORS, Liphook, Hants. (Seamen's Hospital Society)

For the Treatment of Pulmonary and Non-Pulmonary Tuberculosis.

ASSISTANT MEDICAL OFFICER (male, male or female) required as from April 15th for six months. Salary at the rate of £200 per annum in the first instance.

Applications, with copies of not less than three testimonials, to be sent in on or before March 22nd, to the undersigned.

Seamen's Hospital Society, F. A. LYON, Secretary, Greenwich, S.E.10.

February 28th, 1938.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2. (204 Beds)

The Committee invite applications for the post of **ASSISTANT PHYSICIAN**, with charge of Beds. Candidates must be Fellows or Members of the Royal College of Physicians of London. Attendance in the Out-patient Department required at present on Saturday morning, but possibly also on another day, to be arranged later. An honorarium to cover travelling expenses will be paid.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom further particulars may be obtained.

CHARLES H. BESSELL,

February 21st, 1938.

Secretary

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 69, Grove End Road, N.W.8.

Applications are invited for the post of **ASSISTANT PHYSICIAN** at the above Hospital. Candidates must be Members of the Royal College of Physicians (London). Duties include charge of beds. There is no Out-Patient Department. Candidates will be required to call on members of the Medical Committee. Testimonials, applications, together with copies of three testimonials, should be submitted on or before Tuesday, March 22nd, 1938, to the undersigned, from whom further particulars may be obtained.

F. DUDLEY HOBBS, B.A.,

Secretary

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, Haverstock Hill, N.W.3.

APPOINTMENT OF CASUALTY MEDICAL OFFICER.

Applications are invited from registered medical women for the resident appointment of Casualty Medical Officer for six months, vacant April 1st next, at the Out-Patient Department, Bayham Street, Camden Town. Salary £100 per annum. Application to be made on the prescribed form, together with copies of not more than three testimonials, should be returned to the Secretary by March 19th next.

KING GEORGE HOSPITAL, ILFORD, (Near London, 207 Beds.)

RESIDENT ANAESTHETIST AND HOUSE PHYSICIAN (male) required, for six months from April 1st. Salary £150 p.a. Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, not later than March 14th.

G. AUSTIN HEPWORTH,

Secretary and Superintendent.

HOPITAL ET DISPENSIRE FRANCAIS, 172, Shaftesbury Avenue, W.C.2.

Applications are invited for the post of **ANAESTHETIST** to the above Hospital. Honorarium £25 per annum. Candidates should have a working knowledge of French, and must be engaged solely in the practice of anaesthetics. Copies of three recent testimonials to be sent to the Secretary on or before March 21st, 1938.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorefield Eye Hospital), City Road, E.C.1.

Applications are invited for the posts of **TWO OUT-PATIENT OFFICERS**, to attend on Wednesday and Saturday (evenings) each week.

Candidates must be registered Medical Practitioners.

Salary at the rate of £100 per annum. The Out-patient Officers will be appointed for a period of one year and will be eligible for reappointment.

Copies of regulations can be obtained on application.

Applications, with testimonials, status and qualifications, together with photograph, must be received by the undersigned not later than March 7th, 1938.

A. J. M. TARRANT,

Secretary

ROYAL NORTHERN HOSPITAL, Holliday, N.C.

Applications are invited for the following appointment:

HOUSE SURGEON vacant April 15th. The appointment is for nine months (six months as House Surgeon and three months as Casualty Officer). Salary at the rate of £70 per annum, with board, residence and laundry.

Applications, with copies of testimonials, should be sent by March 11th to the undersigned, from whom the necessary forms of application and rules can be obtained.

GILBERT G. PANTER,

Secretary.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Applications are invited for the post of **CLINICAL ASSISTANT** to the Skin Department of the above Hospital.

Applications, accompanied by copies of recent testimonials indicating experience from candidates who must be duly Registered Practitioners, should be lodged with the undersigned not later than Wednesday, March 16th, 1938.

Attendance will be required weekly on Wednesday mornings at 9 a.m.

RAPHAEL JACKSON (M.B.),

Secretary.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, St. Quiryn Avenue W.10. (75 Beds.)

HOUSE SURGEON (male) required for six months from April 1st, 1938. Salary at the rate of £120 p.a. for the first three months and £150 p.a. for the second three months, with board, residence and laundry.

Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than Saturday, March 14th, 1938.

H. J. ELEY, Secretary

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL

Applications are invited for the posts of **HOUSE SURGEONS** (two, male, unmarried), for a period of six months commencing April 1st, renewable for a further period of six months, on the recommendation of the Medical Board. £150 per annum, with full board, quarters and laundry. Applicants should be registered medical practitioners.

Applications, with copies of testimonials, should be sent to the House Governor, 234, Great Portland Street, W.1, not later than March 11th.

THE NELSON HOSPITAL, MERTON S.W.20. (46 Beds.)

RESIDENT HOUSE SURGEON (male, unmarried) required March 22nd, 1938, for duties in connexion with Men's and Children's Wards—share casualty work. Appointment for six months in first instance. Salary at rate of £150 per annum, plus usual allowances and fees earned. Candidates must be British by nationality and birth.

Applications, with copies of recent testimonials, should be sent to the Secretary forthwith.

ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E.1

RESEARCH UNIT.

Applications are invited for the newly created posts of **RESEARCH ASSISTANTS** (unpaid). Further particulars can be obtained from the Dean. Applications should be sent to the Dean not later than March 14th.

A. SORSBY,

Dean.

LONDON JEWISH HOSPITAL, Sterry, Green, E.1 General Hospital (114 Beds.)

Applications are invited for the post of Ear, Nose and Throat REGISTRAR. Honorarium at the rate of Twenty Guineas per annum.

Particulars can be obtained from the Secretary, to whom candidates must send their applications and copies of three recent testimonials not later than Friday, March 18th, 1938.

WEST LONDON HOSPITAL Hammerhead Road, W.6 (229 Beds)

Required, one **HOUSE PHYSICIAN** and one **HOUSE SURGEON**. The duties of the House Physician include some work in the Children's Department, and the House Surgeon will have some work in the Gynaecological Department. These appointments (male) are tenable for six months from April 1st next, subject to one month's notice on either side. Salary at the rate of £100 a year, with board, lodging and laundry allowance. Candidates must be registered under the Medical Act.

Applications (which must be made on printed forms obtained from me) must reach me not later than the first post on Wednesday, March 16th. Selected candidates will be required to call upon such Members of the Medical Staff as directed, to be in attendance at the Medical Council meeting on Friday, March 25th, at 4.30 p.m., and the House Committee meeting at 5 p.m. the same day, when the appointments will be made.

H. A. MADGE, Secretary

ST. PETER'S HOSPITAL FOR STONE, ETC., Hametta Street, Covent Garden, W.C.2

The Office of **HOUSE SURGEON** will fall vacant on April 1st, 1938, and applications are invited from male candidates with previous experience in a similar office at a General Hospital. The salary offered is at the rate of £75 per annum, with board, lodging and laundry.

At the expiration of six months' term of office, and subject to the recommendation of the Medical Committee, the House Surgeon is appointed Resident Surgical Officer for a further similar period. Candidates should therefore be prepared, if successful, to remain at the Hospital for twelve months in all.

Applications, accompanied by copies of testimonials, should be forwarded to reach the undersigned not later than the first post on Tuesday, March 8th, 1938.

BEECHLEY ROGERS,

Secretary.

WESTERN OPHTHALMIC HOSPITAL Marylebone Road, N.W.1

Applications are invited for the following resident posts:

(1) **SENIOR HOUSE SURGEON**. Salary at the rate of £150 p.a.

(2) **JUNIOR HOUSE SURGEON**. Salary at the rate of £100 p.a. Previous ophthalmic experience desirable.

The selected candidates shall commence duties on April 1st, 1938. The Hospital is recognized for the purpose of the D.O.M.S. examinations.

Applications for the vacant post should state if they are willing to accept the junior post.

Applications, with copies of three recent testimonials, should reach me as soon as possible and not later than March 14th.

H. W. BLRLEIGH,

Honorary Secretary

THE NATIONAL TEMPERANCE HOSPITAL Hampton Road, N.W.1

Applications are invited for the following posts:

RESIDENT MEDICAL OFFICER (Male). Salary £175 per annum, board, residence and laundry allowance.

CASUALTY OFFICER (Male). Salary £120 per annum, board, residence and laundry allowance. The appointment is for a period of six months in each case, as from April 1st. Preference will be given to those who have held resident posts. Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, March 7th, addressed to the Secretary.

THE SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common S.W.4. (141 Beds.)

A General Hospital for women and children.

Applications are invited from medical women for the under-mentioned appointment:—
HOUSE PHYSICIAN for a period of six months from April 1st, 1938.

Salary at the rate of £100 per annum, with board, residence and laundry. Candidates are requested to call on members of the Hon. Medical Staff before Wednesday, March 16th, to which date applications and copies of testimonials must reach the Secretary at the Hospital.

THE WILLESDEN GENERAL HOSPITAL, Harpenden Road, N.W.10.

Applications are invited from fully-qualified and registered candidates for the appointment of a Resident Officer to hold the appointment of **CASUALTY OFFICER** for a period of three months, from April 1st, 1938, to be followed by a six months' appointment as **HOUSE PHYSICIAN** (total nine months).

Salary at the rate of £100 per annum. Applications should be sent to the Secretary not later than the first post on Friday March 12th, 1938.

February 25th, 1938.

AMENDED ADVERTISEMENT. BOROUGH OF EALING. ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified Medical Men (single) with a Public Health qualification for the position of Assistant Medical Officer.

A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school-children at Ealing.

The person appointed will reside at the Isolation Hospital where furnished rooms and board will be provided.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £450 per annum, rising by £25 per annum to a maximum of £550, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to connection therewith. Canvassing will be a dis-qualification.

Copies of the application forms and terms of appointment can be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than March 17th.

R. H. WANKLYN,
Town Clerk.

GLOUCESTERSHIRE COUNTY COUNCIL. TWO ASSISTANT COUNTY MEDICAL OFFICERS OF HEALTH.

Gloucestershire County Council invite applications for the appointments of Two Assistant County Medical Officers of Health.

The salary in each case will be on the scale £500 p.a. x £25 to £700 p.a., and past local government service will be counted in assessing the commencing salary. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The posts are designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidates will be required to pass a medical examination by the Council's medical adviser. Applicants must be registered Medical Practitioners and should hold a Diploma in Public Health. Previous experience in various branches of public health and school medical work is desirable.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than March 21st, 1938.

Canvassing, directly or indirectly, will disqualify. RICHARD L. MOON,
Clerk of the County Council
Shire Hall, Gloucester.

COVENTRY AND WARWICKSHIRE HOSPITAL. (347 Beds.)

Applications are invited for the post of HOUSE SURGEON to the Ear, Nose and Throat Dept., and also a HOUSE SURGEON to the Ophthalmic Dept.

The salaries for each post are at the rate of £150 per annum, together with board, quarters and laundry.

These appointments are recognised for the D.L.O. and the D.O.M.S. respectively.

Applications, stating qualifications, and accompanied by copies of recent testimonials, should be addressed to the House Governor and Secretary, Coventry and Warwickshire Hospital, Coventry.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

Applications are invited for the post of FRACTURE HOUSE SURGEON, who will be required to carry out his duties under the direction of an Honorary Orthopaedic Surgeon. The resident Medical Staff of the Hospital numbers six, and this appointment will be considered the senior experience.

Applications, accompanied by copies of three recent testimonials, to be forwarded to the undersigned.

R. LANCASTER,
Secretary-Superintendent

THE MOUNT VERNON HOSPITAL (FOR CANCER), NORTHWOOD.

There is a vacancy for a HOUSE SURGEON Salary £150 per annum, with board, lodging, etc. Applications to be addressed to the Secretary, 32, Fitzroy Square, W.1.

THE BRITISH MEDICAL JOURNAL

ROYAL EYE HOSPITAL, Pevensey Road, Eastbourne.

NON-RESIDENT HOUSE SURGEON required to commence duty forthwith.

Salary £100 per annum, and allowance in lieu of board-residence £175 per annum.

Applications, stating age, qualifications and testimonials, should reach the undersigned as soon as possible.

Before engagement candidates have to be interviewed by the Hon. Surgeon by appointment, from whom further particulars could be obtained in person.

H. BYGRAVE,
Hon. Secretary.

NEWARK GENERAL HOSPITAL. (66 Beds.)

Applications are invited for the post of **RESIDENT HOUSE SURGEON (Male)**. Salary at the rate of £175 per annum, with board, residence and laundry. The appointment is for six months, and may be renewed for a further term April 1st, 1938.

Applications, stating age and hospital experience, together with copies of three recent testimonials, should be forwarded to the undersigned immediately.

B. C. DION,
Joint Secretary.

ROYAL SURREY COUNTY HOSPITAL, Guildford. (216 Beds.)

Applications are invited for the following resident posts for six months as from April 1st, 1938:

- (1) HOUSE SURGEON (male). Appointment recognized for the F.R.C.S. examination.
- (2) HOUSE PHYSICIAN AND CASUALTY OFFICER (male).

Salary in each case £150 per annum, with board, residence and laundry.

Applications, stating age and essential particulars, with copies of not more than three testimonials, should reach the Secretary-Superintendent not later than March 8th.

ROYAL INFIRMARY, BLACKBURN. (244 Beds—Five Residents.)

CASUALTY OFFICER (male) required. Salary £175 per annum.

The Casualty Officer is also attached to the Fracture Clinic and Fracture Wards.

Applications, with copies of testimonials, stating age, nationality, experience, etc., to be sent to the undersigned as early as possible.

T. DEWHURST,
Gen. Supt. and Secretary.

Royal Infirmary, Blackburn.
This Institution is recognised for the surgical practice required for the F.R.C.S. examination.

ST. MARY'S HOSPITALS, MANCHESTER.

TWO HOUSE SURGEONS for the Whitworth St. West Hospital (Maternity); and One for the Whitworth Park Hospital (Gynaecological Dept.). Salaries at the rate of £50 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned on or before March 17th.

R. RATCLIFFE, Secretary.

VICTORIA HOSPITAL, WORKSOP. (92 Beds.)

A **JUNIOR RESIDENT (male)** is required, to take up duty on April 1st. Salary at the rate of £125 per annum, with board, residence and laundry.

Applications, with copies of three recent testimonials, and stating age, qualifications and nationality, to be sent to the undersigned. The appointment is for six months, renewable.

JAMES BOOTHROYD,
Secretary-Superintendent.

LEEDS PUBLIC DISPENSARY & HOSPITAL.

Wanted at once, **HOUSE PHYSICIAN (male)**. Appointment for six months. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, with copies of three recent testimonials, to be sent to the undersigned, Public Dispensary and Hospital, North Street, Leeds, 2.

CHARLES F. J. MAURY,
Secretary and Superintendent.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.

JUNIOR HOUSE SURGEON, woman, wanted for April 1st, unmarried. Salary at the rate of £120 yearly, with board, residence and laundry. Apply, stating age and nationality, with copies of testimonials, to the Secretary before Tuesday, March 8th.

A. S. GORDON, Secretary

ECCLES AND PATRICROFT HOSPITAL, near Manchester.

JUNIOR RESIDENT SURGEON required. Appointment for 6 months. Senior post available. Salary at rate of £125 per annum, plus usual emoluments. Apply with references to Secretary.

MARCH 5, 1938

COUNTY BOROUGH OF STOCKPORT PUBLIC HEALTH AND ASSISTANCE COMMITTEE.

STEPPING HILL HOSPITAL. (400 Beds.) RESIDENT ASSISTANT MEDICAL OFFICER

Applications are invited from duly qualified medical practitioners for the post of Resident Assistant Medical Officer (male) at the above hospital. Salary £350 per annum, with board, residence and laundry. The appointment is for one year. The person appointed will be required to devote the whole of his time to the duties of the office. The appointment is determinable by one month's notice on either side. Experience in Surgery and Obstetrics will be a special recommendation.

Applications, stating age, qualifications and experience, together with copies of three testimonials, are to be sent to the undersigned enclosed "Assistant Medical Officer," Public Assistance Offices, Shaw Heath, Stockport.
H. BARLOW,
Public Assistance Officer

THE GUEST HOSPITAL, DUDLEY. (General Hospital—138 Beds.)

The Resident Staff consists of a Resident Surgical Officer and two House Surgeons.

TWO HOUSE SURGEONS (Male) required. One to enter upon his duties on April 1st, and the other to commence on May 2nd. Salary at the rate of £100-£130, according to experience, with furnished apartments, board and laundry. Candidates must be fully qualified and registered. Duties include Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological and work, etc. Applications, stating age, qualifications and experience, accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST,
House Governor and Secretary

THE QUEEN'S HOSPITAL, BIRMINGHAM (The Birmingham United Hospital) (Medical School.)

RESIDENT SURGICAL REGISTRAR required as from May 1st, 1938. Candidates must be F.R.C.S. England, Edinburgh or Ireland, or have passed the Primary F.R.C.S. England, and must have held a resident appointment in a teaching Hospital. Salary £125 per annum, with usual emoluments.

Applications, with recent testimonials, to be sent to the undersigned (from whom all further particulars may be obtained) by March 19th.

P. CROCKER,
House Governor

THE CHESTER ROYAL INFIRMARY. (225 Beds.)

Applications are invited for the post of **HOUSE SURGEON (male)** to the Ear, Nose and Throat and Gynaecological Departments. Salary £140 per annum, with board, lodging and laundry. To take up duty on April 1st next. The appointment is approved in connection with the M.S. (London University) and F.R.C.S. (Lanc.) Examinations. Application list closes March 19th, 1938.

Application forms may be obtained from W. H. GRACE, M.D., M.R.C.P., Hon. Secretary, Medical Committee.
February 28th, 1938.

THE CHESTER ROYAL INFIRMARY. (225 Beds.)

Applications are invited for the post of **HOUSE SURGEON (male)**, to take up duty on March 1st. Salary £150 per annum, with board, lodging and laundry. Duties will include work in the Orthopaedic Department and Fracture Clinic. The appointment is approved in connection with the M.S. (London University) and F.R.C.S. (Lanc.) Examinations. Application list closes March 19th.

Application forms may be obtained from W. H. GRACE, M.D., M.R.C.P., Hon. Sec. Medical Committee.
February 25th, 1938.

HEREFORDSHIRE GENERAL HOSPITAL, Hereford. (152 Beds.)

Immediate applications are invited for the post of **HOUSE SURGEON (male)** to the Ear, Nose and Throat, and Fracture Departments. Salary at the rate of £140 per annum, with board, residence and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned.

T. W. LITTLE,
Secretary

WINGFIELD-MORRIS GENERAL HOSPITAL, Healden, Essex.

HOUSE SURGEON (male) required to take up duty on May 1st. Salary at the rate of £125 per annum, with board, lodging and laundry. Applications, with testimonials, to be sent to the undersigned before April 1st to Professor Little.

APPOINTMENTS—Important Notice

Medical practitioners are requested **not** to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District	Town or District
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer)	OAKDALE, MON (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.)	NEATH AND DISTRICT (Medical Aid Association)	PUBLIC HEALTH
LLWYNYPPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme.)	OGMORE VALLEY, GLAMORGAN (Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme)	SALOP MENTAL HOSPITAL, SHREWSBURY (Assistant Medical Officer Male)

(b) Overseas

Medical practitioners are requested **not** to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie Street, Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.	WESTERN AUSTRALIA (Contract and Lodge Practices)	The Hon. Sec., Western Australian Branch, British Medical Association, "Shell House," 205, St. George's Terrace, Perth, Western Australia.

G. C. ANDERSON, Secretary.

By Order of the Council.

ANCOATS HOSPITAL, Manchester.

CASUALTY OFFICER, twelve months' appointment. Applicants who have passed the Primary Fellowship Examination of one of the Royal Colleges of Surgeons will be preferred. Salary £175 per annum, with board, apartments, washing, etc. The successful applicant will do duty for the Resident Surgical Officer at alternate week-ends and other scheduled times.

HOUSE SURGEON (General) April 1st. Appointment for six months, from apartments. Salary £100 per annum, with board, washing, etc.

Applications for the above posts, stating age, qualifications, experience and full particulars, to be forwarded to the undersigned on or before Wednesday, March 9th, together with copies of three recent testimonials.

By Order of the Board,
HERBERT J. DAFFORNE,
Gen. Supt. and Secretary.

BRISTOL EYE HOSPITAL, 1917.

80 Beds (12 Private Patients); 1,017 In-patients; 17,794 Out-patients.

Applications are invited for the post of **JUNIOR HOUSE SURGEON**. Salary £100 per annum. Senior post available after six months. Vacant April 1st, 1938.

Suitable experience for D.O.M.S. Applications, stating age and qualifications, etc., with three recent testimonials, to be sent to:

D. M. BABER,
Secretary and House Governor.

BURTON-ON-TRENT GENERAL INFIRMARY.

Applications are invited for the post of **SENIOR HOUSE SURGEON** (male). Salary at the rate of £200 per annum, with board, residence and laundry.

Applications, stating age, qualifications, experience and nationality, together with copies of testimonials, to be sent to:

E. W. THORNLEY,
Secretary,
Burton-on-Trent.

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL (220 Surgical and Medical Beds)

CASUALTY OFFICER AND FRACTURE HOUSE SURGEON.

Applications are invited from fully qualified men for the above post to commence as soon as possible.

The appointment is for six months, salary at the rate of £200 per annum with board, apartments and laundry.

The duties include the post of House Surgeon and subject to the recommendation of the Medical Board, the Third Resident is appointed Second Resident (Salary £175 p.a.) and then Senior Resident (Salary £250 p.a.) for similar periods. Candidates should therefore be prepared, if successful, to remain at the Hospital for eighteen months in all.

Applications, stating age and qualifications, accompanied by copies of three recent testimonials, should be sent in not later than first post on Tuesday, March 8th. Chosen candidates will be interviewed on Friday, March 11th, 1938.

By Order,
HENRY L. BOOT,
Superintendent and Secretary.

JENNY LIND HOSPITAL FOR CHILDREN, NORWICH.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**. Salary £120, with board, residence and laundry. Candidates (Male or Female), who must possess registered qualifications, should forward applications, stating age, experience, etc., together with copies of testimonials, to the undersigned, not later than the first post on Wednesday, March 9th, 1938.

By Order of the Board,
RANK INCH, Secretary.

BRADFORD CHILDREN'S HOSPITAL.

HOUSE PHYSICIAN (lady) required April 1st. Fully qualified. Salary £150, with board, residence and laundry.

Applications, with recent testimonials and stating age, not later than March 16th to:

I. W. LONGLEY,
Secretary-Supt.

WARRINGTON INFIRMARY AND DISPENSARY.

The post of **THIRD RESIDENT** will fall vacant on April 1st, 1938, and applications are invited from male candidates, who must be duly qualified Medical Practitioners, and unmarried. Salary at the rate of £150 per annum, with board, lodging and laundry.

At the expiration of six months' term of office, and subject to the recommendation of the Medical Board, the Third Resident is appointed Second Resident (Salary £175 p.a.) and then Senior Resident (Salary £250 p.a.) for similar periods. Candidates should therefore be prepared, if successful, to remain at the Hospital for eighteen months in all.

Applications, stating age and qualifications, accompanied by copies of three recent testimonials, should be sent in not later than first post on Tuesday, March 8th. Chosen candidates will be interviewed on Friday, March 11th, 1938.

By Order,
HENRY L. BOOT,
Superintendent and Secretary.

THE PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth.

(Formerly South Devon and East Cornwall Hospital.) (254 Beds.)

Applications are invited for the post of **HOUSE SURGEON**. Salary £120 per annum, with board, residence and laundry. Appointment is tenable for six months and is subject to renewal. Duties to commence March 22nd.

The Hospital is officially recognized for the surgical practice required before admission to the Final Fellowship Examination of the Royal College of Surgeons of England.

Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned by March 11th.

ARTHUR R. CASH,
Gen. Supt. and Secretary

(Appointments continued on p. 65.)

BRACEBRIDGE HEATH HOSPITAL. Near Lincoln. SECOND ASSISTANT MEDICAL OFFICER.

The Committee of Visitors invite applications for the above whole-time appointment from gentlemen, under 40 years of age, who are duly qualified and registered medical practitioners. Previous Mental Hospital experience essential.

The commencing salary will be £475 per annum, plus emoluments of unfurnished house, fuel, light, water, rates, laundry, vegetables and cleaning materials, valued for superannuation purposes at £75 per annum.

Subject to twelve months' service, satisfactory to the Committee, an increase of £25 will be granted and thereafter increases of £25 per annum up to a maximum cash salary of £575. An additional £50 per annum will be paid to the holder of the D.P.M. qualification or to a person on obtaining the D.P.M. after appointment.

The successful candidate will be required to pass satisfactorily a medical examination and to join the scheme under the Asylum Officers' Superannuation Act, 1909. The appointment is subject to one month's notice on either side.

Form of application can be obtained from the Clerk of Hospital, and should be returned, with copies of three recent testimonials, not later than the first post on March 19th, 1938, addressed to the Medical Superintendent.

BARROWMORE TUBERCULOSIS SANATORIUM AND SETTLEMENT. Gt. Barrow, nr. Chester.

HOUSE PHYSICIAN (male) required at beginning of April. The appointment is for six months, and is renewable. Salary £150 per annum, with board, residence and laundry.

The Institution deals with all stages of Pulmonary Tuberculosis, and comprises Hospital and Sanatorium accommodation, extensive workshops for graduated work, and a settlement.

Special treatment, Sanocrysin and Artificial Pneumothorax given.

Applications, marked "House Physician," with copies of three testimonials, should be sent to the Medical Director at the above address not later than March 17th, 1938.

BIRKENHEAD GENERAL HOSPITAL. (156 Beds.)

Applications are invited for the following Resident (male) posts, for the six months commencing April 1st, 1938:

HOUSE PHYSICIAN. Salary £100 per annum.
CASUALTY OFFICER. Salary £100 per annum.
Both with board, residence and laundry.

Applications, stating age, nationality and qualifications, together with three recent testimonials, to reach the undersigned as soon as possible.

W. H. DANIELS, F.C.S.

Secretary-Superintendent.

DERBYSHIRE ROYAL INFIRMARY, DERBY. (General Hospital, 362 Beds.)

Applications are invited for the post of HOUSE SURGEON FOR EAR, THROAT AND NOSE DEPARTMENT, who must be a male of British nationality and unmarried.

Candidates must be qualified and registered under the Medical Acts. Salary will be £150 per annum, with apartments, board, etc.

Applications, with copies of testimonials, to be sent to the undersigned.

State earliest date duties could be commenced.

ARTHUR TAYLOR,

Superintendent and Secretary.

COSHAM MEMORIAL HOSPITAL. Kingswood, Bristol.

A vacancy will occur at the end of March for a JUNIOR RESIDENT MEDICAL OFFICER. Salary £100 per annum, with board and laundry; to remain for six months in the first instance. Applicants (male) should be of British nationality, fully qualified and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

COUNTY MENTAL HOSPITAL. Rainhill, near Liverpool.

Wanted.—ASSISTANT MEDICAL OFFICER (female) Locum Tenens required for two to three months. Seven guineas per week, with board, lodging and laundry. Apply immediately, giving full particulars of experience, etc., to the Medical Superintendent, County Mental Hospital, Rainhill, near Liverpool.
February 24th, 1938.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

HOUSE SURGEON (man or woman) wanted for six months from April 1st, 1938. Salary to be at the rate of £100 per annum.

Applications, with full particulars and copies of testimonials, to be sent not later than March 12th to HUGH C. ASTON, 45, Newhall Street, Birmingham 3.

KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL, MAIDSTONE. (109 Beds.)

Applications are invited for the post of HOUSE SURGEON to the Ear, Nose and Throat Department, which post will be vacant on April 1st.

Candidates must be duly qualified and registered Medical Practitioners, single, and of British birth and nationality, and should have had some experience in the treatment of diseases of the Ear, Nose and Throat. The post offers facilities for wide clinical experience and operative work, and the Hospital is recognized by the Examining Board for the D.L.O. The appointment is for six months, but may be renewed for a second six months. Salary at the rate of £250 per annum, with board, residence and laundry.

Applications, stating age, together with copies of not more than three testimonials, should be sent to the undersigned by Saturday, March 12th.

JOHN W. STRICKLAND,

Secretary.

JERSEY GENERAL HOSPITAL AND POOR LAW INFIRMARY.

Applications are invited for the following posts (vacant April 1st, 1938).

(a) HOUSE SURGEON (male).

(b) CASUALTY OFFICER AND HOUSE PHYSICIAN (male).

The appointments are for six months, subject to reappointment.

Salaries £175 per annum. Board, residence and laundry are provided.

Applications, stating age, nationality and qualifications, with recent testimonials, to be addressed to the undersigned, on or before Saturday, March 19th.

H. S. PLYMEN,

Secretary-Accountant.

General Hospital, Jersey, C.I.

ROCHDALE INFIRMARY AND DISPENSARY. (110 Beds. Three Residents.)

The Board of Management invites applications for the appointment of HOUSE PHYSICIAN (Male). The salary attached to the appointment is at the rate of £150 per annum, with board, residence, laundry. The duties include work in the Out-patient, Aural, Ophthalmic, etc., Departments, as well as in the wards. The Hospital covers a large industrial area and affords excellent opportunity for experience.

Applications stating age, nationality, etc., with three recent testimonials, to be sent to the Secretary, Rochdale Infirmary.

Infirmary Office, W. WYNNE,

Secretary.

EAST SUFFOLK AND IPSWICH HOSPITAL. (350 Beds. 8 Residents.)

Applications are invited for the following posts, vacant on April 1st:

HOUSE PHYSICIAN.

HOUSE SURGEON to the Ear, Nose and Throat Department.

And an ASSISTANT SURGEON.

Salary for each office at the rate of £144 per annum, with board, apartments and laundry.

Applications from British male candidates, together with copies of three recent testimonials, to be sent to the undersigned immediately.

The Hospital, ARTHUR GRIFFITHS,

Secretary.

Ipswich, March 5th, 1938.

DONCASTER ROYAL INFIRMARY. (185 Beds.)

Applications are invited for the post of FRACTURE HOUSE SURGEON, who will be required to carry out his duties under the direction of an Honorary Orthopaedic Surgeon. The resident Medical Staff of the Hospital numbers six, and this appointment will be considered the senior. Minimum salary £200 p.a., or according to experience.

Applications, accompanied by copies of three recent testimonials, to be forwarded to the undersigned.

R. LANCASTER,

Secretary-Superintendent.

THE CHILDREN'S HOSPITAL, SHEFFIELD. (140 Beds.)

Applications are invited for the post of HOUSE SURGEON, vacant April 1st, 1938.

The appointment is for six months. Salary £100 per annum, with board, residence and laundry. Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials, to the undersigned.

T. H. G. GARTLAND,

Superintendent and Secretary.

TAUNTON AND SOMERSET HOSPITAL. Taunton.

HOUSE SURGEON (male) required March 25th. Salary, rate of £125 p.a. board, residence and laundry, and the retention of certain fees.

Applications, with copies of not more than three recent testimonials, to F. J. J. STACY, Secretary.

PEMBROKE COUNTY WAR MEMORIAL HOSPITAL.

Haverfordwest, Pembrokehire.
(64 Beds, to be increased to 100 Beds.)

RESIDENT HOUSE SURGEON

Applications are invited for the post of Resident House Surgeon, Male (unmarried), from a fully qualified registered Medical Practitioner, with previous resident experience, to commence April 1st, 1938. Salary £200 per annum, with residence (private bungalow), board and laundry.

Applications, stating age, and accompanied by copies of not more than three recent testimonials, to be sent to the undersigned at the above address not later than first post Monday, March 7th, 1938.

F. W. BARNETT,

House Governor and Secretary.

MINEHEAD AND WYST SOMERSET HOSPITAL. Minehead, Somerset.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital. Duty to commence on April 1st, 1938. Appointment for a period of six months. Salary £150 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than March 26th, 1938.

W. H. F. RODDA,

Secretary.

GRANTHAM HOSPITAL. (100 Beds.)

Applications are invited from fully qualified medical practitioners (male) for the post of RESIDENT MEDICAL OFFICER. The appointment is for six months as from April 1st, 1938, and may be renewable. Salary at rate of £150 p.a. with board, residence and laundry. Preference given to applicants who have already held a readership.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, should be sent to the undersigned.

JOHN E. RAY, Secretary-Superintendent.

PROVIDENCE FREE HOSPITAL. St. Helens, Lancs. (130 Beds.)

HOUSE SURGEON (male), single, required: experience in anaesthetics essential. Appointment offers opportunity to gain good surgical experience. Appointment is for six months, and successful candidate is eligible for reappointment. Vacant April 7th. Salary £230, with board, residence and laundry.

Applications, stating age, experience and full particulars, together with copies of three testimonials, to be in by March 12th.

Reply Secretary, M.O.

PRINCE OF WALES'S HOSPITAL. Greenbank Road, Plymouth

Applications are invited for the post of non-resident WHOLE-TIME ASSISTANT PATHOLOGIST. Duties to commence if possible on April 1st. Commencing salary £500 per annum. Candidates must be duly qualified medical practitioners.

Applications, stating age, nationality, qualifications and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before March 25th.

ARTHUR R. CASH,

General Superintendent.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES. (54 Beds, 14,500 Out-patients per annum.)

HOUSE SURGEON.

Applications are invited for the post of House Surgeon. Must be registered. The appointment is for six months. Salary at the rate of £100 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned, 10, Greenbank, Manchester, not later than March 15th.

JOHN NAIL, Secretary.

NORTH ORMSBY HOSPITAL. Middlebrough, (192 Beds.)

HOUSE SURGEON (male and female) required. Salary £120 per annum, with board, residence and laundry.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, should be sent to the undersigned.

GEORGE WATTS,

Secretary-Superintendent.

MANCHESTER ROYAL INFIRMARY.

HOUSE SURGEON required, with full qualifications, with testimonials, board, etc. Applications, with copies of three recent testimonials, to be sent to the undersigned, 10, Greenbank, Manchester, not later than March 15th.

H. P. NORTON,

General Superintendent.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 65, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

PSYCHOTHERAPY. — MEDICAL MAN, specialising in psychotherapy, desires PART-TIME WORK in good-class practice in or near London. Non-resident partnership considered. Capital available.—Address, No. 4015, B.M.A. House, Tavistock Square, W.C.1.

RADIOLOGIST WITH OWN EQUIPMENT required for a small clinic, London, W.1.—Address, No. 4007, B.M.A. House, Tavistock Square, W.C.1.

PARTNERSHIPS

A PARTNERSHIP OFFERED ON TERMS in S. London Practice, with or without succession. Panel, private and med. service. This year's income averages about £900. Good scope. House (for living accommodation) available.—Address, No. 4020, B.M.A. House, Tavistock Square, W.C.1.

DM.R.E. DESIRES PARTNERSHIP IN X-ray practice. Replies will be treated in strict confidence.—Address, No. 3526, B.M.A. House, Tavistock Square, W.C.1.

M.S., LOND., F.R.C.S., ENG. WITH extensive surgical experience and good knowledge of general practice requires PARTNERSHIP in good class practice with surgical scope and prospective hospital appointment. Near London or South Coast preferred.—Address, No. 3735, B.M.A. House, Tavistock Square, W.C.1.

M.D. WISHES PARTNERSHIP WITH OR without preliminary assistantship; outdoor; Scot: 5 years' hospital and G.P. experience. Free early March.—Address, No. 4022, B.M.A. House, Tavistock Square, W.C.1.

ONE-HALF SHARE IN GOOD-CLASS MIXED practice in South of England. Two years' purchase at £1,000. Panel £1,200. Good hospital House to rent or purchase, immediate entry, full introduction.—Address, No. 3599, B.M.A. House, Tavistock Square, W.C.1.

PARTNER REQUIRED, MUST BE EXPERIENCED, keen and energetic, share £1,000 a year, in practice in London with good Panel and appointments. Short preliminary assistantship. Excellent prospects.—Address, No. 4035, B.M.A. House, Tavistock Square, W.C.1.

S. WALES—PARTNERSHIP—ON COAST Panel 2,300. £3,200 p.a. Half share at 2 years' purchase. House in best part.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22659), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

SUSSEX, COAST TOWN—PARTNERSHIP, mixed practice, approx. £3,000 p.a. Panel over 2,000. Good Hospital. Semi-detached house, good garden, for sale or rent. Scope for surgery. Premium half-share two years' purchase.—Address, No. 3957, B.M.A. House, Tavistock Square, W.C.1.

SUSSEX, NEAR BRIGHTON—PARTNERSHIP HALF-SHARE at 2 years' purchase. Receipts over £3,200. Hospital appointment. Excellent house. Applicants must have ample capital. Give full particulars.—Address, No. 4036, B.M.A. House, Tavistock Square, W.C.1.

S. DEVON COAST—PARTNERSHIP with short prelim. Assistantship. Quarter share of £4,600 at £1,215. Good scope. House rent.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22659), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

WEST OF ENGLAND COAST—PARTNERSHIP with good scope. Panel 1,400. £3,200 last year. Premium £2,500 for third share, including share of drugs and book debts.—THE WESTERN MEDICAL AGENCY, 22, Clare Street, Bristol, 1 (Bristol 22659), and 15, Bedford Street, Strand, W.C.2 (Temple Bar 2532).

WEST OF ENGLAND—PARTNER WANTED for general practice in small country town, preliminary assistantship. Ex-Navy, Army, or young man with hospital experience.—Address, No. 4012, B.M.A. House, Tavistock Square, W.C.1.

WEST OF SCOTLAND—PARTNERSHIP in old-established, middle-class, practice averaging £4,000 per annum. Panel 5,800, increasing. Preliminary assistantship followed by 3/16 share at first.—Address, No. 4043, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED, BY M.D., F.R.C.S.E., AGED 40, PRACTICE OR PARTNERSHIP, with some surgical scope or hospital appointment. Income £1,000 upwards.—Address, No. 3831 B.M.A. House, Tavistock Square, W.C.1.

WANTED AT MIDSUMMER, MIDDLE-CLASS PRACTICE OR PARTNERSHIP with moderate Panel, £1,000 to £1,400 p.a., in Home Counties. Bucks, Berks or Herts preferred. Preliminary details in strict confidence to—Address, No. 4011, B.M.A. House, Tavistock Square, W.C.1.

WANTED, COUNTRY OR SMALL TOWN PRACTICE, income £1,500-£2,000, with panel, in southern counties, within 50 miles of London. House to rent. Capital available.—Address, No. 4023, B.M.A. House, Tavistock Square, W.C.1.

WANTED URGENTLY BY PRIVATE advertiser, PRACTICE, London or suburb, about £1,100 to £1,600, including good proportion of Panel. Good living accommodation (4 bedrooms), strictly confidential.—Address, No. 4038, B.M.A. House, Tavistock Square, W.C.1.

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The maximum commission charged on the sale of any practice or share placed exclusively in our hands is £50. No commission is charged on the sale of anything else except house property. Scale of charges sent on application.

FOR DISPOSAL.

LONDON, S.E.—£14/1500 P.A. Panel over 2,000. P.M.S. etc. Premium £3,000. House 4 bed., etc. to rent £120 p.a. Branch surgeries £8-1.

LONDON, N.E.—AVERAGE £1,460 p.a. incl. panel of 2,300, and scope. Share now, succession later. House to rent at £45 p.a. net.—2. S. DEVON COAST TOWN.—QUARTER SHARE of £4,600 p.a. after short Ass'y. Large panel. Premium £2,125. Large bungalow with surg. garden, etc. to rent.—3.

HANTS.—COAST TOWN.—£800 P.A. Panel 660. P.M.S. 295. Appt. over £45 Premium £1,250 incl. drugs, etc. Compact house, with garage, etc.—4.

FAVOURITE SUSSEX RESORT.—Family PRACTICE. Average £1,200 p.a. Panel 600. Good fees. Premium 2 years' purchase. Excellent house, 6 7 bed., etc., on lease.—5.

KENT TOWN.—ABOUT £1,300 P.A. Panel 590. Premium 2 years' purchase. Conv. house, 2 recept., 4 bed., etc. Freehold £1,000.—6.

LONDON, W.6.—NON-PANEL. AVERAGE over £800. Last year £1,150. Rapidly increasing. Fees 5/- to 21/-. Premium £1,000. Semi-det. leasehold house, 5 bed., etc.—7.

FAVOURITE SUSSEX RESORT.—Over £1,300 p.a., excluding appt. work £120 Panel 850. P.M.S. 10. Premium, £2,200. House (6 bed.) to rent £95 p.a.—8.

S. DEVON.—COUNTRY PRACTICE. £400 incl. Resident Patients, and ample scope to young man. Premium only £150. Nice commodious house, rent £65 p.a.—9.

LONDON, W.2.—AVERAGE £1,266. Better class, no panel. Fees 21/- Premium £1,750, or near offer.—Choice of house.—10.

LONDON, S.W.—ABOUT £850 P.A. Panel about 500. Club £200 p.a. Convenient house, rented at £75 p.a. Prem. £1,250 for quick sale.—11.

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LONDON, S.E.20.—OVER £700 P.A. Select panel. Illness cause of sale. Premium 1½ years' purchase. Detached house, 6 bed., etc., on lease, or sell.—13.

SOUTHERN SEAPORT TOWN.—£1,400 p.a., increasing. Panel 1,400. Appt. nearly £400 p.a. Prem. £3,000. Good house (5 bed.), to rent.—14.

ESSEX SUBURB.—NEARLY £1,100, increasing. Panel 750. Premium 2 years' purchase. House, 3 bed., surgery, etc. for sale, £1,000.—15.

LONDON.—SOUTH OF THAMES.—Over £2,000 p.a., with large panel. Suitable house to rent, or would be sold.—16.

LONDON, OUTER S.E. SUBURB.—Over £1,850, rapidly increasing. Panel over 1,000. Premium £3,700. Run from Surgery. Residence available, if desired.—17.

S. WALES.—RESIDENTIAL AND WORKING. HALF-SHARE of £3,200 p.a. Panel 2,300. Visits 5/1s to 7/6. Prem. 2 years' purchase. Ex. freehold house, 6 bed., large garden, etc.—18.

LONDON, W.1.—OLD-ESTD. AVERAGE £735 p.a. No panel or dispensing. Some V.D. Fees from 21/-. Prem. £750. Small flat on lease.—19.

EAST COAST.—AVERAGE £1,400 P.A. Panel 440. Good class. Visits 5/6 to 21/-. Premium £2,450. Large house (6 bed.), good garden and garage. Price £1,550.—20.

LONDON, S.E.6.—ABOUT £750 P.A. Steadily increasing, nice locality. Panel nearly 700. Clubs £35 p.a. Ample accom. on rental. Premium £1,150, to include book-debts, drugs, furniture.—21.

CENTRAL WALES.—ALMOST UNOPPOSED. £2,100 p.a. Panel and appt. over £700. Premium £3,500. Hospital available. Excellent fishing and shooting. Conv. modern house, 6 bed., garden, etc.—22.

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APPOINTMENTS.—Contd.

THE PRINCESS BEATRICE HOSPITAL.
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(General Hospital—81 Beds.)

CASUALTY OFFICER AND OBSTETRIC HOUSE SURGEON (male or female) required for a period of six months as from April 1st, 1938. Salary at the rate of £110 per annum, with board, residence and laundry (together with £10 to cover all duties during the six months relating to private patients). Previous resident experience desirable, but not essential.

Full particulars may be obtained from the Secretary-Manager, by whom applications, with copies of three recent testimonials, should be received not later than 9 a.m. Tuesday, March 8th, 1938.

YORK COUNTY HOSPITAL.
(204 Beds.)

Applications are invited for the post of HOUSE SURGEON. Salary £150 per annum, with board, residence and laundry.

Applications, stating age and previous experience, together with copies of not more than three recent testimonials, to be sent to the undersigned not later than 9 a.m. on Monday March 14th, 1938.
J. R. MACKRILL, Secretary.

VICTORIA HOSPITAL, BURNLEY.
(150 Beds.)

HOUSE PHYSICIAN (Male).

Applications are invited for the above post, which will become vacant on March 8th. The duties include the giving of a certain number of anaesthetics. The appointment is for six months in the first instance, at a salary of £150 per annum, together with board, residence and laundry. At the end of this period reappointment may be applied for, and, if granted, the salary for the second six months will be at the rate of £200 per annum. Applications, giving full details of qualifications and experience, stating nationality, together with copies of recent testimonials, should be addressed to the undersigned forthwith.
J. E. WHEATCROFT, Secretary.

THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN.
Shadwell, London, E.1.
(Formerly East London Hospital for Children.)
(135 Beds.)

A HOUSE PHYSICIAN is required on April 1st, 1938, by the above Hospital. Candidates are invited to send in their applications, addressed to the Secretary, not later than the first post on Tuesday, March 8th, 1938, accompanied by copies of not more than three recent testimonials and evidence of having held a responsible hospital appointment. The appointment is for six months. Salary at the rate of £125 per annum, with board, residence and laundry.

Candidates must be properly registered in this country. Forms of application and copies of the rules can be obtained from the Secretary-Superintendent.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST,
Brompton, S.W.3.

The Committee of Management give notice that a vacancy will shortly occur in the office of PHYSICIAN to the Hospital.

Intending applicants, who must be Fellows or Members of the Royal College of Physicians, London, should address applications, accompanied by testimonials, not later than Thursday, March 10th, to the undersigned. The Senior Assistant Physician is a candidate for the appointment.

F. G. ROUVRAY, Secretary.

February 24th, 1938.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL.
(129 Beds.)

Two RESIDENT HOUSE SURGEONS required by the above Hospital (male or female), to commence duty on April 1st, 1938. Appointment is for six months. Salary £150 per annum, with board and lodging.

Applications, stating age, nationality, experience and qualifications, to be sent, together with copies of three recent testimonials, to the undersigned immediately.

LESLIE SPENCER, Secretary.

March 1st, 1938.

THE BUCHANAN HOSPITAL.
ST. LEONARDS-ON-SEA.
(103 Beds.)

JUNIOR HOUSE SURGEON (female) required to commence duties immediately. Salary at the rate of £125 per annum. Candidate must be duly registered Medical Practitioner, and applications should include copies of three recent testimonials.

FRANK HART, Secretary.

SOUTH LONDON HOSPITAL FOR WOMEN.
Clapham Common, S.W.4.

Applications are invited from medical women as CLINICAL ASSISTANTS for Gynaecological out-patients to attend on Monday afternoon, and Tuesday mornings, and for Medical out-patients to attend on Monday afternoon.

Applications, with testimonials, to be sent to the Secretary at the Hospital.

ROYAL HOSPITAL AND HOME FOR INCURABLES, Putney.

The vacancy as MEDICAL OFFICER recently advertised has now been filled.

THE ROYAL CANCER HOSPITAL (HRII)
(Incorporated under Royal Charter)
Fulham Road, London, S.W.3.

Applications are invited for the post of HOUSE SURGEON, to commence duties on April 1st, 1938. Salary at the rate of £100 per annum. The appointment is for six months and subject to rules, a copy of which may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with three (copies only) testimonials, to be sent to the undersigned not later than the first post on Friday, March 11th, 1938.

CLEMENT CORBOLD, Secretary.

THE ROYAL CANCER HOSPITAL (HRII)
(Incorporated under Royal Charter)
Fulham Road, London, S.W.3.

Applications are invited for the post of SECOND ASSISTANT PATHOLOGIST, to commence duties on April 4th, 1938. Salary £250 per annum. The appointment is for twelve months and subject to rules, a copy of which may be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with three (copies only) testimonials, to be sent to the Secretary not later than the first post on Friday, March 11th, 1938.

CLEMENT CORBOLD, Secretary.

ST. JOHN'S HOSPITAL, LIWISHAM, S.11

Applications are invited for the appointment of HONORARY PHYSICIAN to the Children's Department of the Hospital. The successful applicant, who must be a Member of the Royal College of Physicians, London, will take charge of ten beds, and will be required to take one out-patient clinic weekly. Applications, together with copies of testimonials, should reach the undersigned not later than March 14th.

J. C. GILBERT,

Secretary-Superintendent.

BATLEY AND DISTRICT HOSPITAL.
(General Hospital—84 Beds.)

Required a duly qualified RESIDENT HOUSE SURGEON (male). Salary £175, with board, residence and laundry. Applications, with copies of testimonials, should be sent at once to—

A. W. WESTERN,

Batley, Yorks.

Secretary.

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Practices and Partnerships for Disposal (continued).

26 MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,800. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

27 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.

28 LONDON, S.E.—PARTNERSHIP in rapidly growing district, 20 minutes from Charing Cross. Receipts average £4,275 p.a. Panel about 3,000. Specially designed modern labour-saving house (4 bedrooms), garage and good garden. Rent £110 p.a. Hospital facilities. Premium one-fourth share £2,250, to include drugs, etc. Possible further share in about 12 months.

29 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 0d. Good house, containing 14 rooms with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.

30 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £5,000 p.a., in county town. Panel over 5,000. Main surgery premises (4 bedrooms, etc.), garage and garden, to rent. Premium one-fifth share two years' purchase. Further share in seven years. Short Assistantship.

31 HOME COUNTIES.—PARTNERSHIP in sound old-established Practice, averaging about £4,800, in beautifully situated country town. Panel about 2,000. Visits 3/6 to £1 1s. Incoming partner should preferably be a graduate of Oxford or Cambridge, must have held hospital appointments and be experienced in surgery. Excellent hospital. Share worth about £1,000 (or more) at two years' purchase with good prospects of increase.

32 LONDON, S.E.—Old-established PRACTICE in growing suburban district. Receipts average over £1,500 p.a. (appointments worth about £100 and panel over 1,050). Visits 3/6 to 6/-. Semi-detached corner house (3 bedrooms), with separate surgery accommodation, garage and small garden, for sale. Premium two years' purchase.

33 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-. majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.

34 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.

35 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,800 p.a. Panel 4,600. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.

36 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would

be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.

37 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.

38 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of London. Receipts last year just over £700. Panel 470. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.

39 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, pan- or midwifery. Premises to rent at £135 p.a. Premium £500.

40 SURREY.—PARTNERSHIP in old-established PRACTICE, averaging over £2,800 p.a., in outlying suburban district on the Thames. Small panel. Visits 5/- upwards. Outgoing partner's house (5 bedrooms, etc.), could be purchased if desired. One-third share at two years' purchase.

41 MIDLANDS. Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

42 S. OF ENGLAND.—SURGICAL PARTNER required in good-class Practice in first-rate residential district. Applicant should be aged 30-35 or thereabouts, must hold the English Fellowship and be prepared to do some general practice. Modern up-to-date hospital. Share about £1,050 p.a. at first at two years' purchase.

43 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,682. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

44 S.E. COAST.—Old-established middle and working-class PRACTICE, about £950 p.a., in favourite summer resort. Clubs worth about £130 and panel about 1,490. Detached corner house (5 bed and dressing-rooms), with large garage and about half-acre of garden, for sale. Scope. Premium one and three-quarter years' purchase.

45 LONDON, N.W.—Old-established PRACTICE, doing over £1,100 in residential district under ten miles from Marble Arch. Select panel 305. House (5 bedrooms), with large garden and garage. Price freehold, £2,750, or rent £150 p.a. Scope. Premium £2,000.

46 NEW ZEALAND.—Eye, Ear, Nose and Throat PRACTICE in a most important commercial city. Cash receipts last year £2,277. Expenses light. Premium £2,460 cash or £2,600 terms (English currency). Purchaser should be at least 30 years of age with experience.

47 YORKS (N. RIDING).—Well-established country PRACTICE near small market town. Receipts, 1937, about £1,000. Panel 480 (approx.). Appointments £60. Fees 2/6 to £1 1s. Good house with 5 bedrooms, 3 reception rooms, etc., good garden and field, £65 p.a. Premium two years' purchase.

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Practices and Partnerships for Disposal.

- 1 W. MIDLANDS.—PARTNERSHIP in old-established PRACTICE, £3,288 p.a., in beautifully situated country town. Good appointments and panel 1,750. Suitable house could be obtained. Scope. Premium one-half share one and a-half years' purchase.
- 2 SUSSEX COAST.—PARTNERSHIP in steadily increasing Practice, doing about £1,500, in beautiful country district. Panel £380 p.a. Attractive modern house in own grounds with 5 bed and dressing-rooms and surgery accommodation, garage and large garden, for sale. Excellent sailing, etc. Scope. Premium one-half share, £1,200.
- 3 N.E. COAST.—Old-established and easily worked middle and better working-class PRACTICE, over £1,150 p.a., in seaport town. No panel. Private residence for sale. Good scope. Premium £800, to include furnishings and fittings of consulting rooms, etc.
- 4 LONDON, W.9.—PRACTICE doing about £1,600. Panel 1,700 and P.M.S. 40. Semi-detached corner house (4 bedrooms, etc.), no garage or garden, to rent. Premium £3,250.
- 5 N. WALES.—Good-class PRACTICE, averaging £470 p.a., in favourite watering place. Fees range from 5/- to 10/6. Exceedingly nice house (4 bedrooms, etc.), with garage and nice garden, for sale or rent. Good hospital. Premium one year's purchase.
- 6 BRISTOL.—Old-established middle-class PRACTICE. Receipts, 1937, £342. Panel 200. House (6 bedrooms), in best residential part, with garage and garden. Decided scope for increase. Premium for freehold house and practice, £1,500, or best offer.
- 7 LONDON, S.W.18.—Increasing PRACTICE in populous district. Income last year about £825. Panel 450/500. Club worth about £200 p.a. Shop-fronted house to rent on lease. Excellent scope. Reasonable offer for quick sale.
- 8 DEATH VACANCY.—NORTHANTS.—Well-established PRACTICE in progressive town. Receipts, 1937, £800. Panel 780. Detached house (5 bedrooms), garage and small garden, for sale or rent.
- 9 S. OF ENGLAND.—First-rate Residential Town.—Good non-dispensing PRACTICE about £1,200 p.a. General, and visits 10/6, sometimes 7/-. No midwifery. Consistent. Good house (6 bedrooms), in best part. Price £1,500. Good scope. Premium two years' purchase. Suitable to a physician.
- 10 SURREY.—PARTNERSHIP in well-established and rapidly growing middle-class Practice, doing about £3,750, in developing residential neighbourhood. Panel 750. Visits 5/- to 10/6. House (4 bedrooms), garage and small garden. Price £1,250. One-fourth share at first at two years' purchase.
- 11 DEVON AND CORNWALL BORDER.—Very old-established and steadily increasing country PRACTICE, £1,325 p.a. Panel 413. Visits 5/- to 15/6, medicine extra. Very nice detached house (6 bedrooms, 2 dressing-rooms, etc.), for garages and garden, about one acre, with fine orchard, for sale. Ample scope for increase. Ill-health cause of sale. Reasonable premium accepted for quick sale.
- 12 S.E. COAST.—PARTNERSHIP in old-established middle and working-class Practice in growing resort. Receipts, 1937, £4,350. Panel about 3,000. House (5 bedrooms), garage, etc., to rent at £120 p.a. Premium one-third share two years' purchase.
- 13 S. OF ENGLAND.—Steadily increasing middle and working-class PRACTICE in seaport town. Receipts past year, £500 (appointment worth £45, panel 660 and P.M.S.

Full Particulars sent free.

- 295). Detached house with garage and garden. Rent £85 p.a. Premium £1,220, to include drugs and fittings.
- 14 SEASIDE TOWN WITHIN HOUR OF LONDON.—Very old-established PRACTICE, about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), large garage and garden, for sale or rent. Good scope. Premium £1,000.
- 15 W. OF ENGLAND.—PARTNERSHIP in non-dispensing PRACTICE of £1,800 in first-rate residential town. Panel 2,000. Suitable flat available at £105 p.a. inclusive. Premium four-ninths share two years' purchase (short Assistantship).
- 16 S. OF ENGLAND.—Well-established SANATORIUM for the Open-Air Treatment. Receipts past year, £2,240. Premium £1,000, to include furniture, etc. Further details on application.
- 17 EAST ANGLIA.—Upper and middle-class PRACTICE in progressive town. Receipts last three years average nearly £1,100 p.a. No appointments or panel. Visits 5/- to £1 11s. 6d. Semi-detached house (7 bedrooms, etc.), with good garden, for sale. Scope. Premium one and a-half years' purchase.
- 18 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant outlying residential district. Visits 3/6 to £1 1s. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.
- 19 S. OF ENGLAND.—Experienced SURGEON required for purely EAR, NOSE and THROAT WORK in good-class Practice. Must hold Fellowship and have good experience. Further details on application.
- 20 DEATH VACANCY.—Residential town S. of England.—Good-class PRACTICE with some special work (Cardiology). Receipts January/October, 1937, about £1,700. House could be purchased.
- 21 N. MIDLANDS.—PARTNERSHIP in steadily increasing middle-class Practice, averaging £5,500 p.a., in county town. Panel 4,900. House with 5 bedrooms, garage and good garden, to rent. One-fifth or one-fourth share at two years' purchase.
- 22 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £1,000 p.a., in rapidly developing district. Panel about 517. Visits generally 5/-, 7/6. Modern two-storied house with ample accommodation and separate entrance to professional parts, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.
- 23 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £2,000, in very pleasant agricultural district. Moderate panel. Pleasantly situated house with ample accommodation. Rent £100 p.a. on lease. Extra grass land available if needed. Good scope for increase by young energetic man. Premium one-half share two years' purchase.
- 24 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10/-, medicine extra. House (5 bedrooms), electric light and gas, garage and garden. With rent necessary, but an asset. Premium one-half share, to include remainder of lease, £2,500.
- 25 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms) and detached garage and garden, to rent. Cottage hospital. One-fifth share at two years' purchase.

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Chairman and Managing Director, Dr. J. FIELD HALL.

The maximum commission payable on the sale of any Practice or Partnership in Great Britain placed exclusively in the hands of this Agency is £50 (fifty pounds), which sum covers goodwill, drugs, surgery fittings, fixtures and furniture, instruments and book debts, but not house property. Schedule of Terms will be forwarded on application.

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- NORTH LONDON.**—Old-established PRACTICE worked as a lock-up, producing about £1,900 p.a., including Panel of over 3,500. Surgery premises on rental. Purchaser can choose own residence. Premium £1,700.
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- LONDON, EAST.**—PRACTICE.—PARTNERSHIP.—A ONE-THIRD SHARE (with increase later) is offered in old-established PRACTICE producing about £3,000 p.a., including large Panel. Suitable accommodation can be obtained. Premium £1,500, payable by instalments.
- HOME COUNTIES.**—FAVOURITE RESIDENTIAL TOWN WITHIN EASY REACH OF LONDON.—A ONE-HALF SHARE, estimated to produce about £1,000 p.a., is offered in increasing good mixed-class Practice having good scope for further development. Selected Panel of 475. Low expenses. Good house with 2 reception, 4 bedrooms, etc., on rental. Premium 2 years' purchase. Incoming partner should be about 30-35, married, and preferably experienced in surgery.
- SOUTH-WEST LONDON.**—Mixed-class PRACTICE producing between £800 and £900 p.a. Panel of nearly 500. House can be rented £100 p.a. inclusive. Reasonable offer accepted for quick sale owing to vendor's ill-health.
- LADY DOCTOR'S PRACTICE.**—LONDON, SOUTH-WEST.—Chiefly middle-class PRACTICE producing for last 12 months over £1,000. Panel of 268. Well situated house with ample accommodation. Price £1,350. Premium 1½ years' purchase.
- EASY REACH OF CENTRAL LONDON.**—Old-established mainly working-class PRACTICE held by vendor (who is now retiring) many years. Average gross cash receipts for last 3 years over £1,700 p.a. (last year over £1,800). Large panel. Suitable house with 2 sitting, 3 or 4 bedrooms, professional accommodation. Can be rented on lease.
- AL TOWN.—PARTNERSHIP.**—A ONE-HALF SHARE (with increase later) is offered in old-established PRACTICE producing about £1,000 p.a., including Panel of about 1,200. Well-situated house with ample accommodation. Premium 2 years' purchase. Incoming partner must be experienced, accustomed to better-class work, and preferably between 30 and 40.
- WEST OF ENGLAND.—COUNTY TOWN.**—PRACTICE is good-class residential and consulting one established many years and now for disposal owing to vendor's retirement. Gross cash receipts about £1,200 p.a. Fees 7/6, 10/6, upwards. Suitable house available. Premium 2 years' purchase. Successor should hold M.D. or M.R.C.P.
- INLAND SPA.—A ONE-THIRD SHARE** is offered in well-established PRACTICE producing about £1,000 p.a., including Panel of about 1,000. Well-situated house with ample accommodation and good garden. Freehold £3,000. Premium 2 years' purchase.
- DEATH VACANCY.—BORDERS OF CAMBES, AND NORFOLK.**—Old established country PRACTICE producing between £1,250 and £1,300 p.a., including panel of about 800. Good house in nearly an acre of garden with ample accommodation, etc., electric light, etc. s' purchase or near offer. Premium 2 years' purchase.
- HOME COUNTIES.—A ONE-HALF SHARE** (with increase later) is offered in old-established PRACTICE producing nearly £1,000 p.a., of which £533 p.a. is from panel. Scope for increase. Appointments worth about £50 p.a. Very low expenses. Good house in an acre of ground with 2 reception, 6 bedrooms, etc. Freehold for sale or might be rented. Premium 2 years' purchase.
- WITHIN 150 MILES NORTH OF LONDON.—COUNTY TOWN.**—Old-established chiefly non-panel better-class PRACTICE averaging over £2,000 p.a. Fees 5/- to 21/-. Good house with ample accommodation. Premium 2 years' purchase.
- EAST ANGLIA.—PLEASANT COUNTY AND MARKET TOWN.**—Old-established non-panel PRACTICE producing nearly £1,000 p.a. with good scope. Suitable house with ample accommodation on rental. Premium 1 year's purchase.
- COUNTY TOWN WITHIN 50 MILES OF LONDON.—A ONE-FIFTH SHARE** (after short preliminary assistantship) is offered in well-established practice producing nearly £5,400 p.a. with large panel. Suitable house on rental. Premium 1 year's purchase.
- NORTH LONDON.**—A ONE-HALF SHARE (with increase later) is offered in old-established PRACTICE producing about £1,000 p.a., including panel and 700. Suitable house. Premium 2 years' purchase.
- LADY DOCTOR'S PRACTICE.**—A ONE-HALF SHARE (with increase later) is offered in old-established PRACTICE producing about £1,000 p.a., including panel and 700. Suitable house. Premium 2 years' purchase.
- SOUTH-WESTERN DISTRICT.**—Old-established PRACTICE held by vendor 12 years. Gross cash receipts last year £2,338, this year at rate of about £2,700 p.a. Panel of 1,450 to 1,500. House in good position on rental. Premium 2 years' purchase.
- SOUTH DEVON.—COAST TOWN.**—Well-established PRACTICE producing last year over £1,000 (this year at rate of about £1,200 p.a.). Freehold house with 2 reception, 6 bedrooms, etc., for sale or might rent. Premium 2 years' purchase.
- SOUTH-WEST COUNTY.—A ONE-SIXTH SHARE** is offered in old-established PRACTICE producing nearly £1,000 p.a. Incoming partner must have made a special study of medicine and preferably hold the M.R.C.P. or have held a medical registration. Short preliminary assistantship. Suitable house available. Premium 2 years' purchase.
- SOUTH WALES COAST.—PARTNERSHIP.—A ONE-HALF SHARE** is offered in old-established PRACTICE producing over £3,000 p.a. Large panel. Very good house. Freehold for sale. Premium 2 years' purchase.
- EASTERN COUNTIES.—A QUARTER SHARE** (with increase later) after preliminary assistantship of about 3 months is offered in old-established PRACTICE producing over £4,600 p.a. With substantial Panel and good appointments. Very nice house available on rental at £50 p.a. Premium 2 years' purchase.
- LONDON, EAST.**—Exceptionally sound chiefly working-class PRACTICE producing about £1,060 p.a., over £1,000 from Panel and appointments. Suitable house, rent £100 p.a.
- NEAR BIRMINGHAM.—A ONE-THIRD SHARE** (after preliminary assistantship) is offered in sound steadily increasing mixed-class PRACTICE producing £1,700 p.a. Panel of nearly 500. Premium 2 years' purchase.
- PARTNERSHIP.—A TWO-FIFTHS SHARE**, with increase to one-half later, is offered in old-established PRACTICE producing within about 70 miles of London. Gross cash receipts last year £2,500 p.a. (this year at rate of about £2,800 p.a.). Very nice house with ample accommodation. Premium 2 years' purchase.
- NORTH WALES.**—(Welsh not essential).—Old-established unopposed country PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and about £235 from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price of freehold, £1,550. Premium £500. Particulars on request will be given.
- SURREY.—DEVELOPING TOWN.**—Increasing PRACTICE producing for last year £635 and believed to offer considerable scope. Panel of about 450. Well-built semi-detached freehold house with 6 bedrooms, etc., or smaller house available if wished. Premium 1½ years' purchase.
- SOUTH-WEST OF ENGLAND.—COUNTRY TOWN.—A ONE-HALF SHARE** is offered in old-established PRACTICE producing about £1,000 p.a., but believed to be capable of considerable increase with the aid of an experienced partner. Panel of about 1,100 patients. Very good house with 2 reception, 4 bedrooms, etc., and all modern conveniences. Garden of about 1 acre. Premium for share and house, £2,500.
- OF LONDON.—PARTNERSHIP.—A ONE-THIRD SHARE** (after preliminary assistantship) is offered in PRACTICE producing about £1,000 p.a., of which over £200 p.a. is from panel and about £200 from appointments. Suitable house with 2 reception, 3 bedrooms, etc. Premium £1,500.
- NORTH LONDON.**—Old-established mixed-class PRACTICE, averaging for past two years about £2,300 p.a. Panel of over 2,000. Suitable house with 2 reception, 4 bedrooms, small garden. Rent on lease £104 p.a. Premium 2 years' purchase.
- SCOTLAND.—UNIVERSITY CITY.**—Old-established non-dispensing PRACTICE producing about £320 p.a., including £540 from Panel and £70 from appointments. Suitable house, 2 reception, 6 bedrooms, etc. Freehold £900, part on mortgage. Premium 1½ years' purchase or near offer.
- RESIDENTIAL DISTRICT.**—Long-established good general PRACTICE producing over £3,000 p.a. with a full panel. Good house with ample accommodation, garden and garage. Freehold for sale or might be rented. A good introduction will be given.
- SOUTH COAST SEAPORT.**—Old-established mixed-class PRACTICE producing for past year over £3,000. Panel about 1,600. Various appointments. Well situated modern house, 3 reception, 5 bedrooms. Central surgery rented at £60 p.a. rent subject to Premium 2 years' purchase.
- SOUTH COAST.—FAVOURITE TOWN.**—Old-established PRACTICE producing over £1,700 p.a. Panel of about 1,500. Appointments about £500 p.a. Scope for surgery. Prospect of hospital appointments. Low expenses. Suitable house with garden and garage on lease. Premium 2 years' purchase or to include book debts and drugs.
- DORSET COAST.—PARTNERSHIP.—A ONE-THIRD SHARE** with increase later in a well-established PRACTICE averaging about £5,000 p.a. Panel of over 2,700 and P.M.S. about 1,000. Various appointments producing £250-£300 p.a. Low expenses. Suitable house with 5 bedrooms, etc., can be purchased or rented. Premium 2 years' purchase.
- NORTH LONDON SUBURB.**—Recently established PRACTICE in fine developing area. Receipts last year about £720, including Panel of about 200 patients. Architect built modern house with ample accommodation. Freehold for sale. Premium £350 or near offer.
- GLOS.**—Sound old-established PRACTICE in beautiful country. Duties averaging for past 4 years about £1,300 p.a. Panel over 1,100. Appointments about £50 p.a. Good house in own grounds. Freehold for sale. Premium 2 years' purchase.
- WILTSHIRE.—RESIDENTIAL TOWN.**—Early worked, mostly non-dispensing PRACTICE producing about £1,000 p.a., including Panel of about 325. Low expenses. Suitable house available with consulting and waiting rooms, 2 reception, 3 bedrooms, maid's room, etc. Large garden. Garage. For sale or can be rented. Premium 1½ years' purchase.
- EAST ANGLIA.**—Within reach of two good towns. Old-established PRACTICE producing over £450 p.a. Low expenses. Detached house with 2 sitting and 5 bedrooms, etc. Rent £70 p.a. Premium £1,750.
- WITHIN 25 MILES OF LONDON.—PARTNERSHIP.**—With surplus scope. A one-fourth share, with increase later, is for disposal in an old-established PRACTICE producing about £3,500 p.a. Fees 3/- to 21/-. A suitable house can be secured. Incoming partner must have a Fr. Lic. and be experienced and over 35 years of age. A premium assistantship is offered.
- SURGICAL PARTNERSHIP** in delightful district within easy reach of London. A fifth partner is required in an old-established PRACTICE. There is little visiting done under 10/6, although the patients come from all classes. Incoming partner, who must hold the Fellowship, would do all the surgery for the firm, but must be prepared to do general practice as well. Choice of house.

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LANCS TOWN.—PARTNERSHIP in old-established mixed-class PRACTICE in large town 6 miles from Manchester. Average gross cash receipts nearly £4,000 p.a. Panel 3,600. Good house, 2 reception, 4 bedrooms, garage and small garden. To rent. Premium—2/5th share (about £1,600 gross)—2 years' purchase, or near offer.—No. 1073.

MANCHESTER.—Sound old-established mixed Panel and Private PRACTICE in industrial district. Cash receipts last year £1,900. Panel 2,230. Good house, reception room, 4 bedrooms, 2 Professional rooms, small garden. Rent £50 p.a. Premium—best offer.—No. 1074.

NEAR BUXTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £740 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 989.

MANCHESTER.—Well-established mixed-class PRACTICE. Cash receipts £1,600 p.a. Panel 1,600. Good surgery premises to rent at £52 p.a. Purchaser can choose own residence. Prem.—1½ years' purchase. Vendor retiring.—No. 1079.

NORTH-WEST COAST.—Middle-class (non-panel) PRACTICE in popular Seaside resort. Cash receipts last year £1,868. Fees 5/- to £1/1/- . Good detached house to rent, 3 reception, 5 bedrooms, large garden and garage. Premium—best offer.—No. 1083.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a. Panel 970 and transferable appointments £200 p.a. Scope. Nice detached house, 2 reception, 6/7 bedrooms, garage and large garden. Freehold. Premium—1½ years' purchase.—No. 991.

YORKSHIRE (W.R.).—Well-established mixed-class PRACTICE near large town. Average cash receipts £1,175 p.a. Panel 1,121. Good house, 2 reception, 4 bedrooms, 3 Professional rooms, garage and garden. Rent £65 p.a. Premium—1½ years' purchase, or near offer.—No. 1085.

NEAR MANCHESTER.—PARTNERSHIP in very old-established middle-class (non-panel and non-dispensing) PRACTICE in pleasant residential district. Cash receipts about £6,000 p.a. Fees 5/- upwards. Unlimited scope. Expenses low. Suitable house available for incoming partner. Premium—1 share—2 years' purchase.—No. 1062.

SOUTH YORKSHIRE.—Old-established unopposed PRACTICE in pleasant country town. Average cash receipts £1,850 p.a. Panel 1,200 and appointments. Nice modern detached house, 2 reception, 5 bedrooms, garage and large garden; central heating, electric light. For sale or would rent.—No. 1074.

MANCHESTER.—Old-established mixed-class PRACTICE. Cash receipts last year £1,222. Panel 800. Scope. Good house, 2 reception, 5 bedrooms. Premium—1½ years' purchase.—No. 1009.

MIDLAND CITY.—PARTNERSHIP in very old-established mixed Panel and Private Practice. Cash receipts last year £2,498. Panel 2,638. Scope for great increase. Nice modern house available, 2 reception, 3 bedrooms, garage and garden. Premium—1 share—2 years' purchase.—No. 1077.

YORKSHIRE (W.R.).—Well-established mixed-class PRACTICE with no resident opposition, in pleasant village near a town. Cash receipts last year £1,225. Panel 1,100. Good house, 2 reception, 4 bedrooms, Professional rooms, electric light, garage and garden. Rent £52 p.a. Premium—1½ years' purchase.—No. 1067.

SUFFOLK.—PARTNERSHIP (after preliminary Assistantship) in Country town. Cash receipts last year £4,655. Panel 2,400, and appointments of £500 p.a. Incoming Partner must have had Hospital experience; married or single. Good house available. Rent £50 p.a. Cottage Hospital. Premium—1 share—2 years' purchase.—No. 1070.

MANCHESTER.—Well-established middle-class PRACTICE in pleasant suburb. Cash receipts last year £1,225. Panel 760. Scope. Nice detached house, 5 bedrooms, 3 reception rooms, garage and large garden. Premium—best offer.—No. 968.

YORKSHIRE (W.R.).—Old-established mixed PRACTICE, averaging £360 p.a. Panel 701. Scope for increase. Good house, with excellent garden, to rent at £30 p.a. Premium—£1,350 (to include drugs and fittings).—No. 1037.

NOTTS.—Well-established mixed Panel and Private PRACTICE in small county town. Cash receipts £1,400 p.a. Panel 1,200 and appointments. Good house with ample living and Professional accommodation. Rent £50 p.a. Premium—2 years' purchase.—No. 1075.

MIDLAND PARTNERSHIP.—PARTNERSHIP (after preliminary Assistantship) in very Practice. Cash receipts last year £1,774. Incoming partner should be Protestant, and may choose own residence. Possibility of Hospital appointment. Premium—1 share—2 years' purchase. Further share in three years.—No. 1090.

EAST COAST.—PARTNERSHIP (after preliminary Assistantship) in middle-class and better working-class. Practice in large seaport town. Cash receipts £3,800 p.a. Panel 2,600. Choice of suitable houses. Premium—1½ or 1/3rd share—2 years' purchase. No. 1076.

YORKSHIRE (W.R.).—Very old-established Mixed Panel and Private PRACTICE. Cash receipts £1,200 p.a. Panel 900. Scope. Good detached house, 2 reception, 4 bedrooms, Professional rooms, garage and garden. Premium—1½ years' purchase.—No. 1060.

SHEFFIELD.—MEDICAL WOMAN'S PRACTICE. Well-established, offering scope. Cash receipts £350 p.a. Panel 200. Commodious house. Rent £52 p.a. Premium—£400.—No. 1071.

MANCHESTER.—MEDICAL WOMAN'S PRACTICE: in present hands 9 years. Cash receipts last year £1,021. Panel 370. Good detached house, 2 reception, 3 bedrooms, garage and garden. Price £1,050. Premium—1½ years' purchase.—No. 1072.

NORTH WALES.—Good-class long established PRACTICE in attractive and residential sea resort. Cash receipts last 16 years over £12,000 p.a. Panel 425. Good house, with two small gardens, to rent or purchase, freehold. Very pleasant. Premium—£1,800.—Vendor retiring.—No. 929.

SOUTH COAST.—Old-established middle-class PRACTICE in first-rate seaside resort. Cash receipts £400/£500 p.a. Panel 640. Good house, 2 reception, 4 bedrooms, maid's room, 3 Professional rooms, garage and garden. To rent. Premium—£2,500.—No. 1058.

CENTRAL WALES.—Very old-established unopposed Country PRACTICE: in present hands 13 years. Average cash receipts over £2,000 p.a. Panel returns about £620 p.a. and appointments £235 p.a. Exc. house, 2 reception, 3 Professional rooms, electric light, garage for 2 cars and beautiful garden. Price £1,500. Premium—Practice—£3,500.—No. 1068.

LIVERPOOL.—Very old-established middle-class PRACTICE in residential district. Cash receipts £1,100 p.a. Panel 599. Good scope for energetic man. Excellent house, 3 reception, 5 bedrooms, etc. Price £700. Premium—£1,500. Vendor retiring.—No. 1046.

BEDFORDSHIRE.—Small Country PRACTICE, capable of great increase. Cash receipts £400/£500 p.a. Panel 120. Good house, with ample garden. Garage and garden. Rent £36 p.a. or would sell for £500. Prem. £300.—No. 1073.

NORTH-WEST COAST.—Old-established middle-class PRACTICE. Cash receipts £1,100. Panel 350. Detached house, garage and large garden. Premium—1½ years' purchase.—No. 961.

LANCS TOWN.—Well-established mixed-class PRACTICE. Cash receipts approximately £1,300 p.a. Panel 800. Good house, garage and garden. To rent. Premium—£1,350.—No. 1010.

NORTH-EAST COAST.—Middle-class (non-panel) PRACTICE. Cash receipts £1,100 p.a. Rent of surgery premises £26 p.a. Premium—£1,000.—No. 1028.

DERBYSHIRE.—Increasing Private and Panel PRACTICE in well-known Spa. Cash receipts approximately £700. Panel 200. Good ground for sale. Rent £50 p.a. Premium, best offer.—No. 1057.

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1226/1227/1228/1229/1230/1231/1232/1233/1234/1235/1236/1237/1238/1239/1240/1241/1242/1243/1244/1245/1246/1247/1248/1249/1250/1251/1252/1253/1254/1255/1256/1257/1258/1259/1260/1261/1262/1263/1264/1265/1266/1267/1268/1269/1270/1271/1272/1273/1274/1275/1276/1277/1278/1279/1280/1281/1282/1283/1284/1285/1286/1287/1288/1289/1290/1291/1292/1293/1294/1295/1296/1297/1298/1299/1300/1301/1302/1303/1304/1305/1306/1307/1308/1309/1310/1311/1312/1313/1314/1315/1316/1317/1318/1319/1320/1321/1322/1323/1324/1325/1326/1327/1328/1329/1330/1331/1332/1333/1334/1335/1336/1337/1338/1339/1340/1341/1342/1343/1344/1345/1346/1347/1348/1349/1350/1351/1352/1353/1354/1355/1356/1357/1358/1359/1360/1361/1362/1363/1364/1365/1366/1367/1368/1369/1370/1371/1372/1373/1374/1375/1376/1377/1378/1379/1380/1381/1382/1383/1384/1385/1386/1387/1388/1389/1390/1391/1392/1393/1394/1395/1396/1397/1398/1399/1400/1401/1402/1403/1404/1405/1406/1407/1408/1409/1410/1411/1412/1413/1414/1415/1416/1417/1418/1419/1420/1421/1422/1423/1424/1425/1426/1427/1428/1429/1430/1431/1432/1433/1434/1435/1436/1437/1438/1439/1440/1441/1442/1443/1444/1445/1446/1447/1448/1449/1450/1451/1452/1453/1454/1455/1456/1457/1458/1459/1460/1461/1462/1463/1464/1465/1466/1467/1468/1469/1470/1471/1472/1473/1474/1475/1476/1477/1478/1479/1480/1481/1482/1483/1484/1485/1486/1487/1488/1489/1490/1491/1492/1493/1494/1495/1496/1497/1498/1499/1500/1501/1502/1503/1504/1505/1506/1507/1508/1509/1510/1511/1512/1513/1514/1515/1516/1517/1518/1519/1520/1521/1522/1523/1524/1525/1526/1527/1528/1529/1530/1531/1532/1533/1534/1535/1536/1537/1538/1539/1540/1541/1542/1543/1544/1545/1546/1547/1548/1549/1550/1551/1552/1553/1554/1555/1556/1557/1558/1559/1560/1561/1562/1563/1564/1565/1566/1567/1568/1569/1570/1571/1572/1573/1574/1575/1576/1577/1578/1579/1580/1581/1582/1583/1584/1585/1586/1587/1588/1589/1590/1591/1592/1593/1594/1595/1596/1597/1598/1599/1600/1601/1602/1603/1604/1605/1606/1607/1608/1609/1610/1611/1612/1613/1614/1615/1616/1617/1618/1619/1620/1621/1622/1623/1624/1625/1626/1627/1628/1629/1630/1631/1632/1633/1634/1635/1636/1637/1638/1639/1640/1641/1642/1643/1644/1645/1646/1647/1648/1649/1650/1651/1652/1653/1654/1655/1656/1657/1658/1659/1660/1661/1662/1663/1664/1665/1666/1667/1668/1669/1670/1671/1672/1673/1674/1675/1676/1677/1678/1679/1680/1681/1682/1683/1684/1685/1686/1687/1688/1689/1690/1691/1692/1693/1694/1695/1696/1697/1698/1699/1700/1701/1702/1703/1704/1705/1706/1707/1708/1709/1710/1711/1712/1713/1714/1715/1716/1717/1718/1719/1720/1721/1722/1723/1724/1725/1726/1727/1728/1729/1730/1731/1732/1733/1734/1735/1736/1737/1738/1739/1740/1741/1742/1743/1744/1745/1746/1747/1748/1749/1750/1751/1752/1753/1754/1755/1756/1757/1758/1759/1760/1761/1762/1763/1764/1765/1766/1767/1768/1769/1770/1771/1772/1773/1774/1775/1776/1777/1778/1779/1780/1781/1782/1783/1784/1785/1786/1787/1788/1789/1790/1791/1792/1793/1794/1795/1796/1797/1798/1799/1800/1801/1802/1803/1804/1805/1806/1807/1808/1809/1810/1811/1812/1813/1814/1815/1816/1817/18

BRITISH MEDICAL JOURNAL

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SATURDAY MARCH 12 1938

PRINCIPAL CONTENTS

Recent Work in Experimental Cancer Research	P. 551	Leading Articles	p. 571
Vitamin C Deficiency in Peptic Ulceration	554	Correspondence	588
Vitamin C Deficiency Estimated by Capillary Resistance	560	Surgery in General Practice: Muscle Injuries	576
Prophylactic Use of Sulphona- mide in Obstetrics	562	Reviews	566
High Blood Pressure in Coarctation of Aorta	564	Joint Tuberculosis Council	570
		Table of Infectious Diseases	600
		Reports of Societies	580

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TABLE OF CONTENTS

ADDRESSES AND PAPERS

- Some Recent Work in Experimental Cancer Research. W. E. GYE, M.D. 551
- Vitamin C Deficiency in Peptic Ulceration and Haematemesis. B. PORTNOY, M.B., CH.B., and J. F. WILKINSON, M.D. (With Charts).....554
- Vitamin C Deficiency in Peptic Ulceration Estimated by Capillary Resistance Test. GEOFFREY EOURNE, D.Sc.560
- Prophylactic Use of Sulphonamide Preparations in Obstetric Practice. R. W. JOHNSTONE, M.D.562
- Early Occurrence of High Blood Pressure in Coarctation of Aorta. E. JOAN ROOKE, M.B., B.S.564

SURGICAL SERIES

- Treatment of Muscle Injuries. C. MAX PAGE, F.R.C.S.576

CLINICAL MEMORANDA

- Dislocation of Eyeball Complicating Oxycephaly. J. SHERNE, F.R.C.S. (Illustrated).....565
- Cardiazol in Infancy. GWEN LEE, M.B., TERENCE LEE, M.B.565
- Pneumococcal Meningitis treated with Protosil. C. LATTO, M.B.566

REVIEWS

- Paediatric Therapeutics566
- Morphology and Comparative Anatomy566
- Clinical Diagnosis567
- Orthopaedic Practice567
- Pseudocystis568
- Notes on Books568

GENERAL ARTICLES AND NEWS

- Treatment of Diabetes : Lettsomian Lectures. No. 2. GEORGE GRAHAM, M.D., F.R.C.P.579
- Nova et Vetera :
The Fighting Druggist.....580
- Joint Tuberculosis Council570
- L.C.C. CONSULTANT AND SPECIALIST SERVICES570
- HEALTH OF THE NAVY578
- TUBERCULOSIS ASSOCIATION.....578
- MEDICAL NOTES IN PARLIAMENT—
Criticism of the B.M.A.'s Milk Advertisement602
- PREPARATIONS AND APPLIANCES.....569
- UNIVERSITIES AND COLLEGES599
- MEDICAL NEWS603

LEADING ARTICLES

- The Function of Vitamin C571
- Buildings for Health.....572

ANNOTATIONS

- Host Susceptibility to Colds573
- Nerve Pain of Vertebral Origin.....574
- B.C.G. Vaccination in Calves574
- Treatment of Varicose Veins575
- Progress in Paediatrics.....575
- Tuberculosis in Cyprus575

SUPPLEMENT

- The Doctor in the Home.
Sir WALTER LANGDON-BROWN
- THE VALUE OF THE B.M.A. TO
INDIVIDUAL MEMBERS
- BOURNEMOUTH HOSPITAL AND
HEALTH SERVICES
- NORTHERN IRELAND'S HEALTH
PROBLEM
- POSTGRADUATE DIARY
- MEETINGS OF BRANCHES
- Association Notices ; Vacancies
and Appointments ; Diary

REPORTS OF SOCIETIES

- MEDICAL SOCIETY OF LONDON :
Flatulence580
- ROYAL SOCIETY OF MEDICINE :
Massive Collapse of the Lung582
- LIVERPOOL MEDICAL INSTITUTION :
Pruritus Vulvae584
- ROYAL SOCIETY OF TROPICAL MEDICINE :
Paradenitis Venerea584

LOCAL NEWS

- SCOTLAND—
Psychiatric Treatment.....585
- Inquiry into Physical Welfare.....586
- District Nursing586
- ENGLAND AND WALES—
Welsh Board of Health.....586
- Medical Society of London.....586
- District Nursing in London587
- Guy's Hospital Dental School.....587

MEDICO-LEGAL

- The Defence of Insanity.....599

EPIDEMIOLOGY SECTION

- TABLE OF INFECTIOUS DISEASES AND
VITAL STATISTICS600
- EPIDEMIOLOGICAL NOTES601

CORRESPONDENCE

- After-effects of Modern Treatment of Carcinoma. CECIL ROWNTREE, F.R.C.S. ; J. H. DOUGLAS WEBSTER, M.D. ; FRANK ELLIS, M.B. ; PERCY FLERNIVALL, F.R.C.S.588
- Scapulo-humeral Periarthritis. F. G. THOMSON, M.D. ; ST. J. D. BUNTON, F.R.C.S.589
- Transport of Iron. E. W. REID, M.B., F.R.S.590
- Iron for Subnutrition. G. H. PEARCE, M.D.590
- The Shortage of Nurses. R. LEONARD LEY, M.B.590
- Medical Secrecy and the Matrimonial Causes Act. R. W. DURAND, M.R.C.S.591
- The Population Question. Sir LEONARD HILL, M.B., F.R.S.591
- Contraceptives and Fertility. V. B. GREEN-ARMYtage, M.D.592
- Miners' Nystagmus. R. BROCK, M.D.592
- Asthma and Sensitivity to Aspirin. FRANK COKE, F.R.C.S.593
- Ascorbic Acid in Urine. E. A. G. GOLDIE, M.B.593
- Somatic Pain. J. B. MENNELL, M.D.593
- Referred Pains Arising from Muscle. WALTER G. CAMPBELL, F.R.C.S.594
- Chronic Littritis. S. M. LAIRD, M.D.594
- Treatment of Boils and Carbuncles. S. D. SCOTT PARK, M.B.594
- Sulphanilamide for *Br. abortus* Infection. W. A. PAGE, M.D.594
- Time for Midwifery. R. ANDERSON, M.D. ; H. J. THOMSON, M.D.595
- Founders of British Otolaryngology. MACLEOD YEARSLEY, F.R.C.S.595

OBITUARY

- Harold Simmons, M.B., B.S.596
- George Henry Batterbury, M.D.596
- John Frederick Walker, M.B., J.P.597
- W. Alexander Young, M.B., C.M.597
- J. Young Macfadyen, M.B.E.598
- J. H. Gilbertson, L.R.C.P.598
- G. D. Knight, M.D.598
- J. B. Dalton, M.B., CH.B.598
- John MacWatt, M.B.599
- J. Harmer Drew, M.D.598

THE SERVICES

- Honorary Physician to the King599
- Deaths in the Services604
- (For Naval, Military, and Air Force Appointments see SUPPLEMENT)

LETTERS AND ANSWERS

- Primary Vaccination604
- Income Tax604
- Human Embryos Wanted604
- Hydrotherapy for Arthritis604

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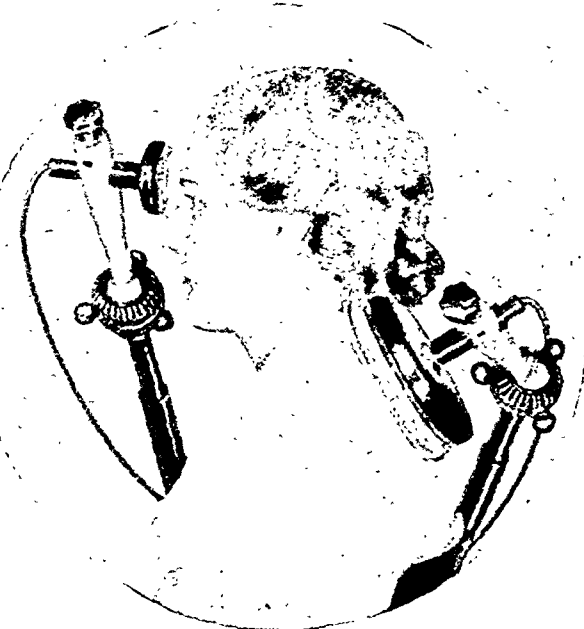
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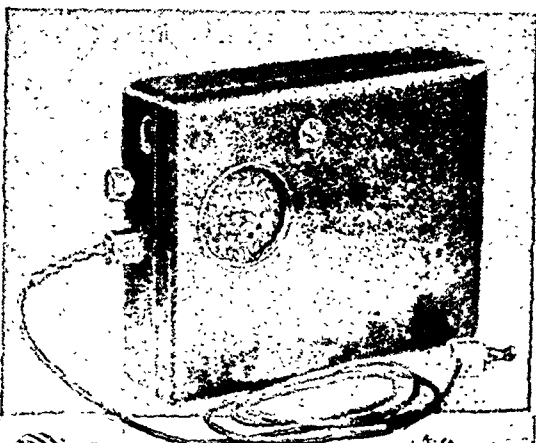
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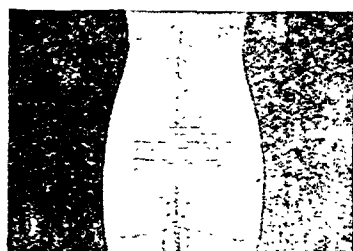
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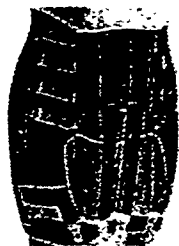
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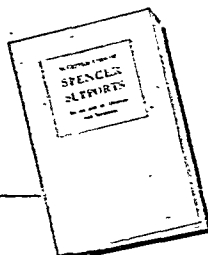
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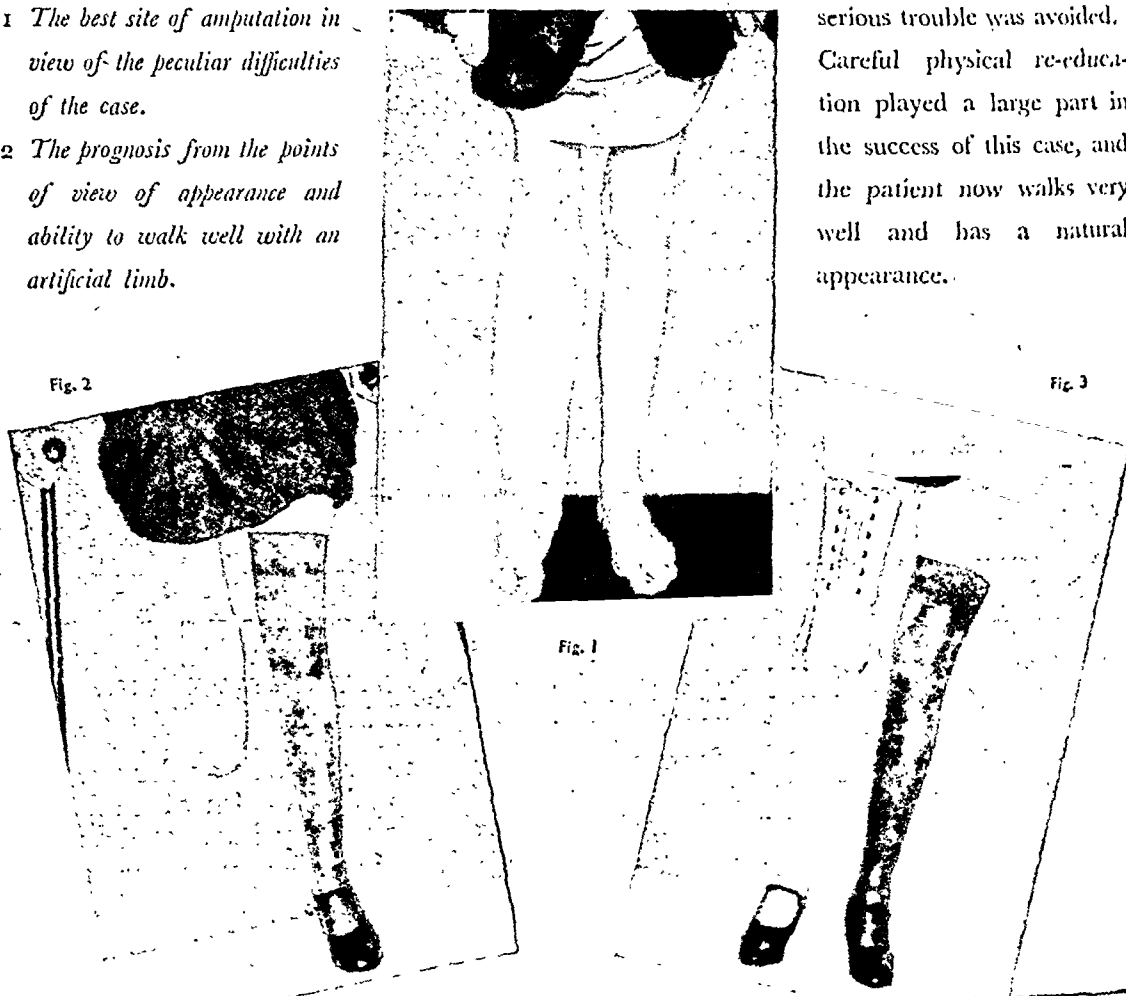
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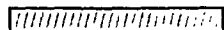
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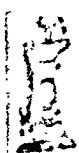
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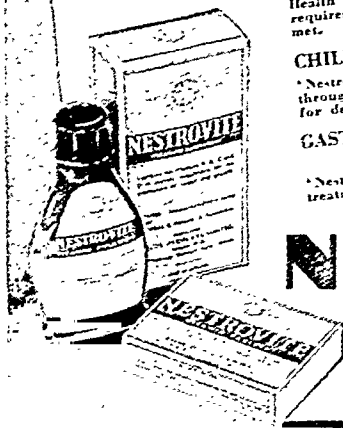
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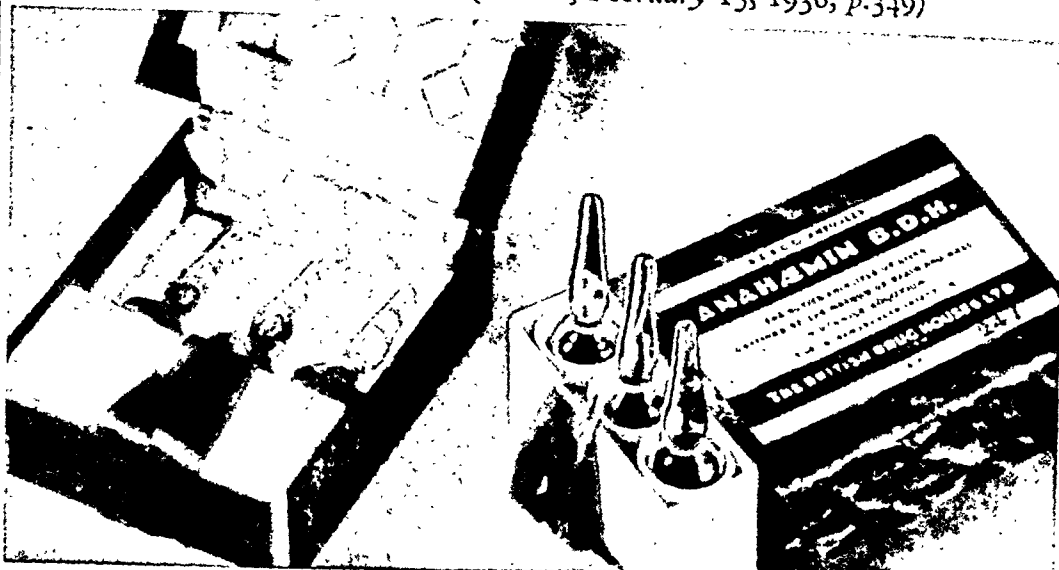
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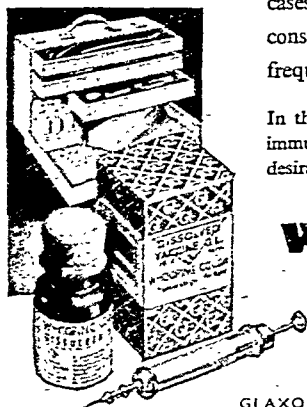
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MEDISOAP No. 19

(MIDGLEY)

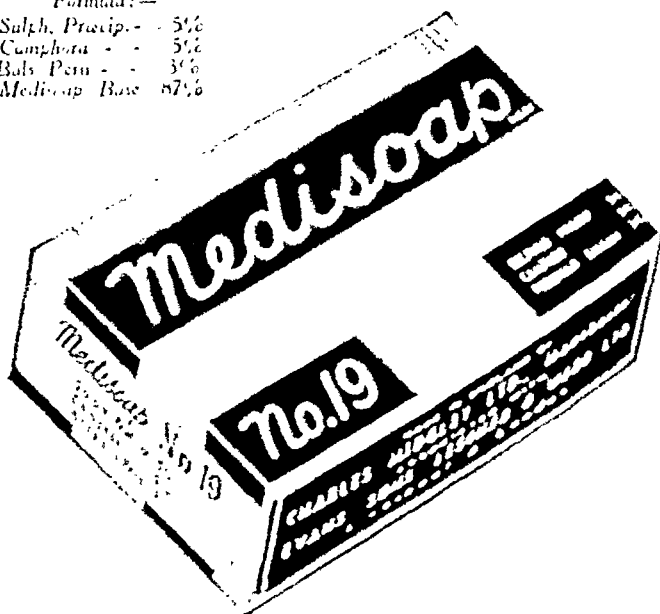
This Medisoap is well adapted for use in:—

ACNE VULGARIS
ACNE ROSACEA
FAVUS
SCABIES
PRURIGO
PSORIASIS
PITYRIASIS ROSEA

Formula:—
Sulph. Precip. - 5%
Camphora - 5%
Bals. Peru - 3%
Medisoap Base 87%

Price 1/3 per tablet

A clinical index to the 47 Medisoap formulae will be sent to physicians on request

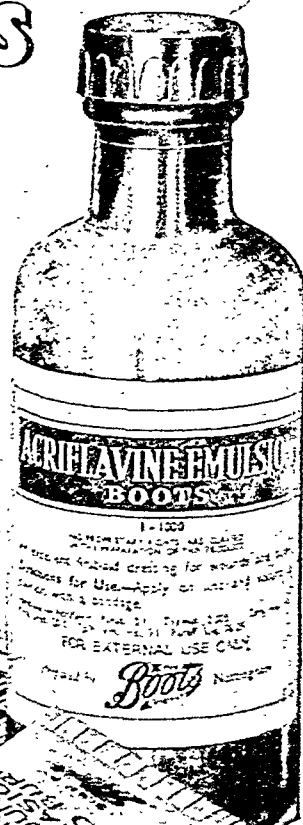


Evans Sons Lescher & Webb Ltd., Liverpool and London

ACRIFLAVINE PREPARATIONS BOOTS

IN A RECENT ARTICLE ON THE USE AND ABUSE OF ANTISEPTICS (Brit. Med. J., Dec. 18th, 1937, page 1233) SPECIAL ATTENTION IS DIRECTED TO ACRIFLAVINE AND RELATED ACRIDINE COMPOUNDS

"These are the only substances which have been proved by controlled animal experiment to be capable of averting wound sepsis. They kill or prevent the growth of pyogenic cocci in extreme dilution, act slowly, and in some cases are more bactericidal in serum—a unique property. They are also relatively non-toxic, sufficient concentrations for antiseptic action demonstrably leaving the activities of leucocytes unimpaired; this property is also unique. It is therefore possible to infiltrate tissues with solutions in order to prevent infection or to arrest it at an early stage."



Preparations of Acriflavine and Neutral Acriflavine are available in the form of Emulsion, Cream, Tablets, Solution Tablets, Medicated Gauze, Pessaries, Bougies & Pigment.

Full particulars and literature will be sent on request.

WHOLESALE & EXPORT DEPT.
BOOTS PURE DRUG
CO., LTD.
NOTTINGHAM. ENGLAND.



LIQUOR PANCREATICUS (Benger)

An important aid in the preparation of Peptonised Milk, etc.

Liquor Pancreaticus Benger is an active solution of the digestive principles of the Pancreas; a really efficient agent for the digestion of milk, gruel and farinaceous or partly farinaceous foods. Odourless and tasteless. In 4, 8 and 16-oz. bottles. Prices: 3/6, 5/6 and 10/6.



Physicians may obtain full particulars of Benger's preparations post free on request.

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ASSIMILABLE IRON

Ovoferrin Brand Colloidal Iron Tonic is known to many physicians as the "children's iron", to others it is the iron of choice in pregnancy. Many physicians find it to be the only form of iron which is simple enough, assimilable enough and agreeable enough for long term feeding. Ovoferrin is tasteless, odourless, non-astringent; it will not stain the teeth; it will not irritate or constipate. Contains no sugar. Write for free professional sample.



Colloidal—Tasteless—Stainless

Sole Distributors:

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86, Clerkenwell Road, London, E.C.1.

PROPRIETORS: A. C. BARNES COMPANY. SOLE MAKERS OF ARGYROL AND OVOFERRIN

MILTON

DETERGENT
PENETRATIVE
GERMICIDAL
OSMOTIC
NON-TOXIC
LIQUEFACTIVE
REGENERATIVE

1. DETERGENT

It dissolves necrotic animal tissue and decomposes (by oxidation) organic toxins, the odours of which are instantly destroyed.

2. PENETRATIVE

Its action is not merely superficial but extends deep into the tissues.

In hardened agar it has been proved to penetrate to a depth of $\frac{1}{2}$ inch in 48 hours.

3. GERMICIDAL

It acts lethally on all the common pathogenic organisms found in wounds and infected areas generally, with a Hygienic Laboratory coefficient for *B. typhosus* of 4.98.

Other typical coefficients are:—

B. Coli communis	...	...	2.12
B. tetani	...	...	1.34
B. anthracis (spores)	...	...	2.66
B. enteritidis	...	...	2.12
B. influenzae (Pfeiffer)	...	...	2.65
B. tuberculosis	...	...	2.17

4. OSMOTIC

Like all hypertonic salines, it acts osmotically promoting leucocytosis and reducing œdema.

5. NON-TOXIC

It is bland to living tissue and (in contrast to other hypochlorites) contains no caustic element. 50% Milton applied to delicate cutaneous tissues for one hour was shown to have no irritant effect.

6. LIQUEFACTIVE

In contrast with most chemical antiseptics, it does not coagulate proteins, except at full strength. 10% Milton shows no coagulation with saliva or horse-serum. Even the proteins insoluble in water, as myosin and fibrinogen, are readily soluble in Milton.

7. REGENERATIVE

It has the almost unique property of stimulating the growth of new tissues.

1% Milton has been shown to increase cell-division in tissues beyond the normal, thereby accelerating the healing process.

These properties indicate clearly the mode of using Milton, e.g., for wounds and lesions generally:

(a) Cleanse the wound thoroughly with fairly strong Milton, frequently applied and freely used. In this process Milton is "unactivated" by dissolving and removing necrotic tissue, leaving sodium chloride only.

(b) Cover the clean wound with a Milton pack, changing frequently. Here its germicidal and osmotic properties come into action, assisted by absence of causticity and coagulation.

(c) On commencement of healing, reduce the strength of the Milton gradually. Under such rational treatment, it is rarely that a fresh wound heals otherwise than by "first intention".

**MILTON IS SUPPLIED AT A STANDARD STRENGTH
READY FOR IMMEDIATE USE, AND IS STABLE.**

**MILTON IS SAFE FOR EITHER EXTERNAL OR INTERNAL
APPLICATION.**

The distinctive qualities of this carefully designed preparation and its superiority over other "hypochlorite" antiseptics—e.g., Dakin's fluid (Liq. sod. chlorinate) and Eusol—have been clearly demonstrated by special Laboratory researches, the results of which have been amply confirmed in practical use. Copies of these reports and a sample of Milton will be forwarded to any medical practitioner on request.

Measles Control with

IMMUNE GLOBULIN (HUMAN)

Lederle

BECAUSE of the frequency of complications, the mortality rate of measles is high—higher than that for whooping cough, diphtheria and scarlet fever.

Complications can be avoided by the use of IMMUNE GLOBULIN (HUMAN) *Lederle*, particularly those of Broncho-pneumonia—responsible for about 50% of deaths in the infant age group (6 months to 3 years).

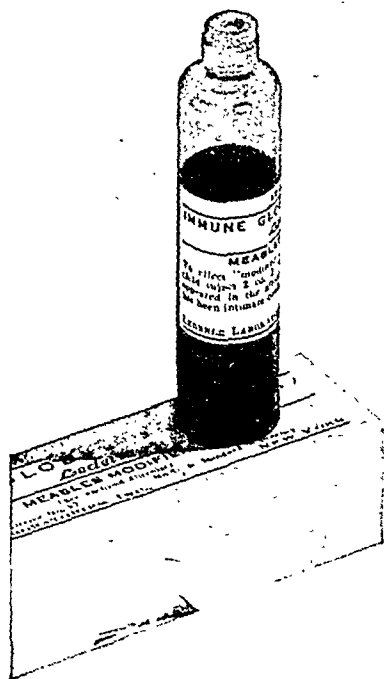
As a modification dose, one injection of 2 cc. is administered to patients in the infant age group from 6 to 8 days after exposure (for children in the same family this is 2 to 4 days after the appearance of rash in the exposing child). This dosage confers an active and lasting immunity in the majority of cases. For passive immunity of several weeks, a first dose of 2 cc. of IMMUNE GLOBULIN (HUMAN) *Lederle* is administered as soon as contact has been recognized; a second dose of 2 cc. four days later.

THE COMPARATIVE VALUE OF ADULT SERUM, CONVALESCENT SERUM, AND IMMUNE GLOBULIN PATIENTS TREATED FOR PROTECTION OR MODIFICATION

ALL TYPES OF EXPOSURE

Procedure	Cases	Per Cent. Protected	Per Cent. Modified	Per Cent. Failed
Adult Serum ...	584	56.4	23.8	19.8
Convalescent Serum ...	1,627	75.4	16.8	7.8
Immune Globulin ...	1,341	71.5	23.9	4.6

Eley, R. C., N.E. Journ. Med., Aug., 1935, 213, 195.



IMMUNE GLOBULIN (HUMAN) *Lederle* is distributed in 2 cc. vials and 10 cc. vials.

Chas. J. Haekray
LTD

The Old Medical School **LEEDS**
Telegrams and Cables "Aseptic Leeds" Telephone 20085 (3 lines)

252 Regent Street **LONDON W 1**
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Agents for Eire WILCOX JOZEAU & CO 19 Temple Bar Dublin

Cod Liver Oil

is the Liver Oil with the

**OFFICIAL BACKING OF THE MINISTRY
OF HEALTH AND LEAGUE OF NATIONS
NUTRITION COMMITTEE**



As every practitioner knows, no other liver oil has such a record of achievement as Cod Liver Oil. For it contains Vitamins A and D in the right proportion. In fact, the study of vitamins originated through Cod Liver Oil. Its only drawback in the past has been its taste. Now this difficulty has been overcome. "SevenSeaS" provides, for the first time, Cod Liver Oil in a palatable form—so palatable that it can be taken with ordinary foods, and it is available in "High Potency" form, too.

"SevenSeaS" is obtainable in three forms: (1) "High Potency" Oil—four times "B.P." standard; (2) "High Potency" Capsules containing 5 mm. dose of "High Potency" Oil; (3) Standard "B.P." Oil. We would like all practitioners to prove "SevenSeaS" "High Potency" Cod Liver Oil to their own satisfaction. Please send to the address below for a free sample.

HIGH POTENCY OIL - - - 1/3 bottle
(you only need 5 drops)

HIGH POTENCY CAPSULES

(25 capsules) - 1/6 bottle

(50 capsules) - 2/9 bottle

(100 capsules) - 5/- bottle

"B.P." STANDARD OIL 10d. & 1/3 bottle

From all chemists, including Boots, Timothy Whites & Taylors, etc., etc.

SEVEN SEAS
COD LIVER OIL

Pediatricians

approve these purées

A range of Strained Foods giving maximum nutritive values


THE nutritional value of vegetable purées for infants and soft diet cases is receiving the endorsement of the medical profession to a very marked degree.

Hitherto the difficulties and deficiencies of home preparation—inefficient sieving and destructive oxidation—not to mention the tedium and labour involved—have hindered practical application, but the introduction of a complete range of strained foods by H. J. Heinz Co. Ltd. has been universally accepted as the solution of this problem.

H. J. Heinz Co. Ltd., with their exceptional experience in food preparation, have recognised the legitimate possibilities of supplying strained foods of that maximum nutritive value, uniformity and convenience which only good factory practice can achieve.

The vegetable and fruit purées of H. J. Heinz Co. Ltd. are prepared under conditions of the most scrupulous care with special reference to minimising mechanical loss of mineral salts and other soluble nutriment. The edible portions are washed and trimmed and then cooked under light steam pressure until in perfect disposition for comminution by extrusion and cutting. All mineral salts, vitamins and other soluble nutriment are retained, while harsher fibres, if any, are so reduced as to be non-irritant. The raw materials are purchased when and where seasonal and regional conditions of growth are most favourable, and only fresh gathered vegetables of the highest quality are used.

After the straining process the purée is adjusted to a proper solid content convenient for marketing. Absorbed air is removed and sealing *in vacuo* follows in specially prepared enamel-lined containers. The process concludes with high-temperature sterilisation.



PROTEIN	4.5
CARBOHYDRATES	8.8
CALCIUM	0.012
PHOSPHORUS	0.083
IRON	0.0016
VITAMIN A.	GOOD
VITAMIN B.	VG. GOOD
VITAMIN C.	V. GOOD
VITAMIN G.	FAIR
CALORIES PER OZ.	170

A typical example of the high nutritive values retained in Heinz Strained Foods. (Figures show percentages on the wet basis)

NOTE: Any possibility of metallic contamination is eliminated by the use of special enamel-lined containers. Glass is not used owing to the deteriorating effect of light on vitamin content and on the palatability of the products.

HEINZ

STRAINED FOODS

SPINACH
TOMATOES
CARROTS
VEGETABLE SOUP
PEAS
GREEN BEANS
MIXED GREENS
BEETS
PRUNES
CEREAL
APRICOTS AND
APPLE SAUCE

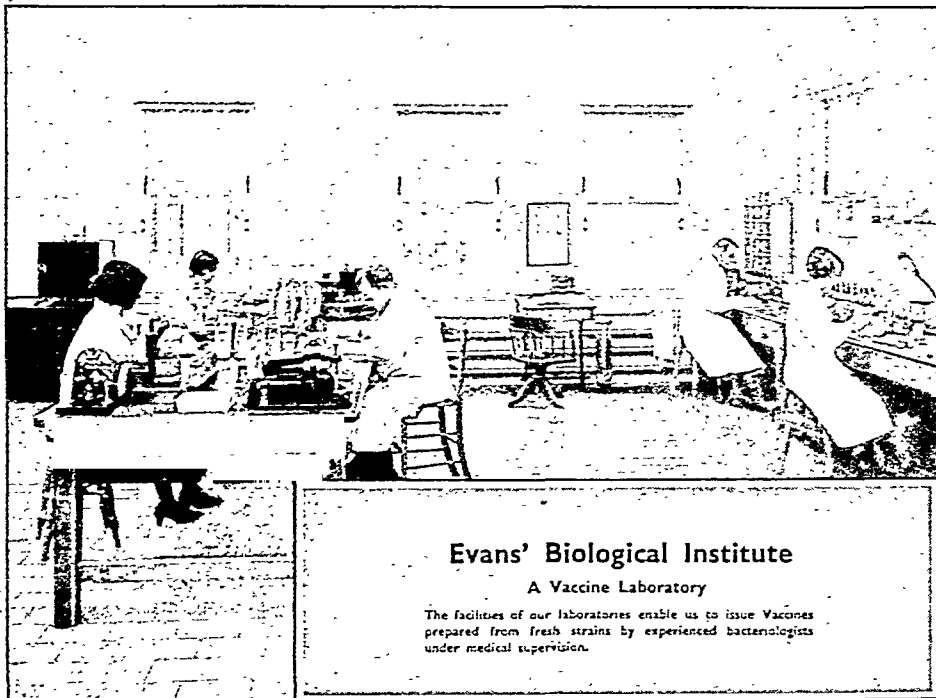
★ Fully explanatory literature and samples gladly sent on request.

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Acne Vaccines.	Gonococcic Vaccines.	P.S.I. Vaccine.
Bacillus Coli Vaccines.	Influenza Vaccines.	Staphylococcic Vaccines.
Cholera Vaccine.	Meningococcic Vaccine.	Streptococcic Vaccines.
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Full list of standard vaccines on application



Evans' Biological Institute

A Vaccine Laboratory

The facilities of our laboratories enable us to issue Vaccines prepared from fresh strains by experienced bacteriologists under medical supervision.

Evans Sons Lescher & Webb Ltd.

LIVERPOOL and LONDON

"Vitamin B₁ deficiency an outstanding fault in the diet of many millions of people"

(British Medical Journal, 16 Oct., 1937, p. 753)

The reduction in Vitamin B₁ intake, due to changes in dietary habits during the last hundred years, normally amounts to at least 50 per cent., and may be as much as 70 per cent. It has been demonstrated, both experimentally and clinically, that a shortage of Vitamin B acts as a limiting factor in the maintenance of health and nutrition, and often

results in gastro-intestinal disorders, loss of appetite, indigestion, constipation and, if long continued, contributes to neuritis and arthritis.

The logical way to rectify such shortage is to restore to the diet the Vitamin B-containing substance whose removal is responsible for the deficiency.

This substance is available in the form of Bemax.

1. For years it has been the policy of the proprietors of Bemax to ensure its Vitamin B₁ activity by biological assay of every day's output. So far as is known, Bemax is the only food product for which such a claim is or can be made.

2. The quantity of Vitamin B₁ supplied by the normal daily dose of Bemax—one tablespoonful—is 200 International Units, an amount sufficient to raise a deficient diet to an optimal level.

3. The normal daily dose of Bemax supplies, in addition to Vitamin B₁, significant quantities of Vitamins B₂ and B₆, Copper, Iron and Phosphorus as well as rich quantities of Vitamin E and other essential dietary elements.

4. Bemax is an entirely natural product consisting only of stabilised wheat germs selected for their Vitamin B₁ activity with no addition whatsoever.

BEMAX

A unique natural source of accessory nutritional factors.

Clinical sample and literature on request.

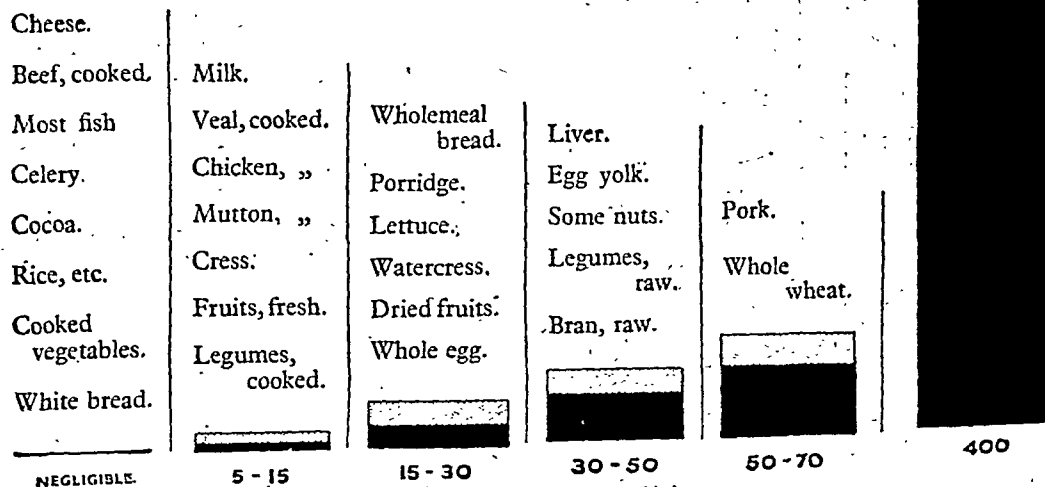
The Bemax Laboratories (Dept. B.55), 23, Upper Mall, London, W. 6.

BOAT RACE

We have space at the Bemax Factory Wharf at Hammersmith Reach for about 400 members of the medical profession and friends to view the Oxford and Cambridge Boat Race to be held on April 2nd. Early application for tickets should be made.

VITAMIN B₁ IN FOODS

Biochemical J., 1935, and other sources



The figures represent International Units per ounce.

Laboratory reports on Bemax, and a clinical sample for personal trial sent on request.

The Bemax Laboratories (Dept. B.55), 23, Upper Mall, London, W. 6.

POST-FEBRILE CONDITIONS

ENTERIC FEVER: By adding 'Sanatogen' to boiled and cooled milk the author found, in the dietetic treatment of typhoid (enteric) fever, that digestion and assimilation were easily accomplished, positive evidence being furnished by the steady improvement of his patients.

"Dietetic Treatment of Enteric Fever."
(PUBLIC HEALTH.)

INFLUENZA: "As a tonic-food 'Sanatogen' stands for pre-eminence. This is no mere expression of an individual opinion, but a fact firmly established by a vast array of clinical experience. . . . Whatever dietary may be decided on in the post-febrile period of influenza, it must always include 'Sanatogen.'"

(—J.D.)

DIPHTHERIA: "I am finding your Casein Glycerophosphate of great service to my patients in the Infectious Diseases Hospital, especially to Diphtheria cases who are put on it as a routine."

(—M.R.C.S., L.R.C.S., D.P.H.)

SCARLET FEVER: "I weighed, weekly, eleven children convalescent from scarlet fever to whom 'Sanatogen' was given, and fourteen other convalescent children of about the same ages, in as nearly as possible the same condition, living in hospital at the same time, and getting the same food. I found that the average gain in the weight of the children getting 'Sanatogen' was, in five weeks, 4 lbs. 2 ozs., and of those not getting 'Sanatogen' was just under 3 lbs. I have also weighed the same child at one time when not taking 'Sanatogen,' and at another when taking 'Sanatogen,' and I invariably found that the child improved considerably, and gained more weight when 'Sanatogen' was given in addition to its ordinary diet."

(THE PRACTITIONER.)

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

"The bactericidal action of the blood and its naturally protective powers against diseases are developed by 'Sanatogen.' The combination of a glycerophosphate with albumin, as it exists in 'Sanatogen,' produces a true physiological influence on nutrition."

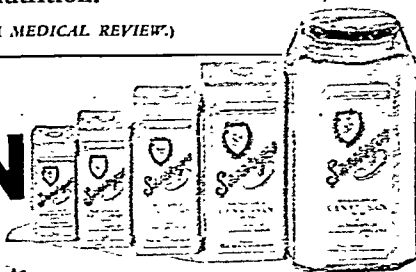
(BIRMINGHAM MEDICAL REVIEW.)

Sold by all
chemists
price 2/3
to 1/9

SANATOGEN

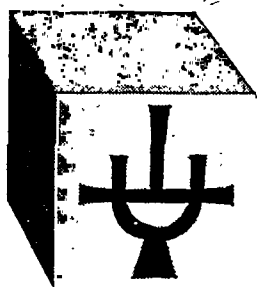
(Trade Mark)

The word 'SANATOGEN' is the Trade Mark of Genatosan Ltd., and denotes their brand of casein and glycerophosphate of sodium.



Clinical samples and literature available on request to
GENATOSAN LTD., LOUGHBOROUGH.

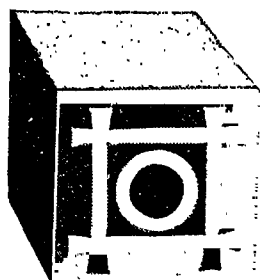
DOSAGE: For children and adults two teaspoonfuls three times daily, or according to circumstances. For infants 1 teaspoonful added to each bottle feed.



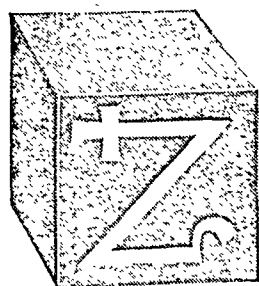
VINEGAR



POTASSIUM



URINE



CALCIUM

THE BUILDING BLOCKS OF LIFE

Foods, the building blocks of life, are not devoid of demands upon the organism. Some of them, necessary for cell-growth and repair, produce an acid residue that must be neutralized

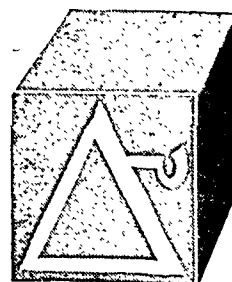
Normally, the alkaline ash foods are adequate for this purpose. But when acidosis complicates disease, food is not enough. The administration of alkalies is necessary.

Acidosis of the non-ketogenic type readily yields to alkalization with Alka-Zane, as it supplies sodium, potassium, calcium and magnesium in proper proportions for quickly replenishing and efficiently maintaining the alkali reserve.

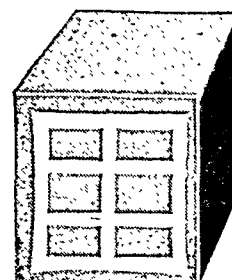
Alka-Zane contains carbonates, phosphates and citrates only — no tartrates, lactates or sulphates and no sodium chloride.

Alka-Zane is supplied in 4-oz. bottles.

WILLIAM R. WARNER & CO. LTD.
Power Road, Chiswick, London, W.4



ALKALI



WATER



SALT



ALKALINE SALT

The symbols depicted above were among those used in antiquity.

Alka-Zane *for* Acidosis

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MIST. PEPSINÆ CO. c. BISMUTHO.

(Hewlett's)

Over sixty years' reputation as a useful remedy in **Dyspepsia**, especially when **Pyrosis** is a conspicuous symptom, and also in all **Diseases of the Stomach**.

Used with considerable success in the various **stomachic complaints of young children**.

Supplied "Sine Opio" when desired.

Dose for Adults, half to one drachm diluted

FORMALGAR.

This preparation is very popular with both the Medical and Dental professions as an economical, efficient and pleasant **Gargle and Mouth Wash**.

Used twice daily, it is an excellent remedy for **Throat Irritation** in professional singers

One drachm in eight ounces of water forms an effective gargle for infectious **Sore Throat** etc., or an **Antiseptic Mouth Wash**.

HEPATAGEN.

This excellent compound is specially recommended as a general aperient and cholagogue in cases of so-called "**Billiousness**", **Hepatitis** and chronic **Gastritis**.

Supplied "Sine Cocaina" when desired.

Dose, 10 to 60 minims, according to the age and condition of the patient.

MIST. DAMIANÆ CO.

(Hewlett's)

In all cases of enfeebled nerve power and deficient vitality this preparation is a powerful remedy, relieving exhaustion and conferring renewed capacity for mental and physical endurance.

Dose, one to two drachms diluted.

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C. J. HEWLETT & SON LTD.

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THE NEWER FORMS OF ANTERIOR PITUITARY THERAPY

THE FOLLOWING SEPARATED AND PHYSIOLOGICALLY STANDARDISED FRACTIONS OF THE **ANTERIOR LOBE OF THE PITUITARY GLAND** ARE NOW AVAILABLE:—

GROWTH
MATURITY (GONADOTROPIC)
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IN ADDITION **POLYANSYN**, A STANDARDISED POLYVALENT EXTRACT CONTAINING ALL THE HORMONES OF THE BOVINE PITUITARY GLAND.



ANTERIOR PITUITARY FACTORS ARE SUPPLIED IN 5 cc. RUBBER-CAPPED VIALS.

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Research.... in Therapeutics

The research work undertaken by Parke, Davis & Co., since the establishment of the firm more than half a century ago, has resulted in the introduction into medicine of many admittedly valuable therapeutic agents. Prominent among these have been ADRENALIN, PITUITRIN, CASCARA SAGRADA and VENTRICULIN.

To Parke, Davis & Co. there must also be credited the application, for the first time, of chemical standardization of drugs which was begun in 1882, and later in 1895 of physiological standardization of non-alkaloidal products which gained official recognition thirty-seven years later in the British Pharmacopœia, 1932.

Research is being carried on continuously and necessarily over a widened area. In the Research Laboratory a staff of about 70 persons is engaged on this work, months, and sometimes years, being devoted to the completion of an investigation which may even then prove fruitless.

Examples of successful research work are furnished by investigations on the hormones of the pituitary gland which resulted in the introduction of PITOCIN, PITRESSIN, ANTUITRIN "S" and ANTUITRIN "GROWTH."

Parke, Davis & Co. are definitely committed to a perpetuation of this long-established policy of scientific research which may be expected to lead to equally important developments in the future.

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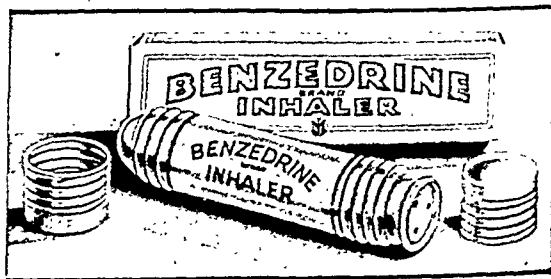


In Children's Head Colds

IN 100 cases of acute rhinitis in children from 2 months to 12 years of age treated with Benzedrine Brand Inhaler, two observers report prompt and adequate shrinkage of the nasal mucosa in 97%. The vapour form of treatment—in addition to its greater effectiveness—overcomes the objections which children show to liquid inhalants. (*Arch. Pediat.*, 54:97, 1937.)

For the adult members of the family, Benzedrine Brand Inhaler is equally useful. Untoward effects are negligible, ciliary action is not inhibited, and the vapour, by diffusing throughout the entire upper respiratory tract, "often helps to abort or shorten conditions that would otherwise proceed to more serious complications." (*Clin. Med. & Surg.*, 44:25, 1937.)

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BRAND
INHALER



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MENLEY & JAMES, LTD., 64, HATTON GARDEN, LONDON, E.C.1,
for Smith, Kline and French Laboratories, owners of the
Registered Trade Mark, 'Benzedrine.'

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Pharmaceutical and Biological Products



TRADE MARK 'LEXTRON' BRAND

*Liver-Stomach Concentrate with Iron
and Vitamin B Complex*

RAPID convalescence from many debilitating diseases can be brought about with 'Lextron' when secondary anaemia has assumed a conspicuous place in the clinical picture. On 'Lextron' the patient receives all the materials essential for blood regeneration.

'Lextron' brand liver-stomach concentrate with iron and Vitamin B complex is supplied in bottles of 42, 84, and 500 'Pulvules' brand filled capsules.

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Distributing Agent in Britain for
ELI LILLY AND COMPANY, INDIANAPOLIS, U.S.A.

CRUNCHY FOODS AND THE TEETH

Crisp, fibrous foods are generally considered to perform a useful function in scouring the teeth, thus keeping them free from sticky food particles, which are apt to ferment and cause decay. The plentiful saliva, which hard, dry foods produce, is also of value in cleaning the mouth.

Furthermore the vigorous mastication that hard foods demand is generally held to assist the growth and correct development of the jaws.

For these reasons many practitioners recommend that the normal diet should include a proportion of hard, dry foods. They find that Ryvita eaten daily has a beneficial effect upon the teeth, especially those of children. Free samples of Ryvita for distribution to patients will gladly be supplied on request.

THE RYVITA COMPANY LIMITED
96-98 SOUTHWARK ST. LONDON SE1
Bakeries in Birmingham



PROTECTS *Against Infection*

In comparative studies made under properly controlled conditions, Metaphen has been shown to be from 2.6 to 1,500 times more germicidal against *staphylococcus aureus* than five other commonly employed antiseptics, including mercuric chloride and tincture of iodine. Against other common pathogenic organisms, Metaphen also demonstrated its marked superiority over all of the drugs tested. Furthermore, Metaphen was found to be 10% more effective for surface skin disinfection and 87% more effective for deep skin disinfection than tincture of iodine. (*Annals of Surg.*, 93:587-597.) In addition to its great

bactericidal power, Metaphen has other important advantages. It is non-toxic and non-irritating; does not coagulate serum or tissue albumins; and its solutions are stable when exposed to air. Metaphen is supplied through pharmacies in a variety of useful forms, including TINCTURE METAPHEN, METAPHEN 1:500 SOLUTION and METAPHEN 1:2,500 SOLUTION. Requests for professional literature are invited.

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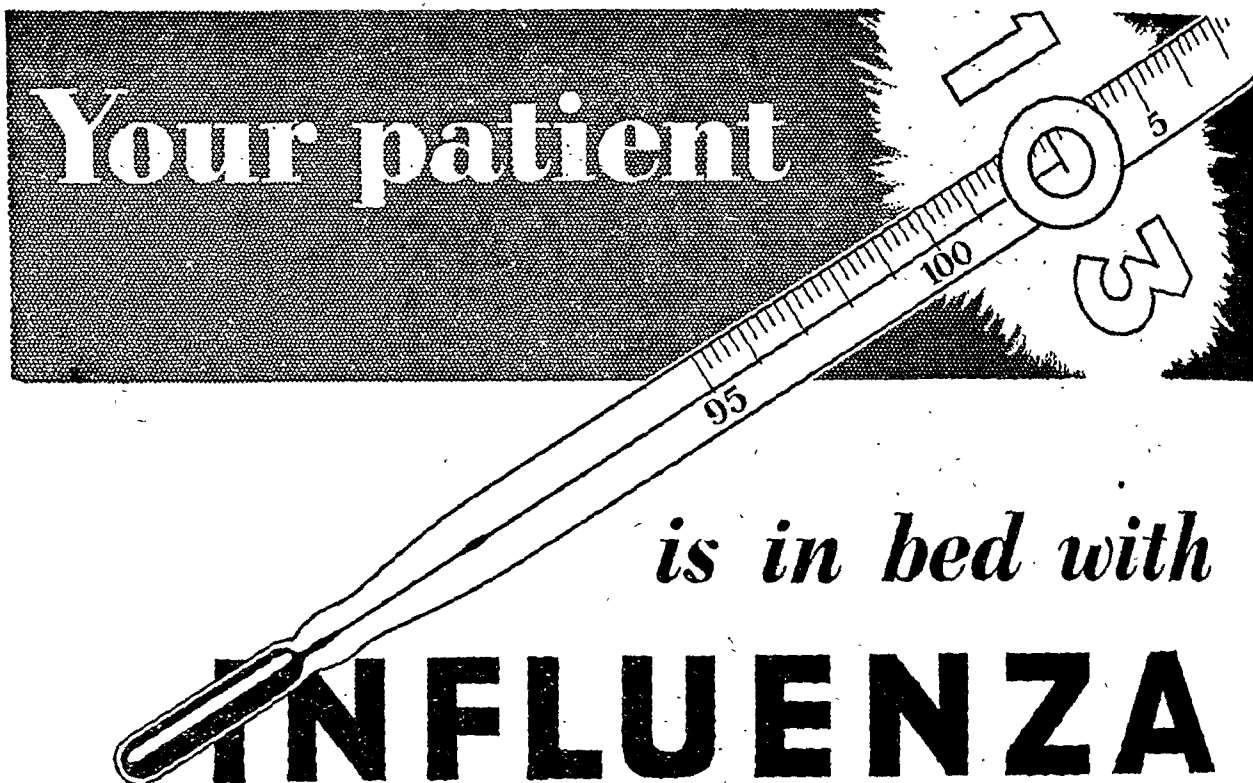
METAPHEN

(BRAND OF 4-NITRO-ANHYDRO-HYDROXY-MERCURI-ORTHO CRESOL)

PLEASE SEND LITERATURE ON METAPHEN TO

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BRITISH MEDICAL JOURNAL

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SOME RECENT WORK IN EXPERIMENTAL CANCER RESEARCH*

BY

W. E. GYE, M.D.

Director, Imperial Cancer Research Fund

The pioneers of cancer research, especially Borrel, were well aware that the study of transplanted tumours is only the study of cells which are already "cancerized," and can throw no light on the complex changes that occur when a cancer forms. It was clearly understood that the aetiology of cancer is divisible into two parts: the causes which lead up to the occurrence of a tumour and the cause which explains the property of the malignant cell. This distinction is not artificial or merely plausible, invented to explain an apparently irrational multiplicity of facts concerning cancer. It is a deduction from general pathological observations, and is now a self-evident conclusion from recent work with carcinogenic agents. Clinically it has long been known that epithelioma of the skin may develop as a consequence of the action of tar, pitch, lubricating oils, or x rays on the skin; and that the autonomous growth of the malignant cells is independent of the action of the tar or oil or other causative agent, since the metastases, remote from any possible action of the causative agent, behave as malignant cells. Further, a tumour brought into existence by applying a carcinogenic agent, chemical or physical, can be transplanted indefinitely in normal animals of the same species. Thus the agent which is responsible for starting a tumour plays no further part in the progress of the disease once malignancy has occurred. This distinction between causes which act on normal cells and lead to malignant transformation and the intracellular cause which is responsible for malignancy is not fanciful; it is a necessary deduction from universally accepted facts. Ewing has designated these processes as the "causative genesis" and the "formal genesis" of cancer. The simpler terms "remote causes" and "the proximate cause" are perhaps preferable. Included under the term "remote causes" are the very numerous chemical substances, radiant energy, and gross parasites which have been proved capable of initiating new growths. The second part of cancer aetiology, the proximate cause, gives rise to keenest discussion and will be dealt with later. The advances in our knowledge may be conveniently grouped under these respective terms.

Remote Causes of Cancer

It is now common knowledge that cancer can be started at will by the application of one or other of the "carcinogenic agents." This knowledge has robbed cancer of much of its "mystery" and has helped to create a healthy optimistic outlook in research. It has demonstrated that the sort of investigation which has proved so successful for other diseases can lead to great advances in our knowledge of cancer.

Space does not permit of even a brief survey of the carcinogenic agents. They are already numerous and are being added to every year. In this field of research clinical observation has usually anticipated laboratory experiment. Percivall Pott more than 150 years ago observed that chimney-sweeps suffered excessively from scrotal cancer, and attributed this to soot. That x rays may induce epithelioma was proved by the pioneer radiologists, and the causative association of parasites with cancer was observed long ago in bilharzia. Laboratory investigations have amplified and extended these observations. They have led to the preparation of pure chemical substances which can induce cancer formation, and have given rise to fruitful working hypotheses. A whole series of carcinogenic hydrocarbons with a phenanthrene nucleus have been discovered by Professors Kennaway and Cook and their collaborators. One of these compounds, methyl cholanthrene, can be obtained from bile acids by chemical transformations theoretically possible in the body. Moreover, these carcinogenic substances are related chemically to oestrone, to cholesterol, and to other substances which are naturally present in the body. The hypothesis that all cancer-producing substances possess the phenanthrene nucleus is not, however, tenable: Japanese pathologists have been successful in inducing cancer with aniline dyestuffs.

Yoshida has proved that *o*-amino-azo-toluene induces hepatic cancer in rats which are fed with the substance dissolved in olive oil. Kinoshita has shown that dimethyl-azo-benzene—"butter-yellow," so called because according to Kinoshita it is used commercially as a colouring matter in butter—likewise causes cancer of the liver when fed to rats. He found that 176 mg. fed over a period of fifty days was the smallest dose able to give rise to a hepatoma. These substances, administered by mouth, are probably changed by the liver and excreted in an altered form. Thus *o*-amino-azo-toluene is known to be broken up and eliminated as *p*-acetyl-toluylenediamine in the urine. Butter-yellow, fed to rats, is detectable in the liver, and to a less extent in the kidneys and spleen: elimination from the body is not easy, but it is probably broken up and partially excreted as dimethyl-*p*-phenylenediamine.

The induction of cancer by means of oestrone is of exceptional interest because its mode of action has given us a glimpse of what may be described vaguely as an internal carcinogenic environment. The story begins with the study of heredity in cancer, which led to the production by inbreeding of strains of mice in which 70 per cent. or more of the females died of cancer of the breast. Leo Loeb, working with such a strain, showed in 1916 that when very young females were ovariectomized the percentage of cancer fell significantly. His observations were confirmed by Cori and later by W. S. Murray, who

*A summary of a lecture given at the Royal College of Surgeons of England on February 16, 1938.

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missible with cell-free extracts. The object of the work was, in other words, to put to the test of experiment the thesis that dibenzanthracene or similar agents act upon cells by sensitizing them to the action of a virus. It may be stated at once that all attempts to transmit this tumour with cell-free extracts have failed, though it can be propagated fairly easily with living cell grafts. In some of the experiments in which these tests were made it is not even justifiable to use the term "cell-free extract," for it has repeatedly been found that a saline extract which has been spun for a few minutes at 5,000 revolutions is incapable of giving rise to a growth. This artificially induced sarcoma therefore differs in no wise from tumours of mice and rats. It has one great advantage as material for experimental study, since it is possible to test in an indirect way whether the cells, though providing no direct evidence of the presence of a virus, do or do not contain an antigen related to the infective agents of filterable fowl tumours. We cannot make such tests with either spontaneous or artificially induced tumours of rats and mice because we have no filterable rat or mouse tumours to provide virus to test immune sera. The experiments carried out by Foulds were briefly as follows. Rabbits were bled in order to obtain samples of normal serum and were then injected repeatedly with Berkefeld filtrates of the dibenzanthracene tumour. After a time it was found that the sera of the rabbits acquired an antibody which neutralized completely the virus of the Rous sarcoma. This was proved by mixing the serum with active filtrates of the Rous sarcoma, the control being a similar mixture of active filtrate and serum taken before the immunizing injections were made; the mixtures were incubated at 37° C. for an hour and then injected in different sites of four chickens. In the sites where mixtures containing immune serum were placed no tumours developed, whereas in the control sites large rapidly growing Rous sarcomas formed.

It is clear from the experiments, which have been fully described by Foulds (*Amer. J. Cancer*, 1937, 31, 404), that although a filtrate of the dibenzanthracene tumour is inactive—that is, is unable to provoke tumour formation—it nevertheless contains an antigen which is capable of giving rise to antibodies that readily neutralize the virus of the Rous sarcoma. That this antigen is not some indefinite component of normal chicken tissues was proved in several ways—for example, by attempting and failing to absorb the antibody by means of chicken tissue, and by attempting and failing to produce a similar antibody by injecting rabbits with extracts of normal chicken tissues. There is therefore something closely related to the infective agent of the Rous sarcoma in these inactive filtrates of a dibenzanthracene tumour. Whether it is a virus or part of a virus we do not yet know. For the present it is sufficient to emphasize that these experiments are a warning against too confident and too dogmatic conclusions which may be drawn from negative results of filtration experiments.

A comment on criticisms of this work may be allowed before passing on to a brief account of work on rabbit papillomas. It has been objected that the virus which is present in the dibenzanthracene tumour may be merely carried in the tumour passively, as a passenger is carried in a train—that it is unrelated causatively to the tumour. The foundation of this criticism lies in the well-known fact that viruses can be made to lodge in tumour growths—for example, the virus of vaccinia can be carried by mouse tumours. It is inferred from this fact that it is possible, if not probable, that a dibenzanthracene tumour growing in a chicken attracts virus which may normally exist in chicken tissues and provides suitable conditions for

the existence, and presumably for the growth and multiplication, of the virus. If this were so the production of immune sera by the methods employed would be misleading. This criticism is not relevant to the facts. It is sufficient to point out some obvious differences between the two cases. We prove that vaccinia virus is being carried in a mouse tumour by showing that an extract of the tumour causes vaccinia; we cannot prove that the virus of the Rous sarcoma is present in the dibenzanthracene tumour by causing a Rous tumour with extracts: the extracts are completely harmless. The recognition of the supposed virus in the dibenzanthracene tumour is dependent on its resemblance to a tumour-producing virus. Further, when the dibenzanthracene tumour is artificially contaminated by the virus of the Rous tumour the contamination is recognizable by injecting chickens with a cell-free extract of the tumour, when a Rous sarcoma is produced. This fact, which we owe to Sir Edward Mellanby, pretty well disposes of the theoretical objection under discussion.

Rous's Work on the Shope Papilloma

We can now turn to the work of Peyton Rous on the Shope papilloma. This tumour was discovered by Dr. R. E. Shope on the skin of a cotton-tail rabbit. Shope found that the tumour is transmissible with filtrates and with glycerinated tissue both in cotton-tail and in domestic rabbits. The skin is shaved and then scarified as in vaccinating a person with calf lymph, and a filtrate or extract of glycerinated tissue is rubbed into the scarified area. After two to four weeks small translucent papillomas appear: they grow and eventually form large cauliflower-like masses of tissue. In cotton-tail rabbits the tumour can be transmitted in an endless series in this way, but in domestic rabbits, although the papilloma in them is larger and more fleshy as well as more aggressive in character, it has been found as a rule that transmission beyond the first generation is not possible. Thus the papilloma can be started in domestic rabbits, but thereafter the virus appears to be lost. Shope, however, has succeeded during the last few years in separating a strain of the virus which can, with some difficulty, infect domestic rabbits serially. There are now in most laboratories two strains—the "cotton-tail strain" and the "domestic rabbit strain."

The aggressive character of the papilloma in domestic rabbits, already referred to, is indicated by the frequency with which it becomes malignant. Experience in the laboratories of the Imperial Cancer Research Fund is that almost all Shope papillomas in domestic rabbits become malignant within two years. If the primary papilloma is very large malignancy may supervene within six months. In the cotton-tail rabbit, on the contrary, the papilloma rarely passes into carcinoma; Professor Berry of Rochester University has observed a case and Peyton Rous several out of hundreds of papillomas.

The position has thus been reached that a papilloma of the rabbit, caused by a virus, regularly passes into a state of malignancy. The carcinoma invades tissues locally and neighbouring lymph nodes and internal organs, especially the lung, leading to the death of the host animal. Is the virus the cause of the malignant growth also? If a cell-free filtrate of the growth would start a new malignant growth then the conclusion that the virus is the cause would be incontestable. But this is not so. Filtrates are completely inactive. It appears superficially that as soon as the papilloma becomes an invading true malignant neoplasm the virus disappears, and we are confronted with the same apparently insoluble problem presented by the generality of mammalian cancers.

succeeded also in proving that young males into which ovaries from litter-sisters were grafted may suffer from mammary carcinoma. It was concluded from these experiments that an ovarian hormone is in some way related to the occurrence of cancer of the breast. This conclusion was finally clinched by Lacassagne, who proved that the injection of folliculin in male mice of a cancer strain results invariably in cystic hyperplasia which passes into malignancy. These observations have been confirmed abundantly.

Oestrone, it should be noted, does not cause tumour formation at the site of application; it acts at a distance on an organ, the mamma, with which it is physiologically related. Its mode of action is being closely studied. My colleagues, Drs. Cramer and Horning, have already shown that under its influence complex changes occur in the ductless glands generally. The most conspicuous changes are in the adrenals and the pituitary body. In the adrenals brown degeneration in the zone between medulla and cortex takes place. The pituitary body, after an early period of hyperaemia, becomes greatly enlarged and congested, and frequently adenomas composed of chromophobe cells are found.

Cramer and Horning deduced from their studies of these phenomena that one or more of the hormones of the anterior lobe are capable of neutralizing the effects of oestrone on the pituitary gland. They proved by careful experiment that the thyrotropic hormone has this power. Injected weekly it keeps in check the mammary and pituitary changes produced by prolonged oestrinization, and in female mice having a high incidence of mammary cancer it prevents the spontaneous development of cancer of the breast.

The Proximate Cause of Cancer

It has already been pointed out that a tumour which has been started by applying one or other of many agents, chemical or physical in nature, may be propagable through an unlimited series of normal animals, and that the continued growth and multiplication of the malignant cells is independent of the action of the agents used in starting the tumour. How can we explain the change that has taken place within a cell when malignancy occurs? Verbal explanations are easy. It might be said that the cell has undergone "an irreversible change"; and doubtless a term of this kind, giving as it does an air of scientific validity, might prove satisfactory to chemists or physicists, who are accustomed to working with comparatively simple material under well-regulated conditions. But the explanation carries us no further. Similarly a solution of the problem might be conveyed by suggesting that the malignant cell is a somatic mutant. Such an explanation again is merely verbal. It has no factual basis, it ignores some well-established facts, it is arrived at by the dangerous process of reasoning by analogy, and it offers no prospect of further advances in knowledge. It is unprofitable to spend time in considering such explanations. I shall confine my attention to the view that a virus may be the proximate or intimate cause of malignant growths. The reason for doing this is that there are many tumours in which a virus cause has been established, and this fact gives a feeling of security that we are not living in regions of pure speculation.

Mode of Action of a Tumour Virus

First of all it must be made clear that the mode of action of a tumour virus is different from the action of carcinogenic agents. The virus acts promptly, is specific both to the animal and to the tissue, and can be recovered

again from the tumour which follows inoculation. With a filterable tumour like the Rous sarcoma No. 1 or the Imperial Cancer Research Fund's strain of endothelioma known as Mill Hill No. 2, tumour formation begins in a week or less after inoculation; each virus produces only its own tumour in only one species of animal; and the virus increases in amount with the growth of the tumour. When a tumour is started with the most active of carcinogenic agents—with benzpyrene, for example—the story is quite different. In the first place, the time interval between application of the chemical substance and the appearance of a tumour is, even in the most sensitive animals, a matter of months. In the second place, the kind of tumour produced depends upon the site of application: if the skin is painted a squamous carcinoma results, but if the substance is injected into the subcutaneous tissues a sarcoma follows. There is no specificity of action. And, in the third place, the chemical substance, though present in the primary tumour, is not necessary to the growth of the tumour and is not recoverable from remote generations of transplants. It is puzzling to understand how it comes about that viruses are so often classed with the carcinogenic agents when their mode of action is so manifestly different.

I must now hasten to state that the tumours for which a virus cause has been established are comparatively few in number; or, rather, are almost confined to birds. They consist of tumours of the domestic fowl, a rabbit papilloma which goes on to malignancy, and an adenocarcinoma of the kidney of a certain species of frog. Other tumours may assume a filterable phase, as Parsons has shown for a mouse sarcoma which had been induced by injections of a complex hydrocarbon. The great majority of tumours used in experimental research—tumours of mice, rats, guinea-pigs, dogs, etc.—can be propagated only with living cells. If attention is restricted to these it must be observed that nothing could appear more improbable than the notion that these tumours are caused by an intracellular virus. They give no evidence of any sort that a virus is at work. It is largely because of this that the majority of pathologists have until recently paid scant attention to viruses in cancer. At present, it is fair to remark, most workers in cancer would agree that any coherent explanation of cancer must include an explanation of the filterable tumours.

The division of tumours into two kinds—those which can and those which cannot be transmitted by cell-free extracts—is one of the major puzzles of experimental cancer research. Why some tumours readily yield an infective agent and others subjected to the same treatment should give innocuous extracts is at present inexplicable. But recent work has shown that failure to demonstrate an intracellular causative agent by direct means—that is, by serial transmission of tumours with non-cellular material—must not be interpreted too dogmatically. This conclusion is supported by two pieces of research—one by Foulds, who worked with a dibenzanthracene tumour of a fowl, and the second Peyton Rous's revolutionary work with the Shope papilloma.

Foulds's Work with Non-Filterable Dibenzanthracene Tumours

The tumour studied by Foulds is a fibrosarcoma of the domestic fowl. It was brought into existence by injecting a hen with a solution of dibenzanthracene in lard.* The original purpose of inducing a tumour in this way was to determine whether an artificially induced tumour is trans-

* The dibenzanthracene was generously provided by Professor Kennaway.

vitamin C metabolism in a series of patients with gastro-intestinal ulceration, and these form the basis of the present report.

Test Subjects and Patients

The 107 subjects employed in these tests are divided quite easily into four distinct groups:

Group I.—A control group consisting of twenty-six members of the departmental staff and medical students; all gave excellent dietary histories, including a good supply of vitamin-C-containing foods.

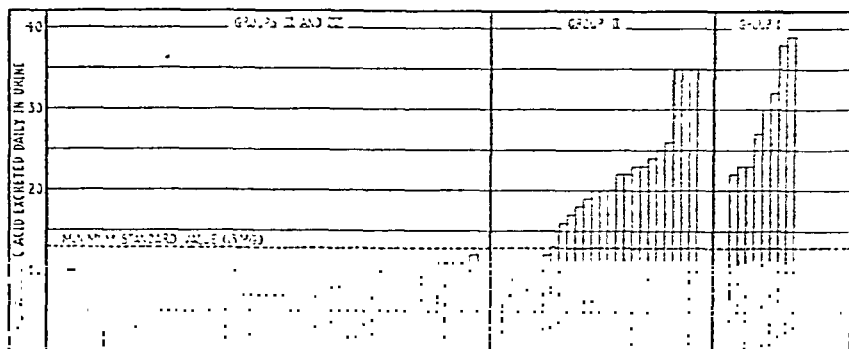


FIG. 1.—Showing daily excretion of ascorbic acid in normal controls and patients with peptic ulcers with and without haematemesis.

Group II.—A control group consisting of twenty-five miscellaneous patients chosen at random from the Infirmary wards, excluding those with gastric or renal disease; these were taking standard hospital diets and gave dietary histories varying from "good" to "poor," the greater number being in the "good" category.

Group III.—In this group were twenty-five patients suffering from proved peptic ulceration but without haematemesis, and they were all receiving special diets of the Hurst No. 1 and No. 2 types, or modifications of them.

Group IV.—This group contained thirty-one patients who were admitted to hospital on account of severe haematemesis—attributed to peptic ulceration. They had all been on very poor diets, and were put on special diets (mostly of the Hurst No. 1 type) on admission to hospital.

Methods of Investigation

Six methods were used for the determination of vitamin C deficiency in these subjects; they are considered under their respective headings: (1) the daily urinary excretion of ascorbic acid; (2) the ascorbic acid "saturation" test; (3) plasma ascorbic acid determinations; (4) oral ascorbic acid tolerance tests; (5) intravenous ascorbic acid tolerance tests; and (6) the intradermal test.

Technique and Results

1. THE URINARY EXCRETION OF ASCORBIC ACID

This was carried out by the method of Harris, Ray, and Ward (1933), which is a modification of Tillmann's 2:6-dichlorophenolindophenol method, the urine being collected every twelve hours and titrated against the dye. The special precautions for collecting, storing, and titrating the urine were rigidly observed. The minimal normal amount of ascorbic acid excreted in twenty-four hours as determined by this method is about 13 mg., and this figure has been adopted here. (Harris *et al.*, 1936.)

The control subjects in Group I all excreted more than the minimal normal daily amount of 13 mg. of ascorbic acid (22 to 39 mg.), the mean daily excretion being 29 mg. In nineteen patients (76 per cent.) of the second group of twenty-five control patients who had been selected at random, similar

daily excretions were obtained, while the remaining six patients (24 per cent.) in this group who gave poor dietary histories excreted less than 13 mg. daily; the mean daily excretion for the whole of Group II was 17 mg. (7 to 35 mg.). All the patients in Group III excreted less than 13 mg. ascorbic acid daily, with a mean of 7 mg. and a range of 5 to 11 mg.; similar values (mean 7 mg., range 5 to 10 mg.) were obtained with the patients in Group IV. (See Fig. 1.)

2. THE ASCORBIC ACID "SATURATION" TEST

This test is a modification of that described by Abbasy *et al.* (1935). The average daily excretion of ascorbic acid was determined over a period of about six days; at the end of this

period a dose of ascorbic acid (500 to 1,000 mg.) was given orally, and the amount excreted in the urine in the subsequent twenty-four hours was estimated as in the first method. If the urinary concentration of ascorbic acid did not show any increase following this dose the latter was repeated until "saturation" was reached.

Most of this test dose of ascorbic acid is retained by the body stores in a deficient patient, and in many cases there is no increase in the initially low urinary excretion; in a "saturated" patient, however, a large percentage of the administered ascorbic acid is excreted, the well-filled body reserves being able to dispense with the surplus. Since several different standards have been employed by other workers we have taken an excretion of 50 per cent. of an oral test dose as evidence of "saturation." The types of result so obtained are shown in Fig. 2 where it will be seen that, in contrast with

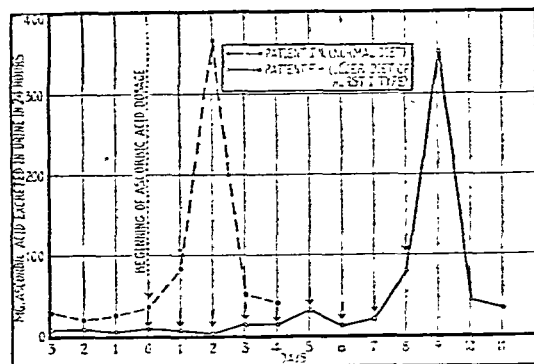


FIG. 2.—Illustrating the difference in dosage of ascorbic acid required to saturate individuals taking normal and ulcer diets. The oral administration of 500 mg. of ascorbic acid is indicated by an arrow.

the normal patient (J. N.), who required 1,000 mg. much larger quantities (4,500 mg.) of ascorbic acid were necessary to produce "saturation" in patient F. H., who took nine days before saturation occurred, while receiving 500 mg. ascorbic acid daily.

Again we have to seek indirect evidence. Peyton Rous succeeded in propagating the carcinoma through two generations of rabbits by the process of grafting fragments of living carcinoma cells taken, in order to avoid the possibility of including papilloma cells in the inoculum, from an "infected" lymph node. As the implanted cells grew to form "daughter tumours" it was found that the blood serum of the rabbits acquired an immune body which neutralizes the papilloma virus. The conclusion which must be drawn from these observations is that, although filtration experiments with the carcinoma give negative results, the carcinoma cells do nevertheless carry the papilloma virus. The final proof that the virus acts causatively is more difficult, though it is fair to observe here that if we were now discussing any other subject than cancer the *prima facie* evidence that the virus is acting as the cause of the pathological condition under investigation would be scarcely questioned. At least it may be said that the negative filtration results do not warrant the conclusion that the papilloma virus is absent. It is very probable, indeed almost certain, that conditions exist within the cells of the tumour under which a virus-protoplasm complex is formed and that filterability may depend upon an easy or a particular dissociation of the complex.

Relation Between Carcinogenic Agents and Viruses

Passing now to the relation between the action of carcinogenic agents and viruses, it is necessary to discuss an experiment with coal tar and papilloma virus carried out by Peyton Rous. When coal tar is applied once a week to the skin of a rabbit's ear papillomas form after a few months, the time depending upon the quality of the tar. Some of the papillomas may, after a much longer time—a year or more—become malignant. The experiment carried out by Rous was as follows:

A series of rabbits were painted with coal tar for about three months, when small papilloma began to appear. Some of the rabbits then received intravenously an injection of virus obtained from a papilloma of the cotton-tail rabbit. Painting the ears with tar was continued on all the rabbits, control and experimental alike. After two to three weeks—the incubation period usually observed with the virus in its action on the skin—the tarred areas in those rabbits which had received virus developed true anaplastic rapidly growing squamous carcinomas. The cancers appeared both at the sites of papilloma formation and on tarred areas devoid of papillomas. No cancers appeared on areas that had not been tarred. The control rabbits, which had been treated with tar only, showed no cancer at the time nor later, a long while after the others had died of generalized cancer.

This experiment has been repeated and confirmed, and has excited world-wide interest. Like so much work of Peyton Rous it goes to the heart of the problem. It will doubtless be subjected to criticisms similar to those already discussed in dealing with Foulds's work with non-filterable dibenzanthracene tumours—namely, that it is possible to cause viruses of all sorts to lodge in tumour growths. But these criticisms are invalid; for, as Rous himself has pointed out, when a virus such as Virus III is carried as a contaminant in a transplantable rabbit carcinoma the virus has no effect on the tumour, whereas in his experiment the Shope virus causes quickly a definite specific change in the tar lesion, and the change corresponds with changes which it is known that the virus may induce slowly under normal and presumably less favourable conditions. It is more reasonable to look upon the action of tar as being of a preparatory kind, as affecting the cells in such a way as to render them very susceptible to the action of the virus. If this view is correct—and it certainly is in conformity with the fact that carcinogenic

agents like tar have a fundamentally different mode of action from that of a virus—it permits us to postulate as a working hypothesis that when a tumour is induced in an animal by applying carcinogenic agents the vital change from hyperplasia to malignancy is probably associated with the entry of a virus. This presupposes the widespread existence within the animal body of viruses of low infectivity but capable, when suitably conditioned, of entering cells and setting in motion the train of events described as cancer. Some difficulty is felt in accepting the supposition, but it can be pointed out that where it is possible to make experiments capable of yielding information some supporting evidence has been found. Thus it is now known, following the first observations by Pentimalli, that immune bodies which neutralize the viruses of avian neoplasms appear in the blood in a high percentage of apparently normal fowls more than 18 months old. These immune bodies are presumably formed in response to a virus related to or identical with the viruses found in actual neoplasms.

An outline of cancer work in progress must necessarily be incomplete; each section could be expanded into several lectures. But I hope I have given evidence that progress is being made in many directions and that what has been done already justifies us in our optimism.

VITAMIN C DEFICIENCY IN PEPTIC ULCERATION AND HAEMATEMESIS

BY

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Although frank clinical scurvy rarely follows the modern conservative methods of dietetic treatment of peptic ulceration (Davidson, 1928; Barling, 1935; Wood, 1935; Platt, 1936) it is now being realized that early "pre-scorbutic" or "subclinical" states may occur quite frequently. The experimental evidence put forward by McCarrison (1919, 1931), Magee *et al.* (1929), McConkey (1933), and Smith (1933) shows that ulceration of the stomach and duodenum is very apt to occur in animals in a state of vitamin C deficiency, while the importance of vitamin C in the normal reparative processes has been further emphasized quite recently by Lanman and Ingalls (1937), who have shown that a deficiency of this vitamin is a potent factor in delayed wound healing.

Harris *et al.* (1936) found that nineteen patients with peptic ulcers had distinctly subnormal daily urinary excretions of ascorbic acid, but in that particular inquiry 84 per cent. of all the patients examined showed subnormal daily urinary excretion values. An important contribution was that of Archer and Graham (1936), who showed that six out of nine patients with peptic ulcers, for which they were receiving dietetic treatment, were in the "subscorbutic" state. In the course of our investigations we have had the opportunity of examining the

Simultaneously with these blood changes it was noticed that the urinary concentration of ascorbic acid showed an increase maximal at four to six hours and an increase in the total amount excreted in the urine at that time. During the entire twenty-four hours from the beginning of the test approximately 500 mg. (50 per cent. of the test dose) of ascorbic acid was excreted in the urine.

When, however, we turn to Groups III and IV very different results were noticed. Here also the two groups of patients can be considered together, owing to the similarity in plasma ascorbic acid titres. The low initial ascorbic acid values (Group III below 0.41 mg. and Group IV below 0.34 mg. per 100 c.c.m.) showed very slight alterations, increasing only to 0.48 to 0.60 mg. per 100 c.c.m. in one to two hours after the test dose. The urinary concentration during this test showed little or no increase, and in the subsequent twenty-four hours the excretion of ascorbic acid was much less than 500 mg., while quite often no increase at all was noted, even in the total twenty-four-hour specimen. (See Fig. 3.)

While these oral tolerance curves give accurate results the criticism might be made that variation in absorption from the gastro-intestinal tract, together with other factors causing destruction of the vitamin there, might affect the results; the same criticism could be made of the "saturation" test. To eliminate this possibility an intravenous method of applying the ascorbic acid tolerance test was introduced.

5. THE INTRAVENOUS ASCORBIC ACID TOLERANCE TEST

This consists in estimating the rise in plasma ascorbic acid after the administration of ascorbic acid intravenously, as follows:

The day preceding the test a control experiment is carried out as in the oral tolerance test. At 9 a.m. on the following day a sample of blood is taken as before, and then 1,000 mg. of ascorbic acid are given intravenously in the form of redoxon forte (10 c.c.m. = 1,000 mg.). As our experiments showed that the plasma ascorbic acid begins to rise very rapidly after the injection, the next specimen of blood is taken fifteen to twenty minutes later (it was convenient in this series to take the first sample at eighteen minutes), and then further venous blood samples at hourly intervals after the injection of ascorbic acid for a period of five hours, the plasma ascorbic acid being determined in each. The urine is collected hourly and titrated immediately, as in the oral tolerance test above.

In the normal group of subjects the plasma ascorbic acid rises to very high levels in the first fifteen to twenty minutes, but in the deficient group the rise is not so marked (typical results are seen in Fig. 4 and Table I). The urinary concen-

TABLE I.—*Intravenous Tolerance Tests. Showing the Results Obtained in Patients with the Highest, Middle, and Lowest Initial Plasma Ascorbic Acid Values in Groups I and II, III and IV*

		Ascorbic Acid, mg. per 100 c.c.m. Plasma after Injection of 1,000 mg. Ascorbic Acid Intravenously						
		0 hr.	15 min.	1 hr.	2 hrs.	3 hrs.	4 hrs.	5 hrs.
Groups I and II	Highest	1.85	11.40	6.94	4.00	2.21	1.34	1.35
	Middle	1.21	9.40	6.00	2.99	1.78	1.45	1.24
	Lowest	0.70	6.60	2.34	1.74	1.10	0.70	0.72
	Mean	1.20	10.12	5.62	2.76	1.63	1.55	1.22
Groups III and IV	Highest	0.59	6.90	2.66	—	0.93	0.63	0.60
	Middle	0.38	5.64	1.99	1.10	0.81	—	0.48
	Lowest	0.14	2.89	1.09	0.63	0.42	0.31	0.29
	Mean	0.36	4.45	1.69	1.05	0.76	0.51	0.42

tration of the ascorbic acid increases rapidly to higher levels in the normal than in the deficient group, and is usually maximal at the end of one to two hours.

We find that it is better to take account of the amount excreted in the six hours following injection of the test dose rather than the concentration, since from previous experiments at least 500 mg. of the 1,000 mg. test dose was excreted in the urine in the subsequent twenty-four hours in normal

controls, and approximately 80 per cent. of this twenty-four-hour ascorbic acid excretion—that is, 400 mg.—was excreted in the first five to six hours following the intravenous administration of the test dose. These urinary excretions are illustrated in Fig. 5. It thus appears probable that the amount excreted in the first five to six hours after the injection may be an accurate index of the body saturation with respect to vitamin C. (While these experiments were in progress our views were confirmed in a valuable paper by Wright, Lilienfeld, and McLenathan (1937), using a similar method.)

In our control groups (I and II) the results were very similar, and can be classified together as in the case of the

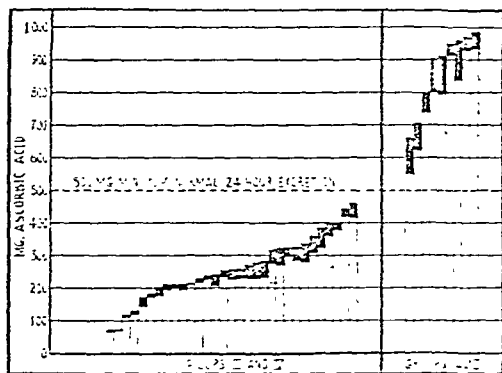


FIG. 5.—Showing amount of ascorbic acid excreted following a single intravenous dose of 1,000 mg. ascorbic acid. Each column represents the amount excreted in the twenty-four hours, and the unshaded portion shows the amount excreted in the first five hours.

oral tolerance curves. The initially high plasma ascorbic acid values (0.70 to 1.41 mg. per 100 c.c.m. in this test) rose very rapidly to maxima of 6.6 to 11.4 mg. per 100 c.c.m. in the fifteen to twenty minutes after the intravenous administration of the 1,000 mg. test dose of ascorbic acid: this was followed by a progressive fall during the subsequent five to six hours to the initial blood level. In the twenty-four hours after the injection not less than 660 mg. (660 to 985 mg.) of the 1,000 mg. test dose of ascorbic acid was excreted in the urine, and at least 500 mg. (549.3 to 934 mg.) was excreted in the first five hours following the injection, representing 83 to 95 per cent. of the total amount excreted. (See Figs. 4 and 5 and Table II.) Slightly less ascorbic acid was excreted in the urine in the full twenty-four hours in Group II patients than in those of Group I.

In the two groups of ulcer patients with and without haematemesis (Groups III and IV) this intravenous tolerance test gave results which can also be conveniently considered together. The low initial plasma ascorbic acid values (0.14 to 0.59 mg. per 100 c.c.m.) rose in the first fifteen to twenty minutes after the injection to values of 2.00 to 7.01 mg. per 100 c.c.m., but on the whole the lower values were noted in the group of patients with haematemesis. In contrast to Groups I and II the amount of ascorbic acid excreted in the urine by these patients in the twenty-four hours was well below 500 mg. (72 to 458 mg.), although, as before, at least 80 per cent. (64 to 418 mg.) of the total excretion in twenty-four hours was excreted in the five hours immediately after injection (Table II). Thus from our results it is clear that a good estimation of the vitamin C nutrition of the body can be obtained by estimating the amount of ascorbic acid excreted in the urine in the first five hours after injection, since at least 80 per cent. of the twenty-four-hourly amount is excreted in that time. Apart from eliminating alterations of the vitamin in the alimentary tract this method is particularly suitable for hospital use, where the daily collection of urine entails considerable work for the nursing staff.

6. INTRADERMAL TEST

In April, 1937, Rotter suggested a test for vitamin C deficiency which depended upon an observation that a solution

Using this method we find that test doses of 500 to 1,000 mg. of ascorbic acid produce saturation in the Group I controls, while 700 to 2,300 mg. (mean 1,252 mg.) were given before saturation was reached in Group II control patients. On the other hand, in the ulcer patients under examination 2,100 to 5,000 mg. (mean 3,691 mg.) of ascorbic acid were given in Group III and totals of 2,000 to 8,000 mg. (mean 4,543 mg.) in Group IV before "saturation" was reached, figures greatly in excess of the average values required in the two control groups (see Table III).

3. PLASMA ASCORBIC ACID DETERMINATIONS

The blood contains ascorbic acid in the reduced and the oxidized forms, the greatest amount occurring in the reduced form. This reduced ascorbic acid content of plasma can readily be determined by Pijoan and Klemperer's modification (1937) of the method of Farmer and Abt (1935); values between 0.66 and 2 mg. reduced ascorbic acid per 100 c.cm. plasma are regarded by these workers as normal, and closely coincide with our own findings. The total ascorbic acid content of blood can be determined by the method of Mirsky *et al.* (1935), and these values have also been determined in our cases. From our own experience and that of Farmer and Abt we believe the reduced ascorbic acid content of plasma to be much more important and accurate than the total ascorbic acid in assessing the state of the body with regard to vitamin C. Since the total blood ascorbic acid values add nothing to the present discussion we propose to omit them from this paper. In individuals on a good vitamin-C-containing diet we found the plasma ascorbic acid lay between 0.60 and 1.85 mg. per 100 c.cm. In the patients of Groups III and IV values between 0.14 and 0.59 mg. per 100 c.cm. were obtained, and in Group IV the mean (0.34 mg. per 100 c.cm.) was lower than that of Group III (0.42 mg. per 100 c.cm.).

It must be remembered that while the reduced ascorbic acid content of plasma gives at a single estimation a fair index of the state of the tissues in relation to vitamin C, yet it is subject to fairly rapid fluctuations, and a subnormal plasma ascorbic acid may occasionally be found although no gross deficiency can be proved by other tests. A case illustrative of this was that of a patient with a plasma ascorbic acid content of 0.54 mg. per 100 c.cm. who required only the comparatively small dose of 1,000 mg. ascorbic acid orally before "saturation" occurred. This finding of a low plasma ascorbic acid in spite of adequate reserves is explained by the fact that the plasma ascorbic acid falls rapidly in a few days on a vitamin-C-deficient diet, although there will not be as yet any marked

decrease in the tissue content of ascorbic acid. On the other hand, the finding of a normal or high plasma ascorbic acid shows the patient to have good reserves of the vitamin (always assuming that a large dose of vitamin-C-containing food has not been taken before the test begins), and a single estimation should be sufficient without corroborative evidence from other tests.

It should be mentioned that we find the plasma ascorbic acid to be very constant from hour to hour on a non-supplemented diet. We also find that in the normal patient taking an adequate supply of vitamin C in the diet there is very little variation in plasma ascorbic acid from day to day.

4. THE ORAL ASCORBIC ACID TOLERANCE TEST

We investigated the possibility of using the changes in the plasma ascorbic acid after an oral test dose of ascorbic acid as a means of detecting vitamin C deficiency. This "oral ascorbic acid tolerance test," as we have called it, is carried out in the following manner:

The patient is not given any extra vitamin-C-containing foods, other than the ordinary hospital diet, on the day before the test. Five c.cm. (10 c.cm. if the total ascorbic acid is also to be estimated) of blood are withdrawn from a convenient vein at hourly intervals for four hours, and the reduced ascorbic acid value of the plasma is determined. This preliminary test acts as a control to show the constancy of the blood ascorbic acid level on a non-supplemented normal diet. At 9 a.m. the following day the ascorbic acid content of the blood is again determined and 1,000 mg. of ascorbic acid administered orally in the form of twenty redoxon tablets (one tablet equals 50 mg.); 5 or 10 c.cm. of venous blood are then taken every hour for five hours and the blood ascorbic acid values redetermined. The patient is instructed to void urine as nearly as possible at each hourly interval; such sample being titrated at once.

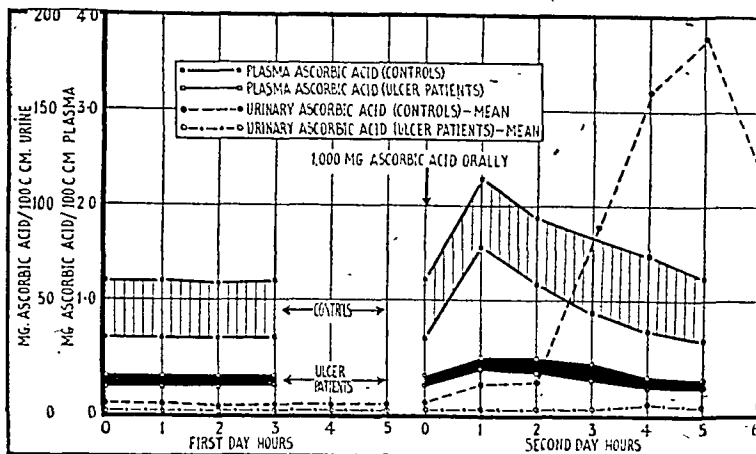


FIG. 3.—Plasma ascorbic acid tolerance tests, showing effect of 1,000 mg. ascorbic acid given orally to normal controls and patients with peptic ulceration; the corresponding mean urinary values are also shown.

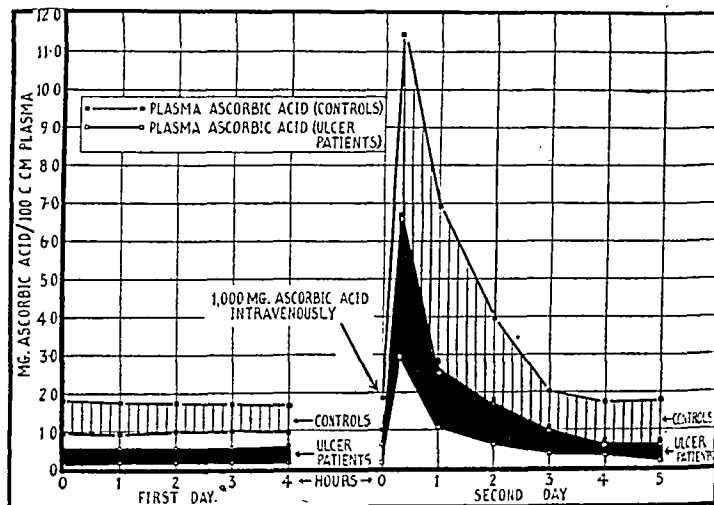


FIG. 4.—Plasma ascorbic acid tolerance tests, showing effect of 1,000 mg. ascorbic acid given intravenously to normal controls and patients with peptic ulceration.

In Fig. 3 typical curves for the highest and lowest limits are shown to illustrate (a) normal controls on diets containing an adequate amount of vitamin C, and (b) patients on vitamin-C-deficient diets (for example, Hurst No. 1 ulcer diet).

Using the oral method as described above, the controls of Groups I and II had initial plasma ascorbic values above 0.80 mg. per 100 c.cm. Apart from slight initial differences, which were within the normal limits, the results were practically identical in Groups I and II, and they therefore may conveniently be considered together. After the administration of the test dose of 1,000 mg. of ascorbic acid orally, the plasma ascorbic acid values in both groups showed rapid increases in the first two hours to peaks of 1.80 to 3.50 mg. per 100 c.cm., followed by returns to the initial plasma levels at the end of five to six hours.

that normal unsaturated controls may require fairly large quantities of ascorbic acid for "saturation," we suggest that the comparative value of the results loses nothing in value, since, as will be seen from our results, there is such a big difference between the amounts of ascorbic acid required to "saturate" normal controls (Groups I and II) and test patients (Groups III and IV). While this may not be of absolute significance its comparative importance cannot be overlooked.

It must be remembered that before ascorbic acid can be excreted in the urine absorption must take place in the alimentary tract, and pathological changes therein—for example, inflammatory conditions—may well affect the absorption of the vitamin, while alterations in the alimentary chemistry and physics may also lead to destruction of ascorbic acid. The ulcer patients in Groups III and IV as a routine measure were given alkalis, and since ascorbic acid is destroyed rapidly in alkaline solutions there may be much less in the stomach and upper intestine before absorption (further work on this point is already in progress): the occurrence of an alkaline urine, part of which may be in the bladder overnight, leads to lower values for urinary ascorbic acid than are found with an acid one (Hawley *et al.*, 1936).

The determination of the ascorbic acid content of the plasma thus serves as a very useful guide, and it is probable that this will ultimately prove to be a more reliable diagnostic test in the detection of vitamin C deficiency. It must be borne in mind, however, that the normal resting plasma ascorbic acid (0.6 to 1.85 mg. per 100 c.cm.) is subject to sudden fluctuations after a temporary deficiency of the vitamin in the diet: in these circumstances a low plasma ascorbic acid may be obtained, but if the figure falls much below 0.45 mg. per 100 c.cm. dangerous depletion of the body stores of the vitamin is developing. The highest figure obtained in Groups III and IV—patients with peptic ulceration with and without haematemesis—was 0.59 mg. per 100 c.cm., and the lowest 0.14 mg. per 100 c.cm., the lowest values and the severest degree of deficiency tending to be found in the patients with haematemesis (Group IV).

The responses following oral-test doses of ascorbic acid show considerable differences between the plasma ascorbic acid levels in the control subjects and those in the patients with peptic ulcer; in the latter they are almost negligible. Similarly the urinary concentration of ascorbic acid in the following four to six hours shows little or no increase in the ulcer patients, although good responses are obtained in the controls. In this test, however, both plasma and urinary changes are dependent upon the rate of absorption of ascorbic acid from the alimentary tract, and therefore the criticism applied to the saturation test may also apply to this one. The intravenous method of administering the ascorbic acid overcomes this objection; nevertheless the rapid increase of plasma ascorbic acid that occurs in fifteen to twenty minutes after intravenous administration of the test dose is still very different in the control groups (I and II) and in the patients with peptic ulceration, the responses in the latter being very much smaller.

Perhaps of rather more importance is the fact that in our normal controls 660 to 935 mg. of the test dose are excreted in the urine in the subsequent twenty-four hours, while only 72 to 458 mg. are excreted in the "ulcer" patients; further, the greater part (at least 83 per cent.) of the ascorbic acid excreted in twenty-four hours appears in the first five hours after injection and thus offers the possibility of greatly simplifying the test, so that it is only necessary to determine the first five hours' excretion following intravenous injection of 1,000 mg. ascorbic acid.

Values below 400 mg.—that is, 80 per cent. of 500 mg., the minimal twenty-four hours' excretion—are regarded as subnormal. Thus in five hours an accurate estimation is obtained of the vitamin C content of the body. In this manner it is possible to avoid alteration of the vitamin in, or differences in the rate of absorption from, the alimentary tract, and it also avoids almost entirely the loss of ascorbic acid in the bladder in the presence of an alkaline urine overnight. The intradermal test is regarded as only a rough index of vitamin C deficiency; nevertheless for rapid clinical use where elaborate facilities are not available it may well prove useful.

It will be noted that all the methods used compared well with one another, and it has been shown that, taking the level of normal controls on good dietary intakes of vitamin C as a standard, there is a marked deficiency of vitamin C in patients with peptic ulceration and haematemesis.

In spite of the experimental evidence put forward from animal experiments it cannot be suggested that lack of vitamin C is an aetiological factor in production of peptic ulceration or haematemesis, although it may well be concerned in delayed healing or the chronicity of peptic ulcers. The diet should therefore be corrected by the addition of the vitamin so that the needs of the body as a whole be not overlooked. The diet used in the treatment of peptic ulceration, especially after haematemesis, will rapidly produce a vitamin C deficiency and a vicious circle thus be set up, leading to delayed healing of the ulcer.

It is interesting to note that the patients with haematemesis showed the greatest deficiency of the vitamin, since it has long been recognized that a sufficiently severe C avitaminosis is associated with increased capillary fragility—in fact, the original tests for vitamin C deficiency were based on this fact (Gothlin, 1931). It is clear, therefore, in view of our results and those of other workers, that the diet of these patients with gastric or duodenal ulceration and haematemesis should be amplified by the addition of vitamin C, while the parenteral administration of ascorbic acid in the first few days should be of considerable value in reaching a rapid saturation of the tissues.

Summary

1. The blood content and the urinary excretion of vitamin C (ascorbic acid) have been investigated by six methods in a series of 107 subjects (fifty-one control subjects, twenty-five patients with peptic ulceration, and thirty-one patients with haematemesis).

2. Using the urinary excretion method, groups of normal controls, miscellaneous ward controls, patients with peptic ulcers, and patients with haematemesis excreted mean amounts of 29, 17, 7, and 7 mg. respectively daily.

3. With the saturation test it was found that to produce a 50 per cent. excretion of the administered ascorbic acid the normal controls, patients with peptic ulceration, and patients with haematemesis required 500 to 2,300, 2,100 to 5,000, and 2,000 to 8,000 mg. respectively.

4. The initial plasma ascorbic acid value (normal 0.60 to 1.85 mg. per 100 c.cm., patients with peptic ulceration and haematemesis 0.14 to 0.59 mg. per 100 c.cm.) was an approximate measure of the vitamin C nutrition of the body tissues.

5. An oral ascorbic acid tolerance test has been described after oral administration of 1,000 mg. ascorbic acid; the maximal plasma ascorbic acid value was reached in one to two hours, while the maximal urinary excretion occurred in four to six hours; in normal controls there was a good response in both blood and urinary levels—in

of 2:6-dichlorophenolindophenol, when introduced intradermally, is decolorized at a speed dependent upon the degree of vitamin C saturation of the tissues. We therefore compared this intradermal test with the results obtained with the five methods described above in a series of 103 patients, and have already published our technique and results (Portnoy and Wilkinson, 1938). From the preliminary figures it appears that individuals who are on a "good" diet with regard to the vitamin give decolorization times of less than ten minutes, while those taking large amounts of vitamin C in their food give decolorization times below five minutes. On the other hand, prolongation of the decolorization time over ten minutes is suggestive of a lack of vitamin C in the tissues.

TABLE II.—Plasma Ascorbic Acid Values and Excretion after Test Dose of 1,000 mg. Intravenously

	Plasma Ascorbic Acid, mg./100 c.cm.		Mg. Ascorbic Acid Excreted in Urine in 24 Hours	Ascorbic Acid Excreted in Urine in 5 Hours	
	Before Test Dose	18 Minutes after Test Dose		Mg.	% of 24 Hours' Excretion
Groups I and II	1.85	11.40	950.0	918.0	95
	1.41	10.90	980.0	934.0	95
	1.41	11.40	960.0	840.0	87
	1.39	9.99	902.8	802.8	88
	1.30	11.20	985.9	—	—
	1.21	9.40	973.1	927.5	95
	1.10	9.86	800.0	740.0	92
	0.90	—	704.2	623.2	88
	0.79	10.20	912.0	792.0	86
	0.70	6.60	659.3	549.3	83
Groups III and IV	0.59	6.90	440.0	418.0	92
	0.50	7.01	458.7	417.7	91
	0.50	6.00	400.0	380.0	95
	0.50	5.30	360.0	310.0	86
	0.49	6.08	253.7	231.7	91
	0.48	5.60	401.0	361.0	87
	0.48	6.60	332.0	280.8	84
	0.43	4.20	169.0	148.5	88
	0.42	4.74	319.0	276.0	86
	0.40	4.00	324.9	282.9	87
	0.40	6.30	238.0	227.0	95
	0.39	5.81	118.4	110.4	93
	0.38	4.00	322.1	291.2	87
	0.38	2.64	323.0	272.0	84
	0.38	5.64	229.0	217.0	94
	0.33	3.96	214.0	210.0	98
	0.31	—	210.0	196.0	93
	0.31	4.00	73.0	70.4	96
	0.30	3.40	384.1	324.1	84
	0.30	2.00	278.0	229.0	82
	0.30	4.60	241.0	207.0	81
	0.30	2.45	210.0	199.0	94
	0.30	3.98	181.48	172.48	95
	0.30	4.12	72.25	64.25	88
	0.29	4.00	258.8	228.8	88
	0.24	2.87	282.3	235.2	83
	0.21	3.60	201.39	176.29	89
	0.20	3.10	269.0	229.0	87
	0.20	3.21	130.0	120.0	90
	0.14	2.89	209.6	192.0	92

TABLE III

	Groups of Controls and Patients			
	I	II	III	IV
Excretion of ascorbic acid in 24 hours before saturation. Mg.(mean)	29	19	7	7
Ascorbic acid (mg.) given before saturation produced ..	684 (500-1,000)	1,251 (700-2,300)	3,691 (2,100-5,000)	4,543 (2,000-8,000)
Reduced ascorbic acid in blood (mg. per 100 c.cm.): Means—				
Before saturation	1.28	0.80	0.42	0.34
After saturation ..	1.71	1.50	1.39	1.55
Oral tolerance test ..	Not deficient	Not deficient	Deficient	Deficient
Intravenous tolerance test ..	Not deficient	Not deficient	Deficient	Deficient
Intradermal test: mean decolorization times (minutes) ..	6.3		16.9	

Taking the control subjects of Groups I and II together we found the mean decolorization time to be 6.3 minutes (3 to 11 minutes), while the patients in Groups III and IV together gave a mean decolorization time of 16.9 minutes (3 to 29 minutes). However, after saturation (as shown by the methods described above) of these patients in Groups III and IV all the decolorization times were between 0.5 and 6 minutes.

Discussion

By employing the different methods for the determination of vitamin C we have been able to compare their results and to use them in estimating the degree of "saturation" of the body in respect to vitamin C in groups of normal subjects and of patients with peptic ulceration and with haematemesis. The measurement of the daily urinary excretion of ascorbic acid is said to be a fair index of deficiency, a value of about 13 mg. being taken as the average minimal excretion. Low excretion figures were in this way obtained by Harris and Ray (1935) in scorbutic infants; on the other hand, in Schultzer's (1936) series of scorbutic patients the excretions during each twenty-four hours of the control period before performing the "saturation" test were 13, 19, and 24 mg. respectively, although large quantities of ascorbic acid (9,500, 7,000, and 14,400 mg.) were required for "saturation." In our Groups III and IV it will be seen that all the patients gave figures below 13 mg., although the control groups gave higher values in all but six patients.

The "saturation" test has been employed quite frequently, and also appears to furnish a fair index of vitamin C saturation of the tissues; we consider it to be more accurate than the estimation of daily ascorbic acid excretion in the urine. The term "saturation" as introduced by van Eekelen *et al.* (1933) and Johnson and Zilva (1934) is a state of optimal ascorbic acid supply above which excess of ascorbic acid is excreted almost quantitatively (70 to 80 per cent.) in the urine within eight hours of ingestion. Nevertheless "unsaturation" is not an abnormal state and occurs in normal individuals, who, Johnson and Zilva (1934) have shown, may require 200-mg. doses of ascorbic acid for several days before an increase in the urinary output is noted. Unless the individual remains on a diet containing excess of vitamin C this state of "saturation" is not maintained, and the individual becomes rapidly "unsaturated," though normal. However, while agreeing with these workers on the fact

the vitamin deficiency in question preceded the development of peptic ulcer or was a result of the therapeutic regimen.

Method

The method adopted was similar to that described by Göthlin (1931) and used by him and his collaborators (Falk, Gedda, and Göthlin, 1932) in the investigation of a large number of normal and pathological subjects. The principle of the test is to compress the upper arm at standard pressure so as to increase the pressure within the capillaries, and then to count the number of ruptured capillaries after a given time as shown by the number of petechiae visible within a given area of skin. As a rule three subjects were tested simultaneously. A central compression chamber was used, to which were connected a metal compressor, a mercury manometer, and three rubber tubes leading to three standard blood-pressure tourniquets. It was found possible to make this system sufficiently airtight to dispense with the fine adjustment mechanism used by Göthlin. A circle of 60 mm. diameter was marked out in the angle of the elbow by means of a standard rubber stamp. The petechiae occurring within this area following the compression of the upper arm at a standard pressure (50 mm. Hg) were counted and the number recorded. The following information was obtained in respect of each patient: the disease and its duration, length of stay in hospital up to the time of the test, diet while in hospital, diet during the two months immediately preceding entry into the hospital, and diet before the appearance of any symptoms of the disease.

Results of the Investigation

Eighty-seven subjects in all were examined by Göthlin's method. Of these, twenty-eight were suffering from gastric ulcer, fourteen from duodenal ulcer, and twenty-three from various diseases other than peptic ulcer, while twenty-two were normal healthy persons living an ordinary life with free choice of diet and sufficient private means to purchase ample fruit and vegetables.

THE NORMALS

The following results were obtained from the normals:

8 gave no petechiae	2 gave 4 petechiae
4 " 1 petechia	1 " 6 "
5 " 2 petechiae	1 " 9 "
1 " 3 "	

Total: 22 patients gave 40 petechiae.
Average number of petechiae, 1.82.

Göthlin gives 0 to 4 as the normal range of petechiae, 5 to 8 as indicating a transitional stage of vitamin C deficiency, and more than eight as showing a definite deficiency. There was no particular evidence of vitamin C deficiency in the diet of the two normals giving more than four petechiae, so we may class these as being in the nature of sporadic variations from the normal.

THE GASTRIC ULCER CASES

The twenty-eight patients suffering from gastric ulcer gave the following results:

1 gave no petechiae	3 gave 8 petechiae
1 " 1 petechia	2 " 9 "
1 " 2 petechiae	1 " 10 "
3 " 3 "	2 " 13 "
6 " 5 "	1 " 14 "
3 " 6 "	1 " 26 "
3 " 7 "	

Total: 23 patients gave 199 petechiae.
Average number of petechiae, 7.10.

Statistical analysis shows that this mean is significantly different from that found above for normals.

From these results it may be seen that if we accept Göthlin's standards 53.6 per cent. of the patients were in a transitional stage of vitamin C deficiency and 25 per cent. were showing definite signs of deficiency. Actually the deficiency demonstrated by these results is greater than it appears, for some of the patients giving a small number of petechiae were receiving dietary supplements containing vitamin C, such as orange juice. This applies, for example, to the first two on the list, and if these are excluded the average number of petechiae then becomes 7.61 instead of 7.10.

The diet prescribed for patients in hospital was a modified Sippy diet, including the administration of alkalis. All of those patients who developed fewer than four petechiae had received supplementary sources of antiscorbutic vitamins, such as orange juice, in addition to the usual gastric ulcer diet. In the case of those patients developing four or more petechiae the only source of antiscorbutic vitamins was small quantities of potato, and the longer the patient's stay in hospital on this regimen the greater was the number of petechiae which developed. It therefore appears that the degree of fragility of the capillaries can be correlated with an inadequate intake of antiscorbutic vitamins. The records further show that, at least in some patients, the ulcer had developed in spite of an apparently ample supply of antiscorbutic vitamins in the diet before the patient came under treatment. There was therefore no definite evidence that lack of antiscorbutic vitamins was directly responsible for the occurrence of ulceration.

THE DUODENAL ULCER CASES

Fourteen cases of duodenal ulcer gave the following result:

2 gave 1 petechia	1 gave 8 petechiae
2 " 2 petechiae	1 " 11 "
2 " 3 "	1 " 14 "
2 " 4 "	1 " 15 "
1 " 5 "	1 " 30 "

Total: 14 patients gave 103 petechiae.
Average number of petechiae, 7.36.

This figure again differs significantly from that obtained for normals. Twenty-eight and a half per cent. gave more than eight petechiae, and were therefore, according to Göthlin's standard, suffering from definite vitamin C subnutrition.

Those patients who developed fewer than four petechiae had, with one exception (in which orange juice had been added to the diet), obtained their antiscorbutic vitamins almost entirely from potatoes. Of those patients who developed four or more petechiae none had received any important source of antiscorbutic vitamins in the diet for at least two weeks before the test. One possible exception to this was the patient who developed thirty petechiae, whose only source of antiscorbutic vitamins for some months had been boiled turnips. As in the case of gastric ulcer patients, therefore, the degree of capillary fragility could be correlated with the deficiency of antiscorbutic vitamins in the diet. Potatoes, however, seemed to be more effective in supplying enough antiscorbutic vitamins to prevent capillary fragility than in cases of gastric ulcer. There also appeared to be considerable variation in the time taken by various patients on a similar diet to develop capillary fragility.

VARIOUS DISEASES

Capillary resistance tests were carried out on twenty-three patients suffering from various diseases, which

the ulcer and haematemesis cases the response was negligible.

6. An intravenous ascorbic acid tolerance test following the intravenous administration of 1,000 mg. ascorbic acid has also been described; the maximal plasma ascorbic acid value was reached in fifteen to twenty minutes after the intravenous test dose, while the maximal urinary excretion occurred some two hours later. In normal cases 660 to 985 mg. of the ascorbic acid was excreted in twenty-four hours, of which 83 to 95 per cent. appeared in the first five hours; in patients with peptic ulceration and haematemesis 72 to 458 mg. of the ascorbic acid was excreted in twenty-four hours, although, as before, at least 80 per cent. appeared in the first five hours.

7. It has been suggested that this intravenous ascorbic acid tolerance test can be simplified for routine purposes by omitting the blood determinations and merely estimating the amount of ascorbic acid excreted in the urine in the five hours after the intravenous administration of 1,000 mg. ascorbic acid; this may not hold in cases with severe renal impairment.

8. The intradermal test for vitamin C deficiency was also carried out on these cases, and the results agreed very closely with those of the other tests, decolorization times longer than ten minutes indicating vitamin C deficiency.

9. Using the six methods for determining vitamin C nutrition, it has been shown that patients with peptic ulceration and with haematemesis suffered from severe vitamin C deficiency.

10. The severest degrees of vitamin C deficiency were found in the patients with haematemesis. It is suggested that large doses of vitamin C should be given to all subjects of peptic ulceration and haematemesis in order to saturate them as rapidly as possible.

We wish to thank the honorary medical staff of the Manchester Royal Infirmary for allowing us to use their patients; members of the nursing staff for their help in the collection of specimens; and Messrs. Roche Products Ltd. for kindly supplying us with adequate amounts of ascorbic acid in the forms of redoxon and redoxon forte.

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VITAMIN C DEFICIENCY IN PEPTIC ULCERATION ESTIMATED BY THE CAPILLARY RESISTANCE TEST

BY

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Recent research has shown that the diet usually prescribed in gastric disease, particularly in gastric and duodenal ulcer, is deficient in vitamin C. It is probable that it is also deficient in other vitamins, notably vitamin B₁. Harris and his collaborators (1935, 1936a, 1936b), in a series of investigations on the excretion of vitamin C in seventy-four hospital patients, have found that those patients with gastric or duodenal ulcer, or dyspepsia, who had been on special gastric ulcer diets had a very low vitamin C output in the urine. Harris mentions that in guinea-pigs vitamin C deficiency sometimes predisposes to gastric ulcer, and suggests that the placing of a peptic ulcer patient on a vitamin-C-free diet may result in the production of a vicious circle. Archer and Graham (1936) have produced evidence that six out of nine patients suffering from gastric and duodenal ulcer showed a considerable degree of vitamin C unsaturation.

Troutt (1932) points out that while the diets of Sippy, Lenhartz, von Leubé, and Alvarez have been used with success for controlling the acute symptoms of peptic ulcer they make no provision for vitamin C. At first sight it might be thought that the giving of vitamin C in the form of orange juice would be prejudicial on account of its acidity, and it is found in fact that some patients have an instinctive aversion to it. However, Troutt states that about half a glass of orange juice (3 oz.) after a meal causes no discomfort in most patients with peptic ulcer. He points out that theoretically 40 litres of orange juice would be required to furnish the equivalent of the acid contained in 100 c.cm. of gastric juice of pH 1.7, and since the stomach normally secretes 3,000 c.cm. of gastric juice daily the consumption of four ounces of orange juice a day would have a negligible effect on the amount of acid present. It is of course well known that vitamin C is rapidly destroyed in the presence of strong alkalis such as sodium hydroxide, but it is very doubtful whether its stability would be significantly altered even by the considerable doses of any of the weak alkalis—for example, sodium bicarbonate, magnesium oxide, bismuth carbonate—administered to patients suffering from peptic ulcer.

The problem of the relation of vitamin C to capillary fragility is complicated by the discovery by Szent-Györgyi (Bentsáth, Rusznayák, and Szent-Györgyi, 1936) of a factor (vitamin P) occurring in close association with vitamin C which appears to have an effect on the condition of the capillary walls. For the purpose of this paper, however, no attempt will be made to differentiate between the effect of vitamin C and that of Szent-Györgyi's factor, and although the latter factor may ultimately prove to be the one responsible for the changes in capillary fragility it will be convenient to refer simply to antiscorbutic vitamins.

The present investigation was carried out with the object of ascertaining whether the deficiency of antiscorbutic vitamins in peptic ulcer described by Harris and other workers is sufficient to cause a lowering of the capillary resistance. It was also hoped that analysis of the patients' diet would shed some light on the problem as to whether

given proseptasine. The drugs, which were supplied by the makers free of charge for the purpose of this test, were prontosil album (*p*-aminophenylsulphonamide) in 5-grain tablets and proseptasine (*p*-benzylaminophenylsulphonamide) in 7½-grain tablets.

The routine was that each patient received two tablets three times a day for the first four days after delivery, and then one tablet three times a day until the end of the seventh day. The prontosil group therefore received in general a total of 165 grains of prontosil album in the course of seven days, while the proseptasine group received 247½ grains of proseptasine in the same period. One qualification must be mentioned—namely, that rather less than a half of the prontosil group received only one tablet three times a day for the whole seven days. This reduced dose was given to his patients on the request of one member of the staff, who had observed toxic symptoms elsewhere when the larger dose had been administered.

In all cases in which there was a clear probability of uterine infection a more intensified treatment was given, the soluble form of sulphonamide being injected intramuscularly in addition to the oral administration as above mentioned. Such cases included "failed forceps" outside hospital, acute pyrexia early in the puerperium, and cases of septic abortion. The drugs given intramuscularly were prontosil soluble in 2.5 per cent. solution, supplied in 10-c.cm. ampoules, and soluseptasine in 5 per cent. solution, supplied in 10-c.cm. ampoules. The routine of using drugs by injection was as follows: Prontosil soluble was given in an initial dose of 20 c.cm. followed by four doses of 10 c.cm. each at four-hourly intervals—a total of 60 c.cm. Soluseptasine was given in an initial dose of 10 c.cm. followed by three doses of 10 c.cm. each at four-hourly intervals—a total of 40 c.cm. In most potentially infected cases an injection course was begun within a few hours of delivery, and in one or two instances the first dose was actually given before delivery.

Toxic Effects

There were remarkably few cases in which any toxic effects of the drugs were observed. The most frequent and obvious toxic sign was cyanosis, which occurred in cases of the routine oral administration but proportionately more often where the oral administration was being supplemented by injections. The only other sign or symptom which we noticed at all frequently was a slight drowsiness. There were no cases of marked anaemia induced by the drugs or of *acidoses*. During the year numerous cases of diarrhoea with nausea or vomiting occurred. Although such symptoms have been reported as following sulphonamide administration it seems unlikely that any of these cases can be attributed to the use of the drugs, because a mild form of gastro-enteritis had been prevalent among the patients and staff in the hospital for two years or more. Mild albuminuria, another reported toxic sign, was not observed, and cases of toxæmia of pregnancy with occasionally massive albuminuria before delivery showed no abnormal persistence of albumin in the urine after delivery. There were no cases of skin eruption. Some cases with normal labour and spontaneous delivery manifested a persistently frequent pulse (90 to 110) during the puerperium without any other morbid signs. It was suggested that this might be the result of the drugs, but we had no clear evidence either for or against the suggestion.

Magnesium sulphate was not given by mouth at the same time as any sulphonamide preparation. If it became necessary to administer it the sulphonamide was stopped.

Ferrous sulphate was frequently administered at the same time as the sulphonamide drugs and, as might be expected, gave rise to no appreciable abnormal symptoms.

Results of Year's Working

The results of last year's working may be summarized and compared with previous years thus:

I. Local Uterine Infection; that is, Cases with One or More of the Following Symptoms—Offensive Lochia, Uterine Tenderness, Delayed Involution, and no Other Recognizable Cause of Temperature if Pyrexia was Present.

1934	1935	1936*	1937
165 cases out of 1991 (8.3%)	193 cases out of 2,016 (9.5%)	150 cases out of 2,133 (6.9%)	139 cases out of 2,241 (6.2%)

* Throughout 1936 a similar experiment was carried out with calcium sulphide. Every patient received three grains of the drug three daily from the day of delivery until she left hospital.

II. Morbid Puerperia (B.M.A. Standard) due to Uterine Infection

1934	1935	1936	1937
77 (3.5%)	74 (3.6%)	67 (3.0%)	44 (1.9%)

During 1937 forty-seven patients in all were transferred to the City Fever Hospital as being frankly infected. Of these, two died (both of pneumonia after many weeks' illness). All but five of the forty-seven had been long enough in hospital to have received a more or less complete course of sulphonamide before transfer. In only five of the transferred cases was a positive culture of haemolytic streptococci obtained after removal to the City Hospital, but these were not the five who had been transferred too early to have received the routine sulphonamide treatment. In forty-nine cases out of the 139 local uterine infections high vaginal swabs were taken and sent to Dr. C. A. Green of the Bacteriological Department of Edinburgh University. Only three of these showed haemolytic streptococci, but none conformed to Lancefield's groups A—H. Of the remaining forty-six, twelve showed a culture of *Bacillus coli*, nine of staphylococcus, one of non-haemolytic streptococcus, and one of *Bacillus proteus*.

To investigate the relative efficacy of the two particular preparations of these drugs was no part of our purpose and would have involved more clerical work than we could reasonably demand of our resident staff. Our impression was that there was no appreciable difference between them either in efficacy or in toxicity, but in order to test this point briefly we analysed the first five hundred cases of 1937, with the following results, which on the whole seem to bear out the impression just stated:

Prontosil Group (240 cases)	Proseptasine Group (260 cases)
Normal Labours— Spontaneous deliveries: No infection 93.5% Transferred to isolation ward 4.5% Uterine sepsis 1.2%	Normal Labours— Spontaneous Deliveries: No infection 92.5% Transferred to isolation ward 6.3% Uterine sepsis 1.2%
Simple Uncomplicated Forceps Deliveries: No infection 82.1% Transferred to isolation ward 17.9%	Simple Uncomplicated Forceps Deliveries: No infection 83.5% Transferred to isolation ward 5.5% Uterine sepsis 5.5%
Other Cases, including Abortion: No infection 62.1% Transferred to isolation ward 29.5% Uterine sepsis 8.6%	Other Cases, including Abortion: No infection 59.6% Transferred to isolation ward 31.5% Uterine sepsis 7.1%

included myxoedema, hyperthyroidism, diabetes, pyelonephritis and nephritis; cardiac failure, pernicious anaemia, lymphatic leukaemia, myelogenous leukaemia, cerebral tumour, pneumonia, bronchial asthma, chorea, polyarthritis, gastritis, chronic diarrhoea, and leucoplakia. Of these twenty-three patients seventeen were receiving daily doses of orange juice and the remaining six were consuming potatoes daily, with tomatoes and other vegetables and fruits, and occasional quantities of orange juice. These patients gave the following results:

6 gave no petechiae	2 gave 5 petechiae
5 " 1 petechia	1 " 7 "
3 " 2 petechiae	1 " 10 "
1 " 3 "	1 " 14 "
2 " 4 "	1 " 68 "

Total: 22 patients gave 63 petechiae. (The last patient was suffering from myelogenous leukaemia, and, since capillary fragility is well known in such cases irrespective of diet, his case was not used in computing totals or averages.) The average number of petechiae was 2.86. Statistical analysis showed that this was not significantly different from the normal average. 14 per cent. gave between four and eight petechiae, and 9 per cent. gave more than eight petechiae.

Discussion of Results

The question of the age of patients requires consideration, although Göthlin has produced evidence that even great age does not significantly affect the capillary resistance. It may, however, prove of interest to give the average age of the groups under consideration. The age averages were: gastric ulcer cases, 48.6 years; duodenal ulcer cases, 42.3 years; various diseases, 46.7 years. It was not possible to obtain the actual ages of all the normals investigated, but an estimated average is 22 to 25 years. It is apparent that the normal group is not completely comparable with the diseased group. Nevertheless the fact that the age averages of the other three groups are approximately the same provides a satisfactory check upon any possible influence of age. As regards sex, twelve out of twenty-eight gastric ulcer cases were female; only one out of fourteen duodenal ulcer patients was a female. Thirteen out of the "various diseases" group were female, and thirteen out of the twenty-two normals were female. With the exception of the duodenal ulcer cases, therefore, the distribution between the two sexes was fairly even.

It appears from the above that the lowering of the capillary resistance in cases of gastric ulcer is traceable directly to deficiency of antiscorbutic vitamins in the diet. The results were not of such a clear-cut nature in the duodenal ulcer cases, but nevertheless there appears little doubt that those cases which have been for more than ten days on the dietary regimen usually prescribed show a definite increase in capillary fragility, unless the diet has been supplemented with some potent source of antiscorbutic vitamins.

The genesis of peptic ulcer could not be correlated definitely with deficiency of antiscorbutic vitamins in the diet, but the possibility that it may play a part in some cases cannot be excluded. It seems more likely that the deficiency of antiscorbutic vitamins in the therapeutic diet may be a factor influencing the transition from the acute to the chronic condition, predisposing to delay in healing, relapses, and possibly haematemesis, but of this we have at present no definite proof.

It is of interest to note that many of these patients said that before the onset of their complaint they had no liking for fresh fruit, salads, or green vegetables, but all who expressed this dislike asserted that they were very fond of potatoes. This appears to be an interesting example of compensatory selection of diet.

Summary and Conclusions

1. Eighty-seven subjects have been examined by Göthlin's capillary fragility method. These subjects included patients with gastric and duodenal ulcer, cases of various diseases; and normal people of both sexes.

2. Hospital patients on a dietary regimen for gastric or duodenal ulcer showed a degree of capillary fragility significantly greater than normal subjects or patients suffering from other diseases.

3. Examination of the records of the patients indicates that the degree of capillary fragility is related to inadequacy of the diet in respect of antiscorbutic vitamins.

4. No evidence was obtained from the records that the development of peptic ulcer was conditioned by deficiency of antiscorbutic vitamins in the diet.

I wish to express my thanks to W. A. Carr Fraser, D.Sc., B.V.Sc., F.S.S.Lond., statistician to the Nutrition Council of the Commonwealth of Australia, for the statistical analysis of the data. I am also indebted to Professor Lambie for help and advice; and to the medical superintendents and resident medical officers of the Royal Prince Alfred Hospital, the Sydney Hospital, the Prince Henry Hospital, and the North Shore Hospital for their assistance in obtaining peptic ulcer patients.

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PROPHYLACTIC USE OF SULPHONAMIDE PREPARATIONS IN OBSTETRIC PRACTICE

BY

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At the end of 1936 my colleagues at the Royal Maternity and Simpson Memorial Hospital and I were approached by Bayer Products Ltd., the manufacturers of prontosil, and by Messrs. May and Baker, the manufacturers of proseptasine, with a request to try the effect of their products prophylactically. The amount of work to be overtaken by a limited resident staff in the hospital is so great that no investigation on strictly scientific lines and requiring much additional clerical work could be contemplated; but we agreed to make a rough-and-ready clinical experiment on a large scale by administering one or other of these drugs to every patient in the early days of her puerperium over the whole period of one year. The results of that year's work compared with those of previous years would afford reasonable ground for forming an opinion as to the efficacy or otherwise of the sulphonamide preparations in preventing the occurrence of puerperal infection.

The Routine

In order to obtain approximately equal numbers under each drug all women admitted on Monday, Wednesday, and Friday and each alternate Sunday were given prontosil after delivery; those admitted on the other days were

Clinical Memoranda

Dislocation of the Eyeball as a Complication of Oxycephaly

This case is presented because of the very unusual complication—namely, spontaneous dislocation of the eyeball.

CASE REPORT

Audrey R. was first seen at the General Infirmary at Leeds by Dr. Vining on July 12, 1935, when she was 8 months old. The mother was worried by the child's appearance and by the difficulty in breathing. Marked protrusion of the fore part of the head was noted, and the x-ray appearances were considered typical of oxycephaly. Exophthalmos was noted at that time. At 2 years of age she was seen again; she was then walking and was clean in her habits. In March, 1937, the notes read as follows: "Not so well. Very miserable. Can't get her breath. Mother thinks vision is defective. Increasing frequency of headaches."

On April 8, 1937, the mother returned from a short shopping expedition to find the child, in its perambulator, crying loudly. She brought her along to the Infirmary, and I then saw the infant for the first time. The appearances were as seen in Fig. 1. The left eyeball was completely dislocated forwards and quite immobile. The cornea was very dry, and it was impossible to see the fundus. The pupil was not dilated. An anaesthetic was given and the eye gently levered back into position with a spatula without any difficulty. In order to minimize the risk of recurrence a lateral tarsorrhaphy was performed. At the same time the right fundus was examined. Beyond slight pallor of the disk, scarcely sufficient to warrant the term optic atrophy, there was nothing of note. The next day the cornea was normal and the movements of the eye were as full as on the other side.

The child has been seen on several occasions since. There has been no deterioration of the general condition, and for the most part she appears to be quite happy. No recurrence

particular sutures involved. As a result the growing brain exerts pressure on the more yielding parts of the skull. The orbital plate of the frontal bone is depressed, and the greater wing of the sphenoid, forming the lateral wall of the orbit, is pushed forward. The capacity of the orbit is thus seriously reduced, and at the same time the axis of the orbit becomes much more obliquely directed down and out. This accounts for the divergence of the eyes so frequently noticed, and very marked in this case. The degree of exophthalmos in oxycephaly and allied deformities is proportionate to the reduction in orbital volume. In some patients it may be but slight, and in others productive of loss of the eye from lagophthalmic keratitis (Uhthoff).

What caused the dislocation in this case? The chief factors which normally keep the eye in position in the orbit are, no doubt: (a) the tension of the recti muscles. One knows how, during an enucleation, even a narrow band of undivided muscle will prevent the eyeball from coming forwards easily. (b) The degree of development and tenseness of the extensions of Tenon's capsule—that is, the check ligaments. (c) The action of the orbicularis muscle. Beyond a certain degree of proptosis, however, the plane of action of the orbicularis may be behind the equator of the globe; its action would then be reversed, and it might even exert sufficient pressure on the posterior half of the eyeball to dislocate it forward.

COMMENTARY

In an attempt to explain this case one may assume that the proptosis was so gross that the action of the orbicularis was largely nullified or reversed. In a fit of crying the spasm of the orbicularis was so great as to dislocate the globe from the orbit against the slight resistance of a very lax system of muscles and fascia. Once expelled, there would be but little tendency for spontaneous reduction of the eye into an orbit so much reduced in size.

I wish to express my thanks to Dr. Vining and to Mr. J. Foster for their kind permission to publish this case.

Leeds.

J. SHERNE, F.R.C.S., D.O.M.S.

Cardiazol in Infancy

The treatment of schizophrenia by massive doses of cardiazol has aroused considerable interest recently. A report of a case in which this drug was given in its more usual sphere might be of interest.

CASE RECORD

The patient was a male child, 11 lb. in weight when born. During the puerperium, after an unsatisfactory attempt at breast feeding, the child was given a well-known brand of condensed milk. He suffered from intermittent diarrhoea and gradually lost weight. After three weeks the diarrhoea became so marked that the parents gave him $\frac{1}{4}$ grains of hydrarg. cum creta in divided doses. When first seen by one of us twenty-four hours later he was obviously dehydrated, though at the time circulation and respiration were not seriously affected. Fortunately he was not vomiting. Brandy and slightly sweetened water were ordered. Unfortunately the baby, refusing all fluids, rapidly became worse, and twelve hours later the eyes were sunken and glazed, with the eyelids half opened, respiration shallow and gasping, the heart sounds feeble and rapid, and no pulse could be felt at the wrist. Weakness was so marked that the child could barely swallow: he seemed to have no desire for fluid, which had to be introduced by means of a pipette. He retained very little when given a rectal saline. The case looked hopeless.



FIG. 1.
Before operation.

FIG. 2.
After operation.

of the dislocation has appeared. The vision seemed to be no worse than before, and the mother thinks that the left eye is still the better of the two (Fig. 2).

CAUSE OF THE EXOPHTHALMOS IN OXYCEPHALY

There can be little doubt that the deformation of the orbit is the chief cause of the exophthalmos in oxycephaly and allied deformities. The basic pathology appears to be a premature synostosis of one or other group of sutures of the cranial vault, the deformity varying with the

Since September, 1936, I have been using M. & B. 125, practically equivalent to prosectasine, at the Maternity Department of the Western General Hospital. Our intention there was to put every alternate case on prophylactic sulphonamide, but this routine has not been strictly adhered to, and there has been a tendency to select cases, the more serious ones and those more likely to be followed by infection being given the prophylactic doses. Two $7\frac{1}{2}$ -grain tablets were given four times a day for the first four days and one tablet three times a day for the next three days, so that the patients who were on this treatment received $307\frac{1}{2}$ grains of sulphonamide in the week following delivery. No toxic symptoms of any significance or moment were observed, except in one case where a skin eruption occurred which was thought to be due to the sulphonamide medication.

Among 322 patients who received prophylactic sulphonamide there were twenty cases of morbid puerperia, but of these only six were due to local uterine infection, while one developed definite puerperal sepsis. Of 383 cases to which the sulphonamide was not given there were fifteen who showed signs of morbid puerperia, but of these again only six showed symptoms of local uterine infection, while one developed puerperal septicaemia. In this investigation, therefore, the general result seems negative.

My colleagues and I desire to express our thanks to Messrs. May and Baker and to Bayer Products Ltd. for their generosity in providing their drugs.

THE EARLY OCCURRENCE OF HIGH BLOOD PRESSURE IN COARCTATION OF THE AORTA

BY

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In recording high blood pressure as a regular feature of coarctation of the aorta Sir Thomas Lewis (1933) wrote: "We still lack records covering the periods of childhood and adolescence, during which seemingly very few cases are diagnosed. While it may be highly probable that coarctation means high pressure from a time shortly after birth to the time when cardiac failure supervenes, or death occurs from other cause, the gap that is still present in our evidence forbids us finally to draw the corresponding conclusion."

The youngest case then on record was a boy of 14 who had coarctation and a blood pressure of 150 mm. systolic (Hamilton and Abbott, 1927-8). Wilkinson (1932-3) published the case of a child of 4 years whose blood pressure was 150 mm. in the arms and who had only feeble pulsation in the iliac artery. In his case there was no evidence of anastomotic vessels. Sheldon (1932-3) published a case in the same year—that of a child of 12 in whom the blood pressure was 150 mm. in the arms and who had evidence of collateral circulation.

Case Report

The case here recorded was seen recently. The patient was a boy of 3 years. At birth artificial respiration was required, and during the first fortnight of life he became blue very easily and was treated for this with oxygen. Afterwards he was apparently normal and able to play with other children.

His parents noticed that he became blue rather easily in the cold but not at other times. On examination he was found to be a small but well-nourished child without cyanosis. His heart was enlarged, the impulse being visible 2 cm. outside the nipple line in the fifth space, and the right border of cardiac dullness 1 cm. to the right of the mid-line. Dullness to percussion was found in the first and second spaces to the left of the sternum. A systolic thrill was felt to the right of the sternum in the second space and a harsh systolic murmur maximal at this point. A systolic murmur was heard over the inner ends of all the right intercostal spaces and in the same line below the costal margin, and in the neck. A similar murmur was heard along the left border of the sternum, but it was not so extensive. These murmurs probably resulted from enlarged internal mammary arteries. The heart sounds at the apex were normal. The radial pulses were full, but neither femoral pulse could be felt, nor was there any pulsation in the posterior tibial or dorsalis pedis arteries of either leg. Anastomotic vessels were then searched for and found. There was visible pulsation from anastomotic arteries running out of the subclavian triangle and under the anterior border of the trapezius, more prominent on the right than on the left; a thrill was felt over them on the right side. A tortuous artery was seen pulsating in the right axilla, and it could be traced from under the scapula and passing deep to the pectoral muscles. Pulsation was also found on the back, in the second, fourth, and fifth right spaces, and a systolic murmur was heard over all these areas. Radiographs failed to show any erosion of the ribs. When first seen in December, 1937, the blood pressure in the right arm was 150 mm. systolic and 85 mm. diastolic measured by auscultation, and 140 mm. measured by palpation. The pressure in the left arm was always about 40 mm. lower than that in the right arm. In January, 1938, when the patient was seen again, the pressure in the right arm was 162 mm. After resting for half an hour the pressure was 160 mm., and after another fifteen minutes' rest it was 158 mm. All these readings were taken with a sphygmomanometer by palpation.

Commentary

These cases help to fill the gap referred to earlier, and indicate that the blood pressure in coarctation of the aorta is high throughout life. The demonstration of high blood pressure in the child is important because it occurs at a period of life when high pressure from other cause is extremely rare. The conclusion, which may now be formed with more certainty, that high pressure is lifelong in coarctation is of value because these cases are useful in studying the effects of long-lasting high pressure of a relatively uncomplicated kind and in comparing the arteries in upper and lower limbs where they are submitted to very different pressures.

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The British X-Ray and Radium Protection Committee was formed in 1921, as the result of joint action between the Royal Society of Medicine, the Röntgen Society, the British Association for the Advancement of Radiology and Physiotherapy (now the British Institute of Radiology, incorporated with the Röntgen Society), the Institute of Physics, the London Radium Institute, and the National Physical Laboratory. The personnel of the committee was afterwards widened to include representatives from the provincial schools. Its first recommendations were issued in 1921, and these were revised in 1923, 1927, and 1934. A further revised report, dated January, 1938, has now appeared, and copies may be had from the honorary secretaries of the Protection Committee at 32, Welbeck Street, London, W.1, or the director, National Physical Laboratory, Teddington, Middlesex.

introductory and earlier chapters dealing with general matters, such as the relation between cartilage and bone, the segmental composition of the skull, the determination of the hind limit of the skull in various types of vertebrates, the craniogenic materials of the neurocranium and visceral arch skeleton, and the processes of chondrification and ossification. The systematic section of the book is a monumental record dealing with the development and general morphology of the various types of vertebrate skulls and including detailed descriptions with illustrations showing the relations to the skull of the principal arteries, veins, and nerves. This section will be of the utmost value to the beginner and the experienced morphologist alike, since the various parts of the skull in different groups of animals are compared side by side in a systematic manner, which is easily grasped, and a great aid to the drawing of general conclusions from concrete examples of skeletal structure. The book has bearings which extend far beyond the limits of the skull, and, although the palaeontological aspect of the origin of the skull has not been included within its scope, it will be of great value to palaeontologists to have before them a full and reliable record of the various structural components of the skulls of animals living at the present day. Indeed, a work specially devoted to the skulls of prehistoric and fossil animals, conceived and carried out on similar lines and gathering together the numerous separate contributions to our knowledge of the early stages in the phylogeny of vertebrate and invertebrate skulls, would be a fitting sequel to the present work. Besides dealing with the morphology of the skull the author has included a short description of the experimental work carried out by Fell, Robison, and others on phosphatase activity in relation to ossification, and the effects of the secretions of endocrine glands on cartilage formation. He has also made brief reference to such problems as the dependence of the growth of the skull on the growth of the brain, which should be of special interest to members of the medical profession. This book should be procured for every biological library and translated into all the principal languages employed by scientific workers.

The frontispiece—namely, "The Creation of Man" by Michelangelo—which has been chosen by Professors Neal and Rand for their work on *Comparative Anatomy* is a fitting introduction to a treatise which deals with the gradual evolution of man and the higher types of living animals from lower organisms. Only one-half of the original fresco in the Sistine Chapel has been reproduced, but the existence and power of the Creator, who is represented as a complete figure in the original painting, is indicated by the hand with outstretched finger to the right of the picture. The book is written with the object of providing the student of human nature with a concise account of the genetic relations which exist between the different classes and types of animal forms which have preceded the evolution of man and the higher types of vertebrates. It is a book which can be read by anyone interested in the subject—for example, clergyman, anthropologist, geneticist, geologist—without involving a prolonged study of technical details, which are apt to obscure the primary object of the reader—namely, to get a working basis of established facts on which to build his general conceptions of the origin and nature of man: the reproductive system, the influences of heredity and environment, and the interaction of different parts of the body—for example, that of the endocrine organs. The study of any one of these extensive subjects involves some know-

ledge of the others, and the present work is an endeavour to supply that knowledge in a way which can easily be assimilated by a reader who has not had a long training in practical zoology and the kindred subjects of embryology and comparative anatomy. After a brief introductory explanation of the main features of the different classes of the animal kingdom, and a fuller general account of reproduction, the authors deal with the various systems as exemplified in lower and higher types of animals. The description of the genesis and comparative anatomy of the nervous system and sense organs is specially worthy of mention, and the concluding sections on the "head problem" and ancestry of vertebrates are also valuable commentaries on the historical and recent views upon these important subjects. The book is clearly written and well illustrated.

CLINICAL DIAGNOSIS

Physical Diagnosis: The Art and Technique of History Taking and Physical Examination of the Patient in Health and Disease. By Don C. Sutton, M.S., M.D. (Pp. 495; 298 figures, 8 coloured plates. 21s. net.) London: Henry Kimpton. 1937.

In well-equipped hospitals the information provided by laboratory tests and radiological examination tends in some degree to short-circuit the more laborious and systematic methods of the old clinicians and of those practising in isolated districts. As a result medical students may not be attracted to works on physical signs and rely on the ordinary textbooks of medicine. Dr. Don Sutton, with much experience of the needs of students, has followed a more attractive course in this comprehensive volume, which not only combines the old physical signs with the new methods of radiology but is practically an atlas of clinical diagnosis. This concise text is thus admirably supplemented by successful illustrations, a good example of which is the coloured plate of bismuthia, showing the facial appearance due to prolonged ingestion of bismuth, which resembles that of the rare condition argyria. The radiographs are well reproduced, and there are useful pairs showing the naked-eye and radiological appearances of the same condition. Stress is rightly laid on the importance of taking an accurate clinical history. Without overdoing it, the portraits of medical pioneers and photographs of the title-pages of their works give an interesting historical touch.

ORTHOPAEDIC PRACTICE

A Practice of Orthopaedic Surgery. By T. P. McMurray, M.B., F.R.C.S.Ed. (Pp. 471; 178 figures. 21s. net.) London: Edward Arnold and Co. 1937.

Before David went out to do battle with Goliath Saul arrayed him in his own heavy armour. But his own youthful agility, his sling, and the five smooth stones were of more use to him than the cumbersome equipment of the older man. To-day the Davids in our medical schools are being burdened more and more with weighty instruction in this and that special branch of medicine, until now even the benevolent Sauls that would send them forth are beginning to realize that something must be done to make the equipment lighter and allow for greater mobility. The teachers in the special departments, particularly, are required to confine their teaching to essentials, and this applies to the written as much as to the spoken word. Orthopaedics is a comparatively young subject, but most students are appalled by the size of the textbooks dealing with this important branch of surgery. No book has hitherto been produced which the average student has time to read or the capacity to digest. For this reason

Two drops of cardiazol were introduced into the first feed by pipette of weak condensed milk, and as this seemed to give the child some desire for further fluid it was repeated four-hourly. After the first dose of cardiazol four minims of pituitrin were injected hypodermically and repeated once six hours later. As a result of this treatment the circulation improved, but the most interesting feature was the increase in appetite after every dose of cardiazol. After forty-eight hours the baby seemed out of danger, so cardiazol was discontinued. The next day he was not so well; his circulation was sluggish and he was again apathetic to his feeds. The administration of cardiazol was resumed and he took his feeds more readily. His general condition also improved. After several days the cardiazol given was gradually reduced, and after a week the baby made an uneventful recovery. The condensed milk feeds were replaced by ostermilk (full-cream), which he took readily. He is now 7 months old and weighs 22 lb.

We would be interested to hear of any similar case occurring in England. Excellent results in the treatment of malnutrition with collapse in infants have been reported in German literature by Koschate (1935) and Hoffmann (1937).

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TERENCE LEE, M.B., B.S., M.R.C.P.

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Pneumococcal Meningitis treated with Prontosil

The following interesting case, in which pneumococcal meningitis was treated with prontosil, seems worthy of record.

CASE RECORD

A man aged 26 was admitted to hospital on December 27, 1937, complaining of photophobia, with some stiffness and pain in the head and neck. On examination definite neck rigidity and slight head retraction were found, and Kernig's sign was strongly positive. The temperature was 100° F. and the pulse rate 98. He gave no history of any recent lung, ear, nose, or throat affection, although he had had influenza about a month previously and had never felt well since. A lumbar puncture was performed on admission. The pressure was increased and the cerebrospinal fluid was opalescent. The pathological report on the cerebrospinal fluid was: total cells, 5,500; polymorphs, 98 per cent.; some Gram-positive cocci were seen on direct smear—in all probability pneumococci.

The patient was treated with large doses of prontosil, and three days later a second lumbar puncture was performed. The pressure was normal and the organism was again seen, proving on culture to be Type I pneumococcus. Administration of prontosil was continued. The patient's temperature remained raised for about five days; Kernig's sign gradually diminished, as did the headache and stiffness of the neck. On January 8, when a third lumbar puncture was performed, the cerebrospinal fluid was normal and the culture sterile.

This, as far as I know, is the second reported case of pneumococcal meningitis treated with prontosil. In the first one (*British Medical Journal*, 1937, 2, 1204) it was doubtful if the successful issue was due to repeated lumbar puncture or to prontosil. In the present case, however, it is obvious that whatever the cause of the recovery it was not due to repeated lumbar punctures.

My thanks are due to Dr. A. M. Barron, senior physician to this hospital, for permission to publish this case.

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Reviews

PAEDIATRIC THERAPEUTICS

The Infant: A Handbook of Modern Treatment. By Eric Pritchard, M.A., M.D., F.R.C.P. (Pp. 744; coloured frontispiece; 47 figures, including 4 plates. 18s. net.) London: Edward Arnold and Co. 1938.

Written essentially for the general practitioner and based in part upon verbatim reports of postgraduate lectures extending over many years Dr. Eric Pritchard's handbook will be widely welcomed for its practical outlook. As its title suggests, treatment is the book's primary concern, pathology and aetiology only being mentioned in order to justify some form of treatment, diagnosis in order to enable the practitioner to be sure "that he is looking at the right paragraph," while prognosis is not considered. If this method of approach is accepted then the volume must be acclaimed successful. Early chapters deal with infant feeding, in which the author has always been particularly interested. His methods of using cow's milk will not be generally accepted, nor is it of value to mention the old "Grade A" milk now no longer recognized by the latest Order of 1936. In other sections there will also be found methods and views which are open to criticism. For example, few paediatricians would agree that "congenital pyloric stenosis" is entirely caused by spasm, likely to be successfully relaxed by drug treatment "in the great majority of cases." On the other hand, some original methods suggested will be certain of a wide acceptance. For example, the use of thyroid extract for premature babies and of tannic acid for sore buttocks appear to be well worthy of a trial.

It is impossible to do more than select a few examples for criticism or praise, for there are over seven hundred pages in this book, and few of them can be read without benefit by the specialist or the general practitioner. We hope that this permanent record of a lifetime devoted to the care of sick infants will be widely read.

MORPHOLOGY AND COMPARATIVE ANATOMY

The Development of the Vertebrate Skull. By G. R. de Beer, M.A., D.Sc., F.L.S., F.Z.S. (Pp. 515; 143 plates. 30s. net.) Oxford: Clarendon Press; London: Humphrey Milford, Oxford University Press. 1937.
Comparative Anatomy. By Herbert V. Neal and Herbert W. Rand. (Pp. 739; 540 figures. 21s. net.) London: H. K. Lewis and Co., Ltd. 1936.

The Development of the Vertebrate Skull, by G. R. de Beer, is a great work, dedicated to the memory of four pioneer workers on the morphology of the skull—namely, Thomas Huxley, Kitchen Parker, Ernst Gaupp, and van Wijhe. It will be of world-wide interest to morphologists, human anatomists, and embryologists, since it embraces the developmental history and comparative anatomy of the skull throughout the whole range of the vertebrate kingdom. It deals in a systematic and uniform manner with the structure and phylogeny of the vertebrate skull and contains a mass of information, presented in a uniform manner with respect to nomenclature and classification, which will prove to be of immense value to workers in this field for many years to come. This is a consideration which the author has anticipated and provided for by suggesting certain special and general problems which require investigation. Of special value to workers who are embarking on some particular piece of research will be the

geographically, and reference is thus facilitated. It is mentioned that many changes take place each year, and every effort has been made to ensure accuracy. Telephone numbers are given, and there is also a statement of the services which each institution is prepared to render; in some cases nurses are available for outside work.

Preparations and Appliances

RAPID RADIOGRAPHY FOR THE SMITH-PETERSEN OPERATION

Mr. ROBERT G. W. OLLERENSHAW (Manchester) writes:

It is probably safe to say that at the present time 95 per cent. of fractures of the neck of the femur are being treated by one or other modification of the Smith-Petersen nailing operation. This entails scrupulously careful checking of the position of the guide-wire. It is essential to take at least two films, and it may be necessary to take several more before the ideal position of the guide-wire is achieved. In most hospitals the films, taken by a portable outfit in the theatre, are carried some distance for processing, and in many cases, even when one of the modern high-speed developers is used,

make the atmosphere of the theatre unpleasant, and other modifications were involved to suit the x-ray emulsion. At normal theatre temperature development and fixation are complete in one minute. The film only requires washing to be reasonably permanent, but in practice this point is unimportant, since it is rarely necessary to preserve these intermediate films. Having reduced the process to this degree of simplicity, the production of a portable dark-room is easy. Our pattern consists of a box, 18 inches by 18 inches by 24 inches, fitted with light-tight drop-on lid, and with two 8-inch armholes in the front. To these holes are fitted sleeves of green felt (an opaque type is essential) 16 inches long, with elastic round the cuff. The sleeves are clamped to the box by plywood rings, ensuring a light-tight joint. Internally, the box has a 10-inch shelf extending from the back and resting loose on battens half-way up the sides of the box. Running fore and aft across the middle of the floor is a strip

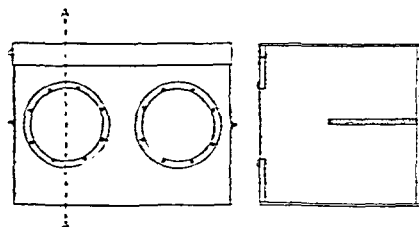


FIG. 2.—Front elevation and section through AA.

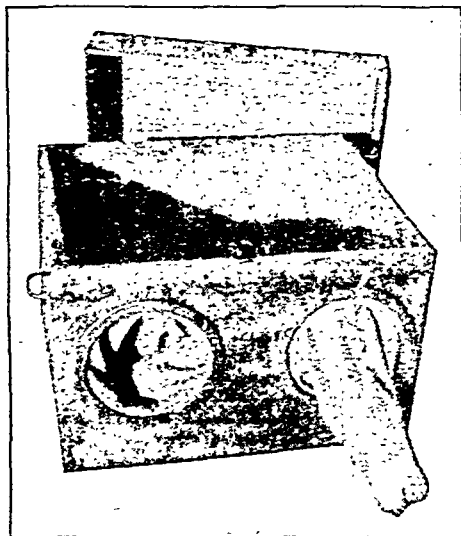


FIG. 1.—Portable dark-room.

an interval of at least fifteen minutes may elapse before the wet films are returned to the operating theatre. If this period of waiting has to be repeated two or three times it involves a long and tiresome delay both for the staff and for the patient. By using the method here described it has been found possible to produce an entirely adequate film in one minute. An ordinary portable developing box is a great time-saver, but if it is to contain three dishes each large enough for a film twelve inches by ten inches, for developer, water, and fixative, it is bound to be unwieldy, and, moreover, it is only too easy to get the film into the wrong dish when working by touch alone. It occurred to us that, since the only requirements are a bony outline and the shadow of the wire, no fine detail being needed, some modification of the old "while-you-wait" process would solve all the problems, since it involves only one dish and can be made to work extremely fast. On these lines, therefore, we have evolved the developer formula given below. The ammonia of the old method had to be eliminated, since it was strong enough to

of wood 1/8 inch thick, across which the dish is balanced, and which then acts as a rocker-bar. Any competent joiner can build the outfit for twenty to thirty shillings. It should be blacked internally, and fitted with handles as shown in Fig. 1.

In use the cassette is placed on the shelf, open side to the front, and the lid closed. The operator's hands are placed in the sleeves, and these are invaginated into the box. He opens the cassette, slides the film round the edge of the shelf into the dish, and rocks it with a finger at each end. The rocker-bar not only makes this easy but, by limiting the excursion of the dish, makes the outfit almost non-spillable. After removal of the finished film the loose shelf allows the dish to be removed and emptied. Owing to the fact that fixation is proceeding at the same time as development, and is therefore tending to reduce density, we find it best to double the normal exposure time for the tube in use. The developer does not keep too well when mixed, and for that reason we keep it as three components, given below. Mixing for use only takes a few seconds. Our experiments have been made with the Ilford improved fast film, double-coated.

Formulae

A. Sodium sulphite (anhydrous)	100 grammes
(or crystalline, 200 grammes)	
Sodium carbonate (anhydrous)	60 grammes
(or crystalline, 160 grammes)	
Sodium hydroxide (stick)	50 grammes
Water to	1,000 ml.
B. Sodium thiosulphate (crystalline)	375 grammes
Water to	1,000 ml.
C. Hydroquinone	30 grammes
(Conveniently kept weighed out and wrapped as powders. Store in an airtight tin.)	

For use, dissolve the hydroquinone in 200 ml. of hot water, and add 400 ml. each of A and B; mix well. This keeps for about two days when mixed. Any fine precipitate of sulphur may be disregarded.

While the fundamental ideas are nearly as old as photography itself, we feel that this application of them to modern needs should be of some value. A Smith-Petersen pin was introduced satisfactorily at Salford Royal Hospital about two weeks ago, using the technique described above and with the Hey Groves direction finder, in twenty-three minutes.

the completion of Mr. McMurray's work has been awaited with more than usual interest, because of his eminence as a teacher of orthopaedic surgery. He has covered the ground in 460 pages, which means that the volume is within the scope of the senior student. Noticeable attention is given to principles, though perhaps less than one would have expected from a spiritual descendant of Hugh Owen Thomas. We had hoped to find a departure from the traditional approach (tuberculosis of joints, infantile paralysis, congenital deformities, etc.), and greater emphasis on restoration of function rather than on specific diseases. Such a book might suffer from being too long, for the author must still describe the diseases and deformities that impair function; yet descriptions of operations, not detailed enough for the orthopaedic surgeon and of little use to the student, could be omitted. For example, in the chapter on infantile paralysis no clear distinction is drawn between operations for correcting deformities the result of faulty treatment and the reconstructive procedures for the relief of inevitable deformity (which generally means residual paralysis) due to the severity of the original disease. The first can be avoided by good treatment, but not the second. We are told that "no definite rules as to procedure can be given, and each case must be dealt with according to the condition found." But surely there must be at least a few guiding principles in planning an attack on a paralysed limb—such, for example, as dealing with the hand before considering stabilization of the shoulder in a case where the upper extremity is seriously involved; and avoiding elongation of the Achilles tendon where a moderate equinus position of the foot is helping to stabilize a knee lacking an active quadriceps.

It is good to find that Mr. McMurray is an unashamed conservative, and he has defined the grounds for his conservatism in words that deserve repetition:

"Orthopaedic surgery, which possibly may best be described as the surgery of the framework of the body, has developed from the surgery of the deformities of children and the so-called bone-setting of the unqualified practitioner. This branch of medicine is concerned chiefly with errors in the motor system—the result of disease or injury—and in his outlook the orthopaedic surgeon must consider the future rather than the immediate condition of the affected tissues. . . . As orthopaedic surgery is concerned largely with growing and developing tissues the outlook of the surgeon should be essentially conservative. Operations such as moulding and manipulation are usually preferable to the more radical measures which are naturally more attractive, especially to the younger surgeon, and this tendency to conservatism should not be discarded even though the simple procedures are sometimes followed by a recurrence of deformity. Extensive bone operations, which must interfere with growth, should be avoided as far as possible, and if such measures are necessary they should always be postponed until this danger has disappeared."

Mr. McMurray has other reasons for conservatism. Many elaborate operations on bones and joints are sound in conception and pretty to watch. They have one drawback—they give the desired result in only a minority of cases. These operations are sometimes accorded a place of honour in textbooks, but the impression given of their merits is too often misleading. This sentence is typical of the author's attitude: "The results of this procedure are very rarely satisfactory, and do not as a rule justify the surgeon's enthusiasm." One can rarely quarrel with his judgment. No informed surgeon will agree with all of Mr. McMurray's views, for he is dealing with a young branch of surgery in which controversy is still lively; but no one will deny that his teaching is funda-

mentally sane and safe. This book can be recommended with unreserved enthusiasm to the student, both before and after qualification; and it may be read with profit by practising surgeons who are humble enough to admit that they sometimes lose the guiding light of principle in the fog of the daily detail of clinical practice.

PSEUDOCYCLISIS

Pseudocyclosis. By George Davis Bivin, Ph.D., and M. Pauline Klinger, M.A. (Pp. 265; 18 tables; 5 plates. 17s. 6d. net.) Bloomington, Indiana: The Principia Press, Inc.; London: Williams and Norgate, Ltd. 1937.

Some years ago Dr. George D. Bivin of Illinois began a systematic collection of all the published works on pseudocyclosis, with a view to applying the knowledge so gained to the elucidation of certain psychological disorders. He was unable to finish the work, but it has since been completed by M. Pauline Klinger, and the result of their combined efforts is embodied in the first monograph on the subject. It records statistically all the 444 case-histories published to date, and classifies *in extenso* their relevant details under a variety of headings. The result is an exhaustive account of the aetiology, diagnosis, and treatment of a most difficult disorder, for though comparatively rare pseudocyclosis always presents a problem at once distressing and disconcerting. For this reason alone any addition to our knowledge concerning it is of real value, and though the present work emphasizes the extreme variety of the symptomatology it also demonstrates the importance of very careful examination if the deplorable mistakes which have apparently so often been made in the past are to be avoided. The book is well indexed and contains a complete bibliography, and is in general a most valuable addition to the literature of an important and obscure subject.

Notes on Books

The thirty-ninth edition of *First Aid to the Injured*, the authorized textbook of the St. John Ambulance Association (price 2s.), differs from its predecessors in the special attention given to burns and the method of transporting a patient with spinal injury. It is considered that the treatment of extensive burns and scalds by tannic acid is a matter of skilled technique and outside the scope of first aid; the application of a warm solution of baking soda is advised. With regard to the treatment of spinal injuries, although no uniformity among the various authorities was found on inquiry, it has been decided to modify the methods to be observed by first-aiders in transporting these cases. Chapters on shock and its treatment and on the routine examination of a patient have been added, and there are many new illustrations. It is mentioned that the membership of the Brigade at home and abroad now exceeds 100,000. The Brigade also provides fully trained persons for the Royal Naval Auxiliary Sick Berth Reserve, the Military Hospitals Reserve, and Voluntary Aid Detachments.

We have received a *Short History of the Croatian Medical Society* (Zagreb, no price given), of which the Croatian text is followed by German, French, and English translations. The society was founded in 1874 by Dr. Franjo Milicic, the district medical officer of Zagreb, and soon gained a high reputation, holding regular meetings at which scientific and social questions were discussed.

Nursing Homes (1938) is now in its eighth year of publication as a directory of registered nursing, convalescent, and mental homes in England, Wales, and Scotland (Benn Brothers Ltd., 3s. 6d.). The information is arranged

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THE FUNCTION OF VITAMIN C

The availability of vitamin C in the pure form as ascorbic acid has stimulated many workers to try to determine its function in the human organism. Almost the first problem that was tackled was the question of how much vitamin C was needed by man. At first the appearance of ascorbic acid in the urine was taken as an indication that the tissues of the body were saturated, but later it was shown that some ascorbic acid was excreted before this happened. The saturation of the tissues could be judged only by a determination of the total intake and output of ascorbic acid. Portnoy and Wilkinson have reported in a recent issue of this *Journal* (February 12, 1938) the results of their application to human patients of Rotter's skin test for the content of vitamin C. It is based on the time taken to decolorize 2:6-dichlorophenolindophenol when injected intradermally. From a comparison of their figures with the corresponding figures obtained by Abbasy's saturation test and those for the vitamin C content of the blood they conclude that if five minutes or less are required to decolorize the specified amount of dye saturation of the tissues with vitamin C may be assumed, but if the time required is longer than ten minutes a deficiency must be assumed. They consider the method of value as a rapid clinical test for vitamin C deficiency. The values corresponded roughly with what might have been expected from the diets of the different patients (that is, as containing much vitamin C, a moderate amount, or almost none). They do not draw any conclusion as to the amount of ascorbic acid required by man per day. Wackholder and Hamel,¹ however, have come to the conclusion that a daily dose of 250 mg. must be given in order to get an appreciable increase in the tissues; they postulate a specific dynamic action for ascorbic acid, as for proteins. Göthlin and his co-workers,^{2,3} after modifying certain details of the capillary resistance test and investigating the limits of its usefulness, came to the conclusion that the absolutely indispensable daily requirement of a healthy adult is from 0.39 to 0.48 mg. per kilogramme of body weight. It is obviously desirable to allow more than this in planning a dietary, and

it is obviously imperative that the amount given in curative treatment should be much greater. Giroud and his colleagues⁴ determined the ascorbic acid content of the suprarenals, liver, and kidneys immediately after the (violent) death of twenty-six normal persons. They found the content of the kidneys less than that of the liver, and that of the liver less than that of the suprarenals. The content of organs of the older people was less than that of corresponding organs of the middle-aged, and those of the latter were less than those of the children. All the determinations were lower than were found in the same organs of well-fed guinea-pigs: they concluded, therefore, that man in general does not have enough vitamin C and that his diet must be regarded as inadequate in this respect.

As for the functions of vitamin C in the animal body, it has been shown⁵ that formol toxoid becomes weakened in its antigenic property and that the virulence of tetanus toxin is slightly weakened through contact with moderate doses of ascorbic acid, although, strangely enough, higher and lower concentrations of ascorbic acid were without effect on either the toxoid or the tetanus toxin. According to Kligler and others⁶ ascorbic acid inactivates diphtheria toxin under both aerobic and anaerobic conditions at a rate depending on the concentration of the vitamin and the temperature of incubation, though the action on preformed toxin is slower than it is on the toxin during production. The action may be one of oxidation and reduction, but glutathione did not produce the same effect. The suprarenals of guinea-pigs treated with diphtheria toxin showed a loss in vitamin C content. These workers suggest that the modified non-toxic type of infection so common in Palestine and other subtropical and tropical regions is ascribable to a higher vitamin C reserve or intake of the inhabitants of these regions, and they are at present making an investigation of this point. They also call attention to the post-diphtheritic appearance of scurvy in some children. The value of the "sekale preparation" in preventing post-partum bleeding has been exceeded by the value of ascorbic acid.⁷ In surgical infections, both acute and chronic, increased intake of vitamin C has proved beneficial, and Lauber, Bersin, and Nafziger⁸ have shown that in animals whose vitamin C metabolism was controlled there was unexceptionally an increased need for this vitamin after experimentally induced streptococcal infections. The same observers⁹ have demonstrated that, in rabbits, during the narcosis produced by

¹ *Presse méd.*, 1937, 45, 1774.² *Klin. Wschr.*, 1937, 16, 1460, 1463.³ *J. Path. Bact.*, 1937, 45, 415.⁴ *Disch. med. Wschr.*, 1937, 63, 1625.⁵ *Klin. Wschr.*, 1937, 16, 1274.⁶ *Ibid.*, 1272.⁷ *Klin. Wschr.*, 1937, 16, 1740.⁸ Göthlin (1937). *Acta Paediatr.*, Stockh., 20, 1.⁹ Göthlin, Friessell, and Rundquist (1937). *Acta med. scand.*, 92, 1.

JOINT TUBERCULOSIS COUNCIL

The meeting of the Joint Tuberculosis Council on February 19 was specially noteworthy since it marked the end of Dr. Ernest Ward's long period of secretaryship. Not only was Dr. Ward the originator of the council, but he has served as its secretary during the fourteen years of its existence. The chairman of the council (Dr. S. Vere Pearson) and Dr. G. Lissant Cox, the previous chairman, paid special tribute to the excellent service Dr. Ward has given. He is succeeded by Dr. J. B. McDougall (Preston Hall, near Maidstone, Kent).

The council decided to proceed with the publication of the exhaustive report on sputum examination prepared by the committee of which Dr. W. H. Tytler (Cardiff) is the convener. This report covers the whole field of sputum examination in an exemplary manner, and is likely to be in much demand. The secretary reported that the Ministry of Health had replied to a communication regarding the classification of patients who showed tubercle bacilli in discharges from glands, bones, and joints. The reply was to the effect that "Tb. plus" or "Tb. minus" relates only to patients suffering from pulmonary tuberculosis, and that patients showing tubercle bacilli in discharges from bones, joints, glands, etc., are not to be classified as "Tb. plus." There has apparently in the past been much ambiguity on this point, and the council expressed the view that the Ministry of Health should give publicity to this important decision.

Dr. Ernest Ward (Devon) presented his biennial report. This is valuable in so far as it gives a collective summary of the work accomplished by the council during the past two years, and there is an imposing account of the work of various committees. Special consideration is given in Dr. Ward's report to the microscopical examination of sputum, the culture of tubercle bacilli, examination of contacts, the results of artificial pneumothorax treatment, tuberculosis amongst nurses, milk, tuberculin, and sedimentation.

Memorandum on Nursing Services

The council gave lengthy consideration to the evidence to be submitted to the Interdepartmental Committee on Nursing Services. The memorandum on this subject was presented by Dr. G. Lissant Cox (chairman of the committee) and Dr. Esther Carling (secretary). The memorandum is a full and comprehensive account of the nursing problem in relation to tuberculosis institutions in this country; though certain difficulties had to be overcome by the committee a large measure of agreement was reached, and the evidence as a whole was accepted by the council. Matters concerning the inauguration of a supplementary register, the hours of duty of nurses, the definition of "assistant nurses," and the factors influencing the recruitment of nurses for tuberculosis institutions are all discussed in detail. Special consideration is also given to the training of nurses and to the employment of tuberculous ex-patients as nurses—a matter previously dealt with by the council in its Employment Committee's reports. Important suggestions for improved remuneration and conditions of service for nurses in sanatoria and hospitals for tuberculosis are given, and in the appendices to the memorandum there are examples of the treatment and nursing work done in modern sanatoria, time-tables for staff nurses and night nurses, and minimum scales of salaries proposed.

Dr. G. Jessel, the convener of the Radiological Interpretation Committee, was able to report that he had been successful in co-opting on his committee representatives of the radiological societies in this country, and that a comprehensive report would be available in due course. The work of the Joint Tuberculosis Council in organizing postgraduate courses for tuberculosis officers and others is now well known, largely through the efforts of Dr. W. Brand (Camberwell). Suggestions for further courses at home and abroad are under consideration.

L.C.C. CONSULTANT AND SPECIALIST SERVICES

It is proposed by the London County Council to continue for a further year, with certain modifications, the existing consultant and specialist services. The number of routine sessions to be worked by consultants and specialists at grouped general hospitals and other establishments has been limited to a total not exceeding 205 a week.

Anaesthetists' Sessions

The proposals now made will add about another fifty sessions. The greater number of these will be regular anaesthetists' sessions. The use made of the services of consultant anaesthetists varies considerably at different hospitals. It is considered that it would be a decided advantage for the medical staff at hospitals to be augmented by the regular services of consultant anaesthetists, and it is proposed that such consultants should be allocated to general hospitals for a fixed number of sessions a week, each approximately of two and a half hours' duration. Anaesthetists employed for regular weekly sessions will be paid at the usual scale for consultants and specialists—namely, £125 a year for one session a week and £75 a year for each additional weekly session, with additional payment of two and a half guineas a visit for each emergency attendance in addition.

Orthopaedics : Radiology : Obstetrics

Six additional sessions are required in connexion with orthopaedic surgery in order that each of the general hospitals which treat fracture cases may be visited weekly by a consulting orthopaedist. Certain rearrangements are to be made with regard to the service of full-time radiologists, and in addition to the two full-time radiologists at present employed a third is to be appointed for duty at five hospitals. This will mean that eleven sessions hitherto given by part-time consulting radiologists will no longer be required.

The arrangement whereby the consultant services in obstetrics and gynaecology at Fulham and St. Mary Abbots Hospitals have been undertaken during the last three years by the professor of midwifery at the British Postgraduate Medical School is considered no longer necessary, and the work is to be done by an officer of the Council—that is, a part-time obstetrician and gynaecologist. Four such officers are already employed in the hospitals service, and the arrangement whereby they have assumed responsibility for the obstetric and gynaecological work has proved very satisfactory. The rate of remuneration attaching to the new position will be £800 a year.

Neuro-surgery and other Specialties

The services of neuro-surgeons are being increasingly required, and it is proposed to create a panel similar to the existing panel of consulting neurologists. In practice the fees for neuro-surgeons when required in special cases have been fixed at two and a half guineas a visit for consultation and five guineas a visit when an operation is performed, irrespective of the number of patients seen or operations performed. Having regard to the highly specialized nature of the work, these rates of remuneration are considered reasonable for the new positions.

Other arrangements are that the number of sessions to be worked by thoracic surgeons at tuberculosis hospitals and at general hospitals (other than St. Mary Abbots, where special provision is made) is to be fixed at not exceeding 230 a year and 170 a year respectively, that the number of sessions to be worked by ear, nose, and throat surgeons at the medical tuberculosis hospitals shall be fixed at not exceeding 140 a year, and that one of the consultants for cardiovascular disease at Lambeth Hospital shall be employed for three sessions a week at a salary of £275 a year, which is the standard rate for "group" scheme consultants.

preparation of food. In addition to the photographs a large model has been constructed, measuring some 230 square feet, of an ideal sports centre for a provincial town of some quarter of a million inhabitants. It is intended to show local authorities the kind of thing that can be done, with Government assistance, under the Physical Training Act. One of the first schemes to be put in hand under that Act is at Stockton-on-Tees, and of this a sketch design is shown. It is a space 28 acres in extent, with a stadium, gymnasium, swimming-bath, tennis courts, and provision for other games, as well as a children's playground.

On public baths and stadiums the old Romans exercised their skill, but if this exhibition is a fair index to what is taking place, especially on the Continent, the modern architect is well in line with those of his calling who flourished in the time of Titus and Diocletian. One instance in this country is the Stoke Park swimming-bath at Guildford, but a large number of photographs are shown of swimming-baths in Germany, Italy, and Switzerland which are on a very ambitious scale. A model has also been sent from Berlin of the Olympic stadium and physical training centre there. In the section dealing with housing and factories the value of good natural lighting is emphasized, as can well be done by means of photographs. It is also encouraging to notice from how many parts of industrial England come illustrations of excellent provision for pithead baths at collieries, washing facilities in factories, also works canteens and other arrangements for the comfort and health of the worker.

The architect claims to play his part in preventive medicine, and shows in evidence modern works for refuse disposal, water supply, and food distribution. In many of these respects, and especially in the arrangements of classrooms in schools, the cleansing of streets, and farmyard hygiene, the present generation can give itself a pat on the back; but there are plenty of photographs of things as they are to-day to recall it to humbleness, especially the pall of smoke over towns. The exhibition is full of human interest; those who have looked upon utilitarian architecture as a flavourless subject, lacking in emotional quality, will be pleasantly disillusioned.

HOST SUSCEPTIBILITY TO COLDS

In an amusing letter some time ago Dr. L. W. Batten¹ tilted at the present enthusiasm for nutrition, and pointed out that the well-fed population of Hampstead were heirs to all the common ills of the flesh. "What matters is that we leave behind the strain and stress of responsible work, the town, its clothes and its crowds,

we live simply out of doors and we exert our muscles. The minor ailments and the malaise, which have withstood excellent dieting for months, vanish in a week." Experiments by Spiesman and Arnold² on susceptibility to the common cold support the view that activity of the skin and exercise in the open air are at least as important as good diet in the avoidance of infection. They classify colds into infectious and allergic groups. Even when protein hypersensitivity cannot be demonstrated by skin reactions the two varieties of cold can usually be differentiated by the history and by the character of the nasal secretions, which become mucopurulent with infection but remain serous and eosinophilic with the allergic reaction. Infectious colds can be subdivided into true influenza and epidemic catarrh or the common cold. Influenza is a frank infection but there is a good deal of evidence that the seasonal incidence of the common cold is not explained by overcrowding in bad weather and increased opportunities for infection, but that it is due to disturbances in the heat-regulating function of man as a result of climatic changes. Leonard Hill observed that the nasal mucosa was affected by changes in the temperature and humidity of the environment. The mucosa of the nose becomes flushed and swells when the subject is placed in a moist warm atmosphere; when he passes to a cold atmosphere the mucosa quickly becomes pale from constriction of the blood vessels but still remains thickened and swollen. Spiesman and Arnold found that the individual suffering from repeated infectious colds has an altered vasomotor reaction of the upper respiratory mucosa to thermal stimuli applied to the skin. In the normal individual the temperature of the nasal mucosa falls abruptly with the application of a cold stimulus to the skin, and then gradually recovers and returns to approximately normal within ten minutes, even though the stimulus is still applied. In the individual with frequent colds vasoconstriction in the nasal mucosa is much more gradual and persists for from several minutes to two hours. In the hypersensitive or allergic subject the reaction of the nasal mucosa is the opposite of normal—an increased temperature when a cold stimulus is applied to the skin and a decreased temperature when heat is applied. The best preventive measure in colds of both groups, the infectious and the allergic, was found to be vasomotor massage, which was applied to the subjects in their own homes, each receiving instructions to take a hot bath and a cool or cold shower when rising each morning and to repeat this if possible each evening before dinner. At first all products made from wheat—that is, white-flour breads, pastries, pies, etc.—were eliminated from the diet, and afterwards over-indulgence in carbohydrates was still guarded against. Physical exercise was looked upon as an important adjunct of the daily regime, and the mental state was also important, as any worry or mental strain tended to offset the advantages derived from hydrotherapy and diet. With such treatment the vasomotor response returns to the normal pattern, there is an absence of head colds, and the subjects enjoy a better state of well-being and continue the hygienic treatment for this reason.

¹ *Lancet*, 1936, 2, 286.

² *Amer. J. Digest. Dis. Nutrit.*, 1937, 4, 433.

local anaesthetics, by chloroform, ethyl chloride, etc., there is an increased output of ascorbic acid in the urine. Intravenous injections of "redoxon" (Merck's ascorbic acid) compensated for the loss. Lauber and his colleagues¹⁰ have also demonstrated that there is no increase in the output of ascorbic acid in the urine after simple fractures of the fore-leg of the rabbit, but that there is after a compound fracture. Moreover, callus formation is not accelerated by giving ascorbic acid in doses greater than are needed to correct the hypovitaminosis. Another result, recorded by Fischer and Oehme,¹¹ which may prove important is that the administration of large doses of vitamin C reduced the output of creatine in the urine of rats suffering from thyroxine creatinuria.

Work previously published on the influence of vitamin C in controlling the development of poliomyelitis in monkeys which had been experimentally infected has been confirmed, with better results apparently from a product extracted from natural sources than from a synthetic product. The former contained 2.5 per cent. of unidentified impurities absent in the synthetic product. The concentrations of ascorbic acid in the tissues of normal monkeys (rhesus) were found to be comparable to those in the tissues of other animals that cannot synthesize vitamin C. They can be increased by prolonged parenteral administration of ascorbic acid. In monkeys suffering from poliomyelitis these figures are slightly below the normal average during the height of paralysis or in early convalescence. When inoculated monkeys were found to have resisted the disease distinctly hypernormal levels of vitamin C were found in the central nervous system. Why certain individuals can attain this level of storage of the vitamins and others cannot remains unexplained.¹² A simple method of determining the vitamin C content of the blood has been devised,¹³ and by its use it has been demonstrated that there is always a higher ascorbic acid content of the foetal than of the maternal blood. It was often twice as high and once was found to be four times as high. This week Drs. Portnoy and Wilkinson give an account at page 554 of an investigation into the vitamin C content of the blood and of urine of normal persons, patients with peptic ulceration, and patients with haematemesis. The six different methods of examination used all gave comparable results. All the patients with peptic ulceration or with haematemesis were observed to be suffering from severe vitamin C deficiency, and vitamin C therapy was strongly recommended. Mr. Geoffrey Bourne of

the University of Sydney, using the capillary resistance test (as recommended by Göthlin), at page 560 confirms Portnoy and Wilkinson's findings in hospital patients with gastric or duodenal ulcer and on a dietary regimen deemed suitable for this condition. There was, however, no evidence from the records that such a deficiency in the diet was responsible for the development of peptic ulcer.

After all the discussion of methods of determining whether a person's intake of ascorbic acid is adequate or not, it is a relief to know that the ascorbic acid content of fruits and vegetables (or at least of most of them) can be determined with a fair degree of accuracy.¹⁴ The increase in the amount of vitamin C can be followed as the fruit ripens, and comparisons between different varieties, at the same times and in similar degrees of ripeness, can be made. The whole trend of research on vitamin C in recent years well illustrates Galileo's precept: "To measure all things that can be measured and to make measurable all things which cannot yet be measured."

BUILDINGS FOR HEALTH

The genius of the architect has for ages been evident in buildings for worship and for government, and more recently for commerce and industry, but it still seems strange, though it should not, for the word architecture to be used in association with buildings or lay-outs intended for sport, physical training, and the health concerns of a community. The Royal Institute of British Architects has arranged an exhibition, which is open at its premises in Portland Place, London, W., until the end of the month, to illustrate, chiefly by photographs, how the architect's intervention causes the best use to be made of the available space and material, and results in buildings which not only serve their purpose but satisfy the eye. It is no small gain if, at a time when recreative physical training is being so strongly urged, the places intended for sport and recreation, the baths, stadiums, rinks, and so forth, are given a certain grace and dignity. They should not be pompous, the prevailing note should be simplicity and gaiety, and it needs the trained architect to impart it. The exhibition is in four sections. One of them illustrates town planning, with suggestions for the best arrangement of open spaces and park ways; another is concerned with healthy living and working conditions in houses, factories, and streets; a third, with the public services, sanitation, and so forth; and a fourth, with the processing, distribution, and

¹⁰ *Klin. Wschr.*, 1937, 16, 1313.

¹¹ *Ibid.*, 1453.

¹² *J. exp. Med.*, 1937, 68, 459, 479.

¹³ *Klin. Wschr.*, 1937, 16, 1496, 1498.

¹⁴ *Analyst*, 1938, 63, 21.

precautionary measures of isolation were taken, showed, when slaughtered, tuberculous lesions in a much greater proportion than did the controls, suggesting that the vaccination might have had a predisposing rather than an immunizing action. Under the same conditions animals vaccinated with living B.C.G. contracted infection to the same degree as the controls. On the other hand, when precautions were taken to isolate the vaccinated calves for a certain period, during which they were fed on milk free from tubercle bacilli, B.C.G. conferred considerable resisting power, both against natural contagion and against artificial infection. In one experiment where the infecting dose was large enough to kill all the unvaccinated calves and those treated with killed bacilli, out of the five calves vaccinated with B.C.G. four were "unharmful" and one showed small nodules in a mesenteric gland. In another experiment none of the four calves vaccinated with B.C.G. or with live human bacilli contracted the infection, although the infection was enough to cause the development of tuberculous lesions in three out of four animals in each of the other groups—that is, those not vaccinated or vaccinated with dead bacilli.

TREATMENT OF VARICOSE VEINS

For many years it was customary to treat varicose veins by operation alone. When the injection treatment became popular this was for some time employed exclusively. To-day a combination of both operative and injection methods is current practice—a practice discussed at length in two recent papers.^{1,2} In 1932, when the Hutchinson Memorial Clinic of Tulane University was first opened, varicose veins of the lower extremities were treated entirely by the injection method, but with many disappointing results. The injection treatment is adequate for relatively small and isolated varices, but where there is incompetence of the valves of the veins communicating between the main deep and superficial systems—a fact which can be ascertained by a modified Trendelenburg test described in the papers referred to—injection should be combined with ligation. Of the varicose veins in 247 women 60 per cent. were associated with pregnancy; the other important factor in aetiology was heredity. In one series there were 57.5 per cent. of recurrences in patients who had received injections of sclerosing solutions alone, whereas there were only 18 per cent. of recurrences in those whose saphenous veins had been ligated and divided at the fossa ovalis in addition to having the veins injected.

PROGRESS IN PAEDIATRICS

Edited by Professor I. A. Abt with the help of Dr. A. F. Abt, *The 1937 Year Book of Pediatrics*³ presents a valuable summary of progress in many directions in disorders of children. Readers of earlier volumes in this series will be glad to learn that the editorial comments are continued and are as concise as ever. For example, after a very fair presentation

¹ *Surg.* 1937, 2, 389.

² *Ibid.*, 903.

³ Chicago: The Year Book Publishers. London: H. K. Lewis and Co., Ltd. (10s. 6d., postage 6d.)

of the papers published on the subject of the treatment of whooping-cough, the editor remarks: "The use of ascorbic acid in treatment of whooping-cough reminds us that nearly every newly discovered remedy in ancient and modern times has at one time been advocated for treatment of this disease." This indicates the type of approach made, and it is a matter for regret that there is not more "Abt" and less of what other people think. Random sampling and a study of the index indicate that contributions from the British Isles are few in number, which is either a mild injustice or a mild reproach for poverty of material. In either case paediatricians in this country should not let this prevent them studying the work set out, which represents in main the current paediatric practice of the North American Continent.

TUBERCULOSIS IN CYPRUS

An account of the mission to Cyprus of the National Association for the Prevention of Tuberculosis has already been given in this *Journal*, on July 3, 1937 (p. 30). A fully documented report⁴ by Dr. Noel Bardswell, the special commissioner appointed for the purpose, has now been issued. The difficulties met with in conducting the inquiry into the incidence of tuberculosis in this backward island are well brought out. The methods adopted consisted of personal questioning, physical examination, and Moro-testing of samples of the population in various districts. 8,084 children in villages and 1,841 in district towns were tested; 6.5 per cent. were found positive in the villages and 8.2 in the towns. Dr. Bardswell concludes that the problem of tuberculosis in the island is not as grave as had been generally believed here. The report is also of interest in that it furnishes a good description of the mentality, habits, and living conditions of the inhabitants. Dr. Bardswell is continuing his investigations, and hopes to lay down a scheme which will bring the disease under control. The work is of value not only in providing data of the disease in Cyprus but also in giving an opportunity to study the spread of tuberculosis in a primitive community.

We regret to announce the death on Wednesday morning of Sir Raymond Crawford, consulting physician to King's College Hospital and registrar of the Royal College of Physicians of London.

⁴ *Tuberculosis in Cyprus. An Interim Report on its Incidence and Means of Control.* By Noel Dean Bardswell. London: Adlard and Son. (2s. 6d.)

Under the editorship of Dr. E. Arnold Carmichael the *Journal of Neurology and Psychopathology* resumed publication in January last with the new title of the *Journal of Neurology and Psychiatry*. The demand for this special publication of the British Medical Association has exceeded expectations, and at the moment it is out of print. Arrangements have been made, however, for the reprinting of a limited number of copies. Intending subscribers should make early application to the Secretary, B.M.A. House, Tavistock Square, W.C.1, to ensure the receipt of the January issue, the first number of a new volume.

PERIPHERAL NERVE PAIN OF VERTEBRAL ORIGIN

Advances in the technique of radiography have made it clear that disorders of peripheral nerve function are often due to minor abnormalities or disease of the vertebral column. The work of Schmorl and his colleagues in Dresden, fully described in Beadle's monograph, has demonstrated the importance of lesions of the intervertebral disks in this connexion. The peripheral nerve pains which are a feature of the premonitory stages of ankylosing spondylitis, and which appear before any bony change can be detected, are without doubt due to irritation of the nerve roots in the region of the foramina. Hilton Fagge¹ described a plastic exudate enveloping the vertebral bodies, and it seems clear that the inflammation which precedes the calcareous deposition will affect the nerve roots in this part of their course. The pains become less severe as the inflammatory tissue gives place to bone, and it is rare at this stage for the foramina to be encroached upon. Nathan² studied the development of epidural and peri-radicular exudation in ankylosing spondylitis and by experiments upon dogs; he demonstrated that such exudations occurred in the early stages of the disease, and gave rise to sensory alterations of root distribution. Bechterew noted peripheral pains as a conspicuous feature in his cases of spondylitis of a different type, but in these cases there was meningeal inflammation, which appeared to spread to the cord itself. In spinal osteoarthritis there is no inflammatory stage. In this condition Garcin and Deparis³ noted that the peripheral nerve symptoms were often on the opposite side to that on which x rays revealed the presence of osteophytes. They suggested that this might be due to osteophytes in the course of formation and not yet opaque to the rays. Study of the changes which take place in the disks indicates, however, that the symptoms are less likely to be produced by the actual pressure of osteophytes, though this may occur, than by the narrowing of the foramina, which is the result of compression and thinning of the disk, and allows the vertebral bodies to come closer together. The presence of an osteophyte may lead to the compression being greater on the opposite side by leading to uneven thinning of the disk—this seems to offer a more probable explanation than that given by Garcin and Deparis. Peripheral nerve pains from such a cause are more likely to arise in the distribution of the lower cervical and lumbar roots since these roots almost fill the foramina. That sciatica is often the result of narrowing of the foramen of the fifth lumbar nerve root is well known, and brachialgia is sometimes due to a similar condition. Alterations in the shape of the vertebral bodies are often seen in profile radiographs of the cervical spine and may be secondary to changes in the disk or be due to trauma or infection. They are commonly associated with pain in the peripheral distribution of the cervical roots and even give rise to precordial pain

of anginal type. Actual subluxation sometimes occurs, and this is a serious risk in manipulative procedures in unskilled hands. Osteophytes are most frequent in the regions of greatest mobility—namely, the cervical and the upper lumbar region—and probably arise from intermittent tension on the lateral ligaments as a result of the increased mobility between adjacent bodies due to thinning of the disks. To describe these conditions the ugly and unnecessary term "discogenetic" disease has been coined by Albert Oppenheimer⁴ in an article which contains some interesting observations on narrowing of the intervertebral foramina as a cause of pseudo-rheumatic pain. He has, however, given credit to certain writers for originality of observations which had been made by others at an earlier date. It is not uncommon for credit to be given to radiography for discoveries made by the great clinicians of the past and now forgotten. It may be worth while to observe that even when radiography shows gross abnormalities peripheral-nerve pain may result from some other cause; careful clinical examination should therefore never be neglected.

B.C.G. VACCINATION IN CALVES

The favourable results obtained by Stanley Griffith, Buxton, and Glover⁵ in the experimental immunization of calves with B.C.G. find confirmation in a fully documented report⁶ from the Istituto Vaccinogeno Antituberculare of Milan, directed by Professor Ascoli. The investigation dealt with a total of ninety-four calves, and the immunizing effect of virulent human bacilli, living B.C.G., killed B.C.G., and killed virulent human bacilli, administered either subcutaneously or intravenously, was tested against subsequent infection with virulent bovine bacilli. This infection was carried out either by administering a culture or by allowing the calves to cohabit with tuberculous cows. In the latter case two sets of experiments were done: one group of calves were allowed to live with the tuberculous animals immediately after vaccination, another only after an interval which allowed for any immunizing effect to be established. The results obtained may be summarized as follows. Intravenous and subcutaneous vaccination with B.C.G. or with human bacilli appreciably increased the power of resistance, which prevented the development of tuberculous lesions in calves injected later with doses of virulent bovine bacilli that caused rapid death of all the controls from miliary tuberculous pneumonia. Repeated vaccination improved these results, but immunity was not obtained against ten times the lethal dose. Vaccination with bacilli killed by heat, even if repeated, never under the same conditions prevented the development of tuberculous lesions, although it increased the survival time of some of the calves; the same treatment did not protect them from natural contagion, nor did various modifications in administering the dead bacilli. Calves vaccinated intravenously with killed bacilli, when no

¹ *Trans. path. Soc.*, 1877, 28, 201.

² *Amer. J. med. Sci.*, 1916, 152, 667.

³ *Rev. méd. franç.*, 1934, 15, 387.

⁴ *Ann. Surg.*, 1937, 106, 428.

⁵ *Lancet*, 1935, 1, 451.

⁶ *Esperimenti di Vaccinazione Antituberculare eseguiti sotto il controllo del Comitato Tecnico-Scientifico dell'Istituto Vaccinogeno Antituberculare. Relazione stesa dal Professore Alberto Ascoli.*

seat of the rupture. As a rule there is no immediate haematoma, though a measure of this will develop in accordance with the extent of muscle and vessel injury. The large haematomata associated with direct injuries are seldom if ever seen.

TREATMENT

In the case of a partial rupture of the calf muscles, unless very severe, the treatment can be on ambulatory lines. The foot is placed in the plantar-flexed position and elastoplast or adhesive strapping applied from the calf down to and including the sole of the foot. A firm bandage over all will stabilize the application. After a few days the patient is allowed to walk with the strapping in place and the heel of the injured side elevated half to three-quarters of an inch so as to keep the muscle relatively relaxed, the foot being in the position of talipes equinus.

The more serious condition of rupture, partial or complete, of the tendo Achillis, which arises in a similar way, is dealt with in a previous section. The condition has also been observed in the rectus abdominis, occasionally in healthy people and as a complication of tetanic spasms. In rare cases the muscle has undergone a degeneration which makes it abnormally brittle. The treatment is on the lines laid down above. I do not think that operative treatment is of any value unless the rupture has been through a tendinous part of the muscle.

RESTORATION OF FUNCTION

Whatever the extent or cause of the primary injury to a muscle some degree of disability immediately results. Treatment directed to the restoration of full function should be based on similar lines for all cases, the severity of the injury determining the time required for complete recovery. Light massage a few days after injury will be comforting and will assist the absorption of minor haematomata. Massage in the presence of larger haematomata is unsound. Subsequently the use of the injured muscle by graded exercise is the most effective means, and the degree to which this is pressed will depend on the extent of the primary injury. In severe cases, and for those patients who are little inclined to help themselves, the use of gentle faradic stimulation will be helpful. This should not be employed until the haematoma has been absorbed and the repair process is well advanced—normally two or three weeks after the more serious injuries. Other physiotherapeutic measures are advocated, but, though mostly harmless, they play a very secondary part compared with graduated voluntary exercise in restoring the full use of the injured muscle.

Strains

An initial strain may rupture a few fibres at a muscle tendon junction or insertion. If the initial injury is not treated conservatively subsequent use of the muscle before it is restored to normality may result in a chronic effusion at the site of injury which causes pain from the tension produced by contraction of the muscle. Calcification or ossification is sometimes observed in the strained tendon. This condition is most often seen in the origin of the adductor muscles, and occasionally develops in the origin of the common extensor of the forearm and in the insertion of the deltoid muscle.

Treatment should be directed towards sparing the muscle involved from severe stress for a few weeks, while maintaining its condition by faradism and gentle exercise. Local treatment of a counter-irritant character is not often effective. In some cases the presence of focal sepsis may

be a cause of the continued irritation. The removal of dead teeth or other source of toxæmia may clear up the trouble.

Myositis Ossificans

This is a condition in which bone is formed in the substance of or immediately deep to a muscle. Its appearance is usually secondary to an injury which allows bone-forming cells to penetrate the haematoma of a muscle injury. It is most commonly seen as a complication of fractures and dislocations in the elbow-joint region. It is also observed from time to time in relation to the central part of a long bone, but for some reason it is relatively uncommon in this situation. It may also occur without a gross bone injury. This is seen in the thigh following a severe kick or even after the too firm application of a tourniquet. The result of this bone formation may be to limit the movement of the neighbouring joint either by muscle fixation, as is seen when the quadriceps is involved, or, by forming a bony block, checking movement by contact with the neighbouring bones, a state not uncommon about the elbow-joint. The condition itself is painless unless movement is roughly forced, but it may interfere very seriously with the function of the limb.

TREATMENT

In a case in which the irregular bone has recently formed complete rest of the part is essential. This is best procured by fixation of the affected limb in plaster-of-Paris. In the course of a month or so this usually leads to absorption of the unwanted bone. Forced movement will continue to irritate the new formation, preventing its absorption and even causing increase in its bulk. The period of rest necessary for complete absorption varies considerably, and is shorter in children than in adults. In the latter one may have to wait as long as six months before attempting to restore function. Operation for the removal of bone tissue is only justifiable when the condition has existed for a year or more, and when a definite formation that is blocking joint movement is present.

Volkman's Ischaemic Contracture

Though Volkmann's contracture is not primarily an injury of muscle, reference may be made to it here on account of its clinical importance. It is due to an interstitial fibrosis of the muscle which follows necrosis of greater or lesser amounts of muscle tissue from ischaemia. The condition is initiated by depriving muscle of its blood supply, partially or completely, for a relatively short time. The mechanism by which this temporary anaemia is brought about is usually a tight application of splints over an unreduced fracture. Occasionally a progressive effusion of blood beneath the fascial plane may produce the effect. It would seem that tourniquet pressure seldom, if ever, has the same result. At times partial or complete interference with the nerve supply to the part complicates the issue. For practical purposes the condition is met with in the flexor muscles of the forearm, and is most commonly noted after a supracondylar fracture in childhood. Some authorities state that the condition is never seen in the adult—a statement true only of the more severe form.

TREATMENT

It is quite clear that prophylaxis is of the first importance. In fractures in the region above mentioned subfascial tension must be avoided or relieved as soon as possible. In the application of any rigid fixation to the arm there must be no undue tension, whether it be by bandage, splint, or bone pressure on major vessels. The

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation.

TREATMENT OF MUSCLE INJURIES

BY

C. MAX PAGE, F.R.C.S.

Minor isolated injuries to muscles are commonplace, but on account of the elasticity of structure of these organs such injuries are seldom the source of serious disability. When the trauma is more severe other structures will very likely be damaged as well. For example, in most fractures of long bones some laceration of the overlying muscles is necessarily involved. In severe contusions of the abdominal muscles the underlying viscera may be damaged. In these examples consideration of the muscle injury is a secondary matter. The repair of cut or torn muscle is effected by the formation of fibrous tissue from the granuloma formed in and about the primary exudate of blood and serum. Reproduction of new muscle fibre does not occur. When repair by fibrous tissue formation is complete the function of the injured muscle is rapidly restored by normal use if the separation of the fragments has not been excessive.

For the purposes of this contribution muscle injuries may conveniently be divided into four groups—namely: (1) open wounds (cuts and missile wounds); (2) direct injuries (closed)—contusions and ruptures; (3) indirect injuries—ruptures in long-bellied muscles; (4) strains—localized minor injuries at muscle insertions or muscle-tendon junctions. In addition myositis ossificans and ischaemic contracture are touched on, though properly these do not come within the scope of the present series.

Open Wounds

Damaged muscle and muscle haematoma form a favourable bed for the development of anaerobic infection. An immediate and careful wound excision under anaesthesia should therefore be carried out in any instance in which there is a suspicion of serious bacterial contamination in wounds involving muscle. The excision or débridement should be effected not later than twelve hours after injury. Antiseptic lavage is a poor substitute for the above method unless it be employed very soon after the event and the wound happens to be clean-cut and freely open.

No attempt should be made to suture muscle or tendon at the primary operation in any case where serious contamination is probable. As a secondary procedure when the wound is healed it may occasionally be worth while, especially when tendon has been involved. Prophylactic injection of anti-tetanic serum and anti-gas serum should be given if earth or faecal contamination is suspected. In case of spreading infection from the primary wound the general principles of wound treatment should be applied. Once infection is past and the wound is healed restoration of function should proceed on the lines laid down below.

Direct Injuries (Closed)

Contusions and closed laceration of muscle result commonly from kicks sustained at football. The immediate treatment will be to apply a firm strapping or bandage to support the injured part and to limit the effusion of blood. In practice these injuries must often affect the gluteal and thigh muscles, and effective support

in those situations is not very easily applied. An adhesive elastic bandage is usually most effective. A few days after the injury gentle massage may assist the absorption of the smaller bruises. If the injury is more extensive a longer period of rest is advisable; a definite haematoma will probably form, and massage of this will serve no useful purpose, and indeed may be harmful by renewing haemorrhage and delaying the repair process.

MUSCLE HAEMATOMATA

Small haematomata, if rested, will be absorbed in a week or so, and treatment to restore function can then proceed on normal lines. Large haematomata as met with most commonly in the gluteal region or thigh are best left untouched for ten to fourteen days or even longer. The clot will by then have shrunk down, leaving a serous cyst. At this stage evacuation by aspiration or through a stab incision will expedite the healing process. If the haematoma is not evacuated a blood cyst will probably form and will be slow to absorb, and the restoration of function will be correspondingly delayed. Suppuration occasionally occurs in a neglected haematoma. Evacuation of the pus by incision is then called for. Drainage, if employed, will be necessary only for a day or so.

Complete rupture of a muscle from direct violence is uncommon. The rectus femoris is the most often affected. A wide gap is formed, and suture of the torn ends may seem the proper procedure. In my experience the attempt is of no value unless the tear is in tendon or at the insertion into bone—for example, in the tendo Achillis or at the quadriceps insertion into the patella. In these cases, due nearly always to indirect violence, prompt suture is good practice. When a fleshy part of a muscle is ruptured repair by fibrosis occurs, and though a permanent alteration in the form of the muscle may be caused, little interference with function will ensue.

Indirect Injuries

Rupture of contracting muscle by its own force occurs as a rule in the muscular middle-aged taking unusual exercise, but sometimes in a relatively young man as a result of sudden severe physical effort. Some individuals are peculiarly liable to ruptures of this kind, and must be regarded as brittle-muscled. The commonest seat of these injuries is in the calf of the leg; the rupture may involve any part of this from the tendo Achillis to a few fibres in the gastrocnemius. At the time of the injury the patient feels as though he had been hit in the back of the leg with a stick, and he very likely falls to the ground. The hamstrings may be similarly affected, but the injury is not as a rule so disabling in its effects. In the case of the long head of the biceps cubiti the tear is usually in the tendon and in that part which passes through the shoulder-joint. The injury generally occurs in association with osteo-arthritis of the joint, the disease process having caused some disintegration of the tendon. The injury leaves an unsightly arm but much less disability than might be expected. Suture of the tendon to the biceps groove is worth while in a youngish man.

The diagnosis in these cases is made by the history associated with the presence of localized tenderness at the

THE TREATMENT OF DIABETES

SECOND LETTSOMIAN LECTURE

In his second Lettsomian Lecture, delivered at the Medical Society of London on March 2, Dr. GEORGE GRAHAM continued his survey of the changes and results of treatment of diabetes in the last fifteen years. A report of the first lecture appeared on March 5 (p. 529).

Dr. Graham said that the majority of the patients whose disease was severe enough to require insulin were easily controlled. The blood sugar could be kept within normal limits and the urine never contained sugar or acetone bodies. Some of these patients never had hypoglycaemic attacks, or, if they did, the attacks were mild and easily recognized and caused no real inconvenience. The condition might tend to improve so that in some cases the insulin could be abandoned, or it remained stationary, but the patient was liable to temporary upsets which could be traced to specific causes like illness or injury. If the dose of insulin was increased sufficiently as soon as possible after glycosuria and hyperglycaemia occurred, the diabetic condition might not be made worse and the dose of insulin might be decreased again to the original level. The dose of insulin required by patients of this type might be very large.

So far he had spoken of the disease which got better or remained stationary, but there were unfortunately many cases in which the disease progressed. This might occur early in the history or, on the contrary, after the disease had taken a mild course for several years. The patient might pass sugar before one or other or both doses of insulin, and when the dose of insulin was increased to prevent the hyperglycaemia he might suffer from hypoglycaemia either at midday or during the night. The condition bore no relation to the size of the dose of insulin, for the symptoms might occur with quite small doses or with large. The action seemed to be due to two factors: (1) the insulin acted more quickly so that the blood sugar rapidly decreased; (2) the effect of insulin on the blood sugar no longer lasted ten to twelve hours, but only eight to ten.

Insulin Resistance

An important type of case was that which was known as "insulin-resistant." In extreme cases of this kind very large amounts of insulin were given without producing any effect on the blood sugar. Thus Miller and Heimak gave 300 units, then 500 units, and finally 1,000 units a day, and in spite of this the patient died in coma. Root gave 525, 840, and finally 1,680 units in the last three days of life without preventing death in coma. Both these patients had haemochromatosis, and the liver was practically destroyed. In the less severe cases 200 to 400 units might be required before any effect was produced. Dr. Graham related certain observations of his own which he said suggested that some interfering substance was present which neutralized the insulin, but that the usual effects were obtained if sufficient insulin were given. The liver appeared to play some important part in the insulin-sugar mechanism.

Insulin Tolerance

It was important to consider what was happening to a healthy person who could tolerate 100 units a day without developing hypoglycaemia. Did he have to produce this amount of insulin over and above that which an insulin-sensitive subject required? Or did he produce the same amount because there was no difference between the indigenous insulin and that injected? Further, what would happen to this man if he developed diabetes? Would he straightway require more than 100 units before the blood sugar could be controlled? Dr. Graham

answered this question by relating a case which had puzzled him profoundly, and from this case and another he deduced that when a healthy person who could take 25 to 100 units of insulin a day without having hypoglycaemia developed diabetes he would need large amounts of insulin before the diabetes was controlled, and that the amount of insulin was not a certain guide to the severity of the diabetes. If the patients improved they would not have overdoses, but would continue with their large dose of insulin although it might now be unnecessary. The diagnosis could be made by reducing the insulin by 8 units a day and watching the blood and urine tests. If the patient still needed insulin the blood sugar one hour after a meal would rise above 180 mg. and glycosuria would occur. In such a case the doses of insulin should be increased at once. If the diabetic condition had recovered the blood sugar would not rise and glycosuria would not occur. The patient could then safely leave off insulin provided that the urine passed after the evening meal was tested regularly for sugar. He did not suppose there were many of these patients who were taking large doses of insulin which they no longer needed, but the possibility should be remembered.

Changes in Treatment

The most important change in treatment from the point of view of the patient's comfort was the great improvement in the diet. Diets before the Allen regime were very unpleasant owing to the necessity for eating a very large amount of meat and fat, together with the various diabetic foods. The latter contained little or no carbohydrate and were unpleasant and unsatisfying. The change from these high protein and fat foods to the low protein and low fat diets was a great relief to the patient. The "hunger day" was of value and easily tolerated by most patients, although some found it irksome. If it was repeated at very frequent intervals in the attempt to keep the blood sugar normal the patients usually found it almost intolerable. Insulin made it unnecessary to have any more "hunger days," but the improvement in the health of the patient, who had been kept alive with severe dieting, was so great that the diet was at first little altered. It was not until 1926-30 that the idea became prevalent that carbohydrate should be increased. High carbohydrate dieting was now largely used, though there was still a good deal of controversy over the amount of carbohydrate and fat which should be given. The average carbohydrate of the diet in his cases was 150 grammes, but it had a tendency to increase. He had the impression that at least 100 grammes of carbohydrate should be given, and if the patient could not take that amount insulin should be given and the carbohydrate raised to at least 130 grammes. Many patients, especially women over 60, did not wish to eat more than this amount. Young patients needed much more, and to them he was giving at least 150 grammes and increasing it to 200 or 230 for growing children. One of the complaints of diabetic patients, and especially of the women, had been the poorness of the tea meal, and an advantage of the new slow-acting insulins was the improvement which could be made in that meal.

The mortality rates of his patients had decreased since 1932, coinciding with the great increase in the carbohydrate of the diet, and he believed that the extra carbohydrate had improved the health of the patients so much that they were able to withstand illnesses like pneumonia and influenza and make good recoveries.

The other great advance had been made in the analysis of the foods and in the use of food-value tables. For the latter in this country a debt was due to the late Dr. Otto Leyton, who realized that English patients could not use food tables easily in which the amount of food was expressed as a percentage. Leyton thought that if the amounts of food which contained 5 grammes of

danger signals are a dusky blue appearance of the hand on the injured side and obstruction of the normal radial pulse. When these are observed action should be prompt either to relieve pressure of bandages and splints or to rectify the position at the seat of fracture.

Once the condition of fibrosis and contracture is established, it may, if not too severe, be considerably improved by graduated stretching of hand and wrist by suitable splintage. Various operative treatments have been devised for the more severe forms, but a consideration of them hardly comes within the scope of this article.

HEALTH OF THE NAVY

The report on the health of the Navy for 1935 (H.M. Stationery Office, 2s. 6d.) records a further decrease in the incidence of disease and injury. The America and West Indies Station showed the lowest sick rate. Improvement is especially noticeable in the incidence of diseases of the respiratory system. In 1935 there were 1,279 cases, in 1934 1,526, and in 1933 3,494. The causes of death in this group during the year under review were bronchopneumonia 5, gangrene of the lungs 1, and mediastinal abscess 1.

Infective Diseases

Despite the concentration, during the last quarter of the year, of large numbers of men at bases in the Eastern Mediterranean, where bacillary dysentery is prevalent, the increase in the case ratio for this disease was only very slight. From the China Station twenty-three fresh infections of dysentery are recorded. Ten of these were amoebic, and the report states that the favourable impression formed of the value of carbarsone (Lilly) in the treatment of amoebic dysentery was further confirmed. In several cases intercurrent tachycardia, attributed to emetine, was noted. Only nine cases, five of typhoid and four of paratyphoid, occurred in the enteric group, and this small incidence among so large a number of men at risk all over the world may be regarded as a tribute to modern preventive medicine.

One case of filariasis was returned by H.M.S. *Achilles* (Home Fleet). The infection was traced to previous foreign service in the Yangtse Valley. For three years the officer affected had suffered from recurrent skin conditions resembling erysipelas or cellulitis with lymphangitis. The diagnosis was ultimately confirmed by the finding of *Filaria loa* in his blood at midnight. The single case of leishmaniasis recorded also occurred on the Home Station. The officer affected had recently returned from the Persian Gulf. Oriental sores appeared on the right arm and left leg, and Leishman-Donovan bodies, intracellular and extracellular, were demonstrated. A course of intravenous injections of sodium antimony tartrate effected a complete cure.

The report records a decrease in the number of cases of malaria from 255 in 1934 to 180 in 1935. The East Indies Station again returns the highest incidence, although its ratio per thousand is more than halved. The largest number of cases in any one ship was twenty-two in H.M.S. *Endeavour*. The cases occurred during a two-months survey of the islands north of Penang. Prophylactic quinine was taken daily, but frequently parties had to spend the night ashore in camp. With regard to treatment a single course of atabrin, followed by plasmoquine, was administered to all cases at the R.N. Hospital, Hong Kong. In Ceylon, however, it is stated that the newer remedies proved disappointing, especially as regards the relapse rate, and reliance was placed on intramuscular and oral quinine.

Schistosomiasis japonicum

All of the twelve ratings whose infection with this disease at Chinkiang on the China Station was described in the previous report¹ were kept under observation during the

following year, but no positive findings of ova were notified. The most severe of these cases, however, a stoker aged 30, showed signs of damage to the pyramidal tracts and involvement of the higher centres. After a long course of hospital treatment at Hankow, Hong Kong, and Chatham, he was finally invalided out of the service. Only one fresh case of this disease was reported in 1935. This case is of unusual interest. While serving in the Home Fleet an officer, aged 30, had an epileptiform attack in the wardroom of his ship; another attack followed two days later. This officer had returned from three years' service in China in 1933, but he gave no history of tropical disease. A third seizure occurred a week after his admission to Haslar Hospital. Each attack was preceded by a feeling of "weight and tenderness" over the left parietal region and by a temporary "black-out" of vision. Examination revealed a small paracental scotoma in the inferior temporal quadrant of the left field. A provisional diagnosis of cerebral tumour in the cortex of the left temporo-parietal region was made. Operation revealed a firm yellow spherical tumour, about one inch in diameter, and fairly sharply demarcated from the surrounding brain tissue. This was removed, and subsequent examination showed it to be made up of the ova of *Schistosomum japonicum*. Although a temporary paralysis of the right arm and difficulty in speech followed the operation the patient eventually made a good recovery and returned to duty.

TUBERCULOSIS ASSOCIATION AT OXFORD

The annual provincial meeting of the Tuberculosis Association will be held at the Dunn Laboratories, Oxford, from April 7 to 9. Accommodation for a limited number of men will be available at Exeter College; ladies and those who do not wish to have rooms in College should make early application for hotel accommodation. The charges (exclusive of a 10 per cent. tip to be added to the bill) are as follows: for all meals, including the annual dinner and accommodation in College, £2; for lunch and dinner but no accommodation in College, £1 5s.; for the annual dinner with wine, 11s. Those who do not take wine should deduct 4s. from these amounts. Meals and accommodation are from midday Thursday to midday Saturday, including lunch on both days. Members of the Tuberculosis Association should send cheques for the amounts to Dr. F. R. G. Heaf, Manson House, 26, Portland Place, W.1, by March 31, when the tickets will be sent to them. Guests may be invited on these terms. On the first day of the annual meeting papers will be read on the incidence of tuberculosis in young adult women, with special reference to employment, and later that afternoon problem cases will be discussed by Professor Girdlestone, F.R.C.S., and Dr. W. Stobie. It is suggested that an entertainment should be held in the evening. During the morning of April 8 papers will be read on extra-pleural pneumothorax, and what can be done to prevent the tuberculous patient from relapsing. In the afternoon visits will be paid to the Wingfield Morris Hospital and the Osler Pavilion, where tea will be taken. In the evening the president's reception will take place at Exeter College, followed by the annual dinner. On the morning of Saturday, April 9, papers will be read on the progress of radiology by Dr. Felix Fleischner of Vienna and others, and at 12.30 p.m. the annual meeting of the association will be held. Further information may be obtained from Dr. N. England, 1, Becket Street, Oxford.

It was decided at a recent meeting of the Oxford Graduates' Medical Club to extend the membership to all medical graduates of the University of Oxford and to abolish the subscription to the club. The secretaries are anxious to make the list of members accurate and complete, and would be glad to receive the names and addresses, with details of colleges and hospitals, and the date of taking the B.A. degree, from those who become members of the club under the new constitution.

¹ See *British Medical Journal*, October 10, 1936, p. 726.

cause of aerophagy was a different one. Any epigastric or substernal discomfort would almost certainly result in aerophagy as an attempted mechanism of relief. The trouble was that, like every habit spasm, it tended to go on after the cause had disappeared, and thus what was at first a purposive act became a tic. Having decided as to the mechanism, what was the obvious treatment? In the first place, the cause must be investigated with the greatest care. There were obvious causes like gastric ulcer or cancer, cancer of the oesophagus, and so on, but there were much less obvious causes, such as the early phase of angina pectoris, or some of the earlier manifestations of cirrhosis of the liver. To correct the deficiency, meals should be taken more leisurely, be relatively dry, salivation might be checked in certain cases by administering belladonna, and the rather sensitive nervous system treated by small doses of sedatives. What should not be done in aerophagy was to administer carminatives.

So much for aerophagy. Of the second group—delays and obstructions in the stomach and bowel—responsible for flatulence, these were very largely surgical conditions such as cicatricial stenosis in the stomach, giving rise to pyloric stenosis. A diverticulitis affecting the ascending colon was not an infrequent cause. Delay in the passage of food down the alimentary tract might be associated with spasm, and spastic colon was a cause of intestinal flatulence. It could also be associated with atony of the gut, and atonic constipation was again a not infrequent cause. The treatment of delays and obstructions must in the first place be directed towards the underlying lesion. The third group, consisting of fermentative activities in the gut, was a rather difficult field because so little was known of the subject. Two main types had been differentiated, one that of intestinal carbohydrate dyspepsia, and the other the cases occurring in intestinal affections in which there was excessive protein putrefaction. In the case of intestinal carbohydrate dyspepsia cereals should be avoided, also root vegetables, and in the protein forms of flatulence a lacto-vegetarian diet should be imposed. The fourth factor was a disturbance of the circulation in the intestinal wall. This was a factor not yet adequately assessed. The fifth factor was damage to the intestinal mucosa, not from toxins which arose in such diseases as typhoid and dysentery, but rather from poisons which one took optimistically and called purgatives and which undoubtedly irritated the mucous membrane of the stomach and intestine and promoted considerable interchange of gases and toxins which would not otherwise be allowed to pass through.

The treatment of any condition had not only to overcome the causes but to deal with symptoms. There were three main ways of dealing with symptoms: (1) the administration of carminatives; (2) the administration of absorbents such as charcoal and kaolin, neither of them a very effective remedy; and (3) particularly in post-operative flatulence, the passage of a tube for the removal of the gas.

Surgical Considerations

Mr. C. W. GORDON BRYAN thought there was a danger of being unduly impressed by the nervous or functional element in these cases and overlooking the organic causes of partial obstruction which could be removed by surgery. This applied especially to early or partial obstruction of the ascending or transverse colon where flatulence was commonly a permanent symptom. One problem in great need of solution was how best to treat cases of so-called visceroptosis of various types. In many of these cases the element of mechanical obstruction seemed to be important, the result of the congenital bands and membranes that were so common about the ascending colon and right half of the transverse colon. A large measure of relief could be given by freeing the colon as the result of a thorough removal of these bands, but he would not advocate wholesale operations on the neurasthenic, tired, thin young woman, usually suffering from an anxiety

neurosis, who had a dependent caecum and complained of a dragging or spasmodic pain when fatigued.

Passing to the difficult subject of post-operative flatulence and the more serious difficulties of mechanical and paralytic ileus, Mr. Bryan said that the causes of these dangerous conditions were of importance because the surgeon should be able to do so much to avoid them. In the great majority there was an element of mechanical obstruction, and true paralytic ileus was very rare. He briefly mentioned the measures which seemed important to him in the treatment of post-operative paralytic ileus. These were: (1) rest and avoidance of stimulants; (2) continuous siphonage of duodenum by a tube passed through nose or mouth; (3) repeated administration of anti-gas-gangrene serum; (4) continuous application of heat to the abdomen; (5) administration of a spinal anaesthetic; (6) the giving of large quantities of fluid. Continuous intravenous methods were sometimes the best, but often the giving of large quantities of normal saline subcutaneously was the simplest and most practical means. The simplicity and value of this method and the large quantity of fluid that could easily be given were perhaps not generally realized. On the question whether morphine should or should not be used he had an open mind. He preferred to avoid it, because he thought it caused vomiting. Although it might not increase distension, it did tend to prolong it.

General Discussion

Sir ARTHUR HURST was surprised that Professor Cohen had not referred to the gall-bladder as one of the most common causes of so-called gastric flatulence. The individual with cholecystitis had an uncomfortable feeling in his epigastrium which he misinterpreted as due to the presence of gas. As there was no wind to bring it away he made futile efforts which manifested themselves in swallowing air. With regard to adhesions, he believed that these very rarely accounted for the chronic uncomfortable abdomen and flatulent dyspepsia. He had seen many patients who had had operations for adhesions and had never been the better for them. Only twice had he found it necessary to advise operation for diverticulitis. Even in severe cases where obstruction was present it was nearly always possible to overcome it by medical means and to keep a patient well afterwards. He did not agree with Professor Cohen's depreciatory remark about charcoal.

Dr. A. H. DOUTHWAITE spoke of the post-operative flatulence which was so troublesome to those who had undergone an abdominal operation. He believed that a good deal of it was due to the post-operative treatment. It was worse years ago when it was customary to purge these patients and starve them for twenty-four hours before operation. In certain cases patients, either owing to the advice of their surgeons or to their own obstinacy, refused to follow the usual practice of living on a fluid diet for a day or two after an abdominal operation, and took some solid food. These patients never stopped from having flatulence.

Mr. ZACHARY COPE said that one subject which had not been dealt with was the class of case in which extreme distension accompanied renal disease. This was not due to any of the causes Professor Cohen had outlined. He held that it was in some way a reflex phenomenon. The same was true of gall-bladder trouble. He had seen the most extreme distension with biliary pain without much peritonitis. He had sometimes been tempted to open the abdomen, thinking the large bowel was obstructed, and in one or two cases he had actually done so, but had found nothing except the gall-bladder disease, and perhaps some local inflammation, but no general inflammation. He thought it possible that here they were dealing with a reflex phenomenon of the large bowel.

Dr. MAURICE SHAW was rather disappointed that Professor Cohen, while stating that carminatives were useful

carbohydrate were calculated patients would exchange their foods much more easily, and accordingly Harrison and Lawrence extended this system, and in 1930 Lawrence and McCance re-analysed many foods and thought that certain fruits contained less carbohydrates than was supposed. Their investigation was continued by McCance and Widdowson, who repeated the work and found that the carbohydrate was more than had been thought. The changes made had been relatively slight, but he thought that a stable figure had now been reached. A large number of foods had been analysed, and patients had a considerable choice of foods and had no reason to complain of any restriction.

Nova et Vetera

BENEDICT ARNOLD, THE FIGHTING DRUGGIST

Commemoration of the 206th anniversary of George Washington's birth on February 22 recalls a striking personality with whom he was intimately associated at one period of his career. Benedict Arnold was born at Norwich, Connecticut, in 1741. Apprenticed to Donald and Joshua Lathrop, relatives of his mother, who owned the largest drugstore in the town and were also practising physicians, he picked up scraps of medicine and surgery. At the age of 21 he opened a shop of his own in New Haven, in those days a trading village of some five thousand inhabitants, having previously made several voyages to the West-Indies and to London to buy drugs, books, and stationery. Over his store he put up the modest sign "B. Arnold, Druggist, Bookseller," with the motto "Sibi Totique." Business was successful from the first, and for thirteen years he was a leading and respected citizen of the community. At the outbreak of the American Revolution the "fighting druggist" left his shop for ever, organized a company of sixty volunteers, and started out for combat. His picturesque and heroic adventures have made his name almost as familiar in his country as that of Washington. One of his most celebrated feats is his march through the uninhabited Maine forests against Quebec, which for hardship and endurance is probably unparalleled in American history. At the Battle of Saratoga Arnold was the true hero, but Horatio Gates, apparently jealous of his fame, called him off the field, refusing to give him credit for a victory which marked the turning-point in the Revolution. This treatment embittered the proud and ambitious Arnold. And then Congress had promoted five junior officers over his head, in spite of Washington's protest. Next year we find him opening treasonable correspondence with Sir Henry Clinton, Commander-in-Chief of the British troops. Two years later he accepted the post at West Point with the intention of betraying this stronghold to the enemy. If he succeeded his reward was to be £20,000, and if he failed £10,000. Somehow the plot leaked out, and Arnold escaped to the British lines. He was appointed a Brigadier-General in the British Army and spent the remainder of his life in lonely and dishonoured exile in England and in Canada. He died in London in 1801. His story was told by William Abbott in the *American Druggist*, 1900, 36, 186, and his memory has recently been recalled by Clifford H. Rudes in the January number of the *Druggists' Forum*.

Reports of Societies

CAUSES AND TREATMENT OF FLATULENCE

At a meeting of the Medical Society of London on February 28, with Mr. J. E. H. ROBERTS in the chair, a discussion was held on the causes and treatment of flatulence.

Professor HENRY COHEN said that flatulence was one of the commonest of dyspeptic conditions, yet its mechanism was very little understood. Flatulence was a term often used by a patient in order to shield his own inability to describe his symptoms. Such symptoms as palpitation, nausea, constipation, headache, and cardiac pain were hidden in the usual complaint of flatulence. But "flatus" meant wind, and thus the essential symptoms must include wind or gas as an integral feature. There were five symptoms which might be complained of by a patient whose true complaint was flatulence. The first was belching or eructations; the second the passage of flatus per rectum in excessive amounts; the third a feeling of distension; the fourth gurgling or borborygmus; and the fifth pain or discomfort.

Flatulence could be defined as gas in the stomach or bowels, giving rise to discomforts which were relieved when the gas was expelled. The sources of gas in the alimentary tract were threefold: (1) swallowed air; (2) gas arising as a result of certain chemical changes; and (3)—a possibility, but not yet with certainty proved—the direct excretion of gases into the stomach and intestine from the blood stream. Four factors tended to modify the absorption of gas from the intestine. The first was the nature of the gas itself. Carbon dioxide was absorbed very rapidly, oxygen much more slowly, and nitrogen hardly at all. The first factor which tended to modify absorption, therefore, was the diffusion constant of the gas, and the second, the tendency of gas to combine with haemoglobin. The third factor was the diffusion of certain gases in the tissues themselves, and the fourth, the mucous membrane of the intestinal wall. If gases such as carbon dioxide and oxygen were absorbed into the blood stream, it was clear that any interference with the circulation in the gut would result in the accumulation of gases therein. This could be produced by any condition which caused venous stasis. Under normal conditions the amount of gas in the gut which was not absorbed was relatively small; its average composition was 10 per cent. carbon dioxide, 30 per cent. methane, and 60 per cent. nitrogen.

The Clinical Aspect

From the clinical standpoint flatulence might be divided into gastric and intestinal. Gastric flatulence was very largely the result of air-swallowing or aerophagy. Its most common symptom was a feeling of distension which was relieved by belching. Intestinal flatulence was much less commonly the result of aerophagy and much more commonly the result of fermentative processes. The division into gastric and intestinal flatulence was largely artificial, and it was far better to classify flatulence according to the mechanisms just described, although, of course, more than one mechanism might exist in any particular case. But the mechanisms described should enable certain types of flatulence to be recognized, and Professor Cohen considered each of five groups in turn.

The first of these was excessive air-swallowing or aerophagy. More air than usual might be swallowed because meals were hurried or mastication inadequate, or because there was excessive salivation, which last was responsible for the aerophagy in many post-operative conditions. Certain foods, such as omelettes and rusks, might, if taken quickly, carry more air into the stomach, and this was true of aerated water. But perhaps the commonest

In 1838 Johannes Müller, teacher of Schleiden, Schwann, and Virchow, in his work "On the Finer Structure and Form of Morbid Tumours," established the cellular character of new growths. This landmark in the history of cancer has been commemorated by the New York Academy of Medicine, when Professor Howard W. Haggard read a paper entitled "The Conception of Cancer before and after Johannes Müller."

frequent complication, but it was important when it happened.

Treatment he would divide into three stages, including as the first line of treatment the prevention of the development of the condition altogether. The patient should not be given excessive doses of morphine; the absolute minimum should be used both before and after operation. Any drug that was likely to interfere with the respiratory movements was better omitted. In addition to that, every effort should be made, at least in patients whose operation was not an emergency one, to see that their respiratory apparatus was in the best possible shape. It might be necessary to institute breathing exercises and general massage and movement. It was in the early stage that the inhalation of carbon dioxide gas was of particular value; in a later stage, when the bronchus was already obstructed and the condition established, it was a waste of time to give carbon dioxide. Unfortunately he did not know of any medicine that would help the patient to expel the block, but anything which made him cough and so assisted self-expulsion should be given. If he could not expel it himself the only thing to do was to expel it for him, and in that event bronchoscopy was required. He was entirely against bronchoscopy as a routine at the earliest stage, nor did he think more than one bronchoscopy necessary as a rule. When suppuration supervened it was in the form of either lung abscess or bronchiectasis. Postural treatment for most of these patients was out of the question. It was well to wait, encouraging the patient to cough up as much as possible, until the abdominal scar was safely healed, and then the bronchiectasis or the lung abscess could be treated on its merits.

Role of the Anaesthetic

Dr. E. H. RINK suggested that the term "massive collapse" should be restricted to the severest cases, and the terms "lobar" and "lobular atelectasis" be substituted for others. He believed that the anaesthetic in itself had very little to do with the primary condition of atelectasis. On the average he found that the proportion of chest complications after abdominal operations, including those for hernia, was about 14 per cent., while that for non-abdominal operations was about 1 per cent. It was natural to suppose that irritant inhalation anaesthetics would be a factor, and it was true that ether or any other anaesthetic if unskillfully administered would do harm. But there was no evidence that ether when perfectly administered played any important part in the production of atelectasis. At his hospital many hundreds of tonsillectomies had been performed under pure ether and oxygen anaesthesia, and there had not been a single case of post-operative atelectasis. At the same time, it was only common sense not to administer ether, unless unavoidable, to a bronchitic patient for an upper abdominal operation. Ever since the nature of this complication had been realized efforts had been made to avoid it, usually by the adoption of some single measure, such as the avoidance of all inhalation anaesthetics or the giving of large doses of atropine, for all cases. All these single measures were doomed to failure because the causation of atelectasis was multiple.

Atelectasis was commoner in men than in women in the proportion of about three to one. There were two reasons for this, one being that bronchitis was commoner in men than in women, and the other that men breathed primarily with their diaphragm and women primarily with their thorax. No age was exempt. Some severe cases occurred in children, but the frequency of chest conditions increased with increasing age. He believed that in every case of atelectasis careful inquiry into the history would show evidence either of chronic bronchitis or of something like the tail-end of the common cold. The consistency with which purulent or muco-purulent sputum was produced in these cases made it impossible for him to believe other than that the infection was already present latent

before the operation. With regard to pre-operative measures, breathing exercises for a week before an abdominal operation might be of great benefit. Provided the condition of the patient would warrant it, in bad cases requiring abdominal operations spinal or local anaesthetics should be used.

General Discussion

Dr. HORACE JOLLES described two cases which had been under his care during the last twelve months in which the atelectasis had been due to paralysis of the phrenic nerve following mediastinal pleurisy and a paralysis of the diaphragm. Dr. RANFORD WEST mentioned certain work on animals in connexion with the acute collapse which took place in curarine poisoning. Curarine, an active alkaloid of curare, could produce sudden collapse of the lung without any warning, and the post-mortem finding was one of complete general collapse. He drew attention by means of a diagram to certain similarities between the action of ether on respiration and of curarine.

Dr. LEONARD FINDLAY, remarking that he had had a considerable experience of spontaneous collapse in children, said that previous speakers had advanced no definite cause for post-operative collapse, but had brought in a multiplicity of factors. Therefore the causation of spontaneous collapse might have some relevance. The radiological picture in the average example of post-operative collapse was very different from that in the average case of spontaneous collapse. The sharp margin seen in spontaneous collapse was not observed in the other. If inquiry were made into the history of these cases of spontaneous collapse one would learn that a most inveterate cough was the initial symptom. That being so, he could not understand how it was said to be due to an obstruction. If some material getting into the bronchus was the cause, surely the complication would be most frequent after operations on the nose and throat, and yet there it was at its rarest. It occurred nearly always only after abdominal operation.

Mr. J. B. HUNTER said that it was not realized how greatly anaesthetic practice had changed. Some of them would remember the time when open ether was employed extensively. Atropine then came into use and had been used ever since, irrespective of the fact that now anaesthesia had altered, and in a very large number of cases gas and oxygen with a basal narcotic were employed. When an ether anaesthetic was employed an enormous amount of secretion was produced, and if atropine were used the type of secretion was so tenacious that it could only be likened to the material round an old scotchine tube which had been long exposed to air. It was impossible to move it save by mechanical means. Personally he had entirely given up atropine in any case in which he had employed gas and oxygen with a basal narcotic, and he had been extremely impressed by the improvement which had taken place in thyroid surgery as a result. Dr. Maxwell was a little out of touch with modern surgery if he thought the surgeon was frightened of his wound bursting. He wanted a deep anaesthesia not for that reason, but because it enabled him to handle the patient gently.

Dr. H. LETHBY TIDY said that he believed there were two factors: first, secretion in the bronchial tree, and, secondly, muscular weakness. Either of these might produce massive collapse of the lung; generally they acted together. The physics of the lung were so difficult that nobody had yet been able to propound a theory which included all the factors. The action of the diaphragm in particular had been neglected.

Professor G. GREY TURNER, from the chair, said that he was one of those who was extremely grateful to the anaesthetists of to-day, but he was still distressed over the calamities which occasionally occurred, such as they had been discussing that evening. He felt that a number of the troubles from which they suffered were due to the half-dead condition of the patients. He thought that pre-medication had gone much too far. In the old days when patients vomited and coughed and were very uncomfortable after operation their ultimate recovery was much more complete. There was certainly a tendency to the abuse of morphine and other sedatives. He thought it also important that patients should be adequately bandaged after operation. It had become the fashion in many clinics to dispense with bandages and to be content with strapping fixed on the dressing, but that made the patient anxious to suppress his desire to cough; he ought to be encouraged to cough, and even aided mechanically to do so. He thought it a pernicious practice for patients—

in intestinal flatulence, did not attach much value to them in gastric flatulence. His own experience suggested to him that, for some reason which he could not explain, they were of use in that condition. He did not agree with Sir Arthur Hurst's praise of charcoal for the relief of flatulence. Dr. T. JENNER HOSKIN pointed out the importance of flatulence in heart trouble. One could say that it was like the trigger in angina pectoris. He had seen many cases in which flatulence had been the cause of acute pulmonary oedema and paroxysmal tachycardia. In fact, he always felt that in the management of heart cases the treatment of flatulence was almost the main consideration. He also stressed the importance of a strict diet. The PRESIDENT spoke of the importance of giving patients who had undergone an abdominal operation a light, easily digested diet. He alluded to one cause of painful flatulence—namely, a troublesome spastic colon.

Professor COHEN, in reply, said that he would not like to claim that prostigmin or acetylcholine, of which he had little experience, or pituitrin, of which he had some experience, was of no value in paralytic ileus, but they must be used with some consideration, and regard must be paid to treatment by fluids and also the administration of chlorides. There was great loss of chlorides in many of these cases of paralytic ileus and they required replacement by rather more than the normal amount of chloride in normal saline. With regard to flatulence accompanying cholecystitis, he thought there were three factors which played a part, if not the whole part, in the flatulence of gall-bladder disease. The first was aerophagy, the second was the muscle tension which accompanied the gas content of the stomach, and the third—a factor commonly overlooked—was an associated chronic hepatitis. He hoped he had not said that gastric carminatives were of no value whatever. What he had said was that they should not be used in simple cases of aerophagy. He thought they had a certain value in some cases of gastric flatulence.

MASSIVE COLLAPSE OF THE LUNG

At a combined meeting of the Sections of Surgery, Medicine, and Anaesthetics of the Royal Society of Medicine on March 2, Professor GREY TURNER presiding, the subject of discussion was massive collapse of the lung as a complication of surgical operations. There was such a large attendance that in the middle of the meeting the audience had to proceed to a bigger hall.

Underlying Factors

Mr. C. PRICE THOMAS said that it was a moot point whether bronchial occlusion was the only cause of atelectasis. It explained perhaps 98 per cent. of the cases, but others were difficult to explain on that ground. Patients were occasionally seen in whom atelectasis occurred suddenly, and this could not be the result of occlusion as there was not sufficient time for the absorption of the contained air. Some hours must ordinarily elapse before atelectasis was produced, and the explanation of a neuromuscular basis would have to be brought in to account for this group of cases. If it was accepted that massive collapse was the result of bronchial occlusion, then a review of the incidence of the condition was timely. The two factors concerned were the presence of secretion and the patient's inability to expel it. The secretion was characteristically thick and tenacious, and its mechanical dislodgment by suction tube needed a fairly strong pump. He did not believe that the type of anaesthesia employed played any great part in the production of the condition. The type of operation was much more important. It was after abdominal operations that most of the cases occurred, and after upper abdominal operations more frequently than after lower, except that appendicectomy with drainage or an operation for appendix abscess also showed a rate of production of massive lung collapse which approxi-

mated to that of the upper abdominal type. Sepsis had been suggested as the cause of this condition, but it was doubtful whether sepsis *per se* had any influence on its genesis; more probably the consequent post-operative rigidity was the chief factor.

Rival Theories

Dr. JAMES MAXWELL said that the impression had been given that there were two schools of thought with regard to the production of massive collapse—one which emphasized diaphragmatic paralysis and the other bronchial occlusion. There was no doubt that bronchial occlusion was the cause of spontaneous massive collapse, but did this mean that the original thesis was necessarily entirely wrong? It seemed to him that these two views could be reconciled, and that a real understanding could then be reached of spontaneous post-operative massive collapse. Why did that block of muco-pus accumulate in certain circumstances? It seemed to him that if a local factor, a weakness of the diaphragm, were postulated, an answer was given to the question why such accumulation was localized in a given area. The two views were not opposed to each other; in his belief there was a great deal in the theory of diaphragmatic weakness causing the localization of a block of muco-pus in the bronchus. He emphasized the great importance of the cough reflex in keeping the respiratory tract clear. In man the cough was a natural means of clearance, and he did not think that some people realized how much damage was being done to the patient if for any reason they discouraged the cough reflex. He knew that the surgeon did not like the patient to cough because it meant that he might burst his stitches, but it might be wiser to put in stronger stitches.

The group of factors responsible for massive collapse were as follows: (1) debility, either local or general; (2) the state of the bronchial passages from the point of view, first, of a tendency to bronchitis, and, secondly, of a tendency to asthma; (3) pre-operative and post-operative medication. On this last point he mentioned that morphine was a very noxious drug in this connexion; it was perhaps the most potent respiratory depressant known. One had only to take a semi-conscious patient and give him a dose of morphine to see the great slowing down of the respiratory movement that followed. The patients who were given generous doses of morphine before and immediately following operation were being placed in exactly those conditions which predisposed to spontaneous post-operative massive collapse.

The Clinical Picture

Dr. Maxwell then turned to the clinical picture. The symptoms were extremely like those of pneumonia. One misleading symptom was acute pain in the chest; it varied with respiration, was worse on inspiration, and simulated exactly the pain of acute pleurisy, but it was not due to acute pleurisy. It was most likely the result of a sudden increase in the negative tension in the pleural space. Dyspnoea was not a very frequent event unless the whole lung was involved. These patients were frequently very ill, and it was always difficult to disentangle that part of their illness which was due to their recent operation from that part which was due to the chest complication. There was often a temperature from the damming-up of a certain amount of infected material distal to the block of muco-pus. The first physical sign of the development of massive collapse of a lobe was a weakening of the breath sounds at the base. The percussion note was impaired, sometimes so much impaired as to suggest fluid. When the mediastinum was displaced at all it was displaced towards the side of the lesion. There were two complications—and it was because of the complications rather than of the condition itself that massive collapse was so important—namely, pulmonary suppuration and the subsequent development of bronchiectasis. It was astonishing how rapidly bronchiectasis could develop. It was not a very

and consisted of a tedious but rather trivial illness confined to a more or less suppurative inguinal adenitis, though this was, in fact, less than half the disease. The primary papulo-herpetiform lesion on the penis appeared three to five days after coitus, and vanished, leaving no trace, in eight days. Some swelling in the groin was noticed by the patient seven to twenty-one days after coitus. No known drug had any effect on the bubo. Rest in bed was the main treatment, aided by the intravenous injection of T.A.B. vaccine. Operation was resorted to in about 15 per cent. of the cases. The male was an inefficient transmitter of the disease; for it to take root in this country infected women, or more of them, would have to be imported. The Frei intradermal test was helpful in diagnosis, especially with a pooled antigen prepared for him by Mr. A. H. Walters from glands in which Dr. Findlay had shown the presence of active virus by animal inoculation. Dr. Hanschell described certain lesions in the rectum of a male patient suffering from proctitis who gave a repeated positive Frei test with the pooled antigen. This was perhaps a direct early infection of the rectal mucosa with the virus, due to sodomy (confessed) while abroad. He concluded by saying that the names "climatic bubo" and "lymphogranuloma inguinale" should be scrapped, and "poradenitis venerea" adopted, as suggested by Dr. Stannus.

Dr. C. C. CHESTERMAN described what he termed poradenomyphilitis as it occurred in male and female native patients at the hospital of the Baptist Missionary Society, Yakusu, near Stanleyville, in the Belgian Congo. He agreed as to the remarkable specificity of Frei's intradermal test, and stated that where that and the Demelcos test for chancreoid were negative strong presumptive evidence of syphilis was afforded in doubtful cases of genital sore accompanied by inguinal bubo. In males the typical puckered groin scar with fistulous openings was often observed, together with involvement of the scrotum. In women, mostly of the prostitute class, four points were stressed. First, the rarity of inguinal adenopathy, which was noticed only in one case in ten when the primary sore was on the fourchette; it subsided without the formation of fistulae. Secondly, the frequent development later on of rectal stricture—in five cases out of six in which the infection had lasted two or more years. In Dr. Chesterman's opinion this was a natural extension of the disease and was not due to rectal coitus, because there seemed no evidence nor motive for this practice in that district, and also, as Dr. Hanschell had pointed out, rectal infection was unlikely on account of the short period of infectivity in the male. Rectal stricture occurred between 5 and 9 cm. from the anal orifice, and was generally accompanied by ulceration, a foul discharge, and the passage of ribbon-shaped blood-stained faeces; not infrequently fistulae were found. A third point was that ano-vaginal fistula was noted in three cases, but all attempts at surgical closure failed. Lastly, the primary lesion, commonly on the labia minora or vestibule, tended to persist as a chronic ulcer; the mucous surfaces involved became indurated with tags and perforations, and the skin-covered tissues became elephantoid.

Experimental Investigation

Dr. G. M. FINDLAY said that as a result of experimental investigation it was now realized that lymphogranuloma inguinale (poradenitis venerea) was a generalized disease, and in addition to such lesions as a primary sore with inguinal bubo, proctitis, stricture of the rectum and vagina, and elephantiasis of the penis, scrotum, or vulva, there had been noted in man conjunctivitis, arthritis, skin rashes, and meningitis. Experimentally the disease could be conveyed to monkeys other than rhesus monkeys, mice, guinea-pigs, cats, and dogs by intracerebral injection, which caused a fatal meningitis. In guinea-pigs and dogs inguinal buboes could be produced by injection into the groin, while injection into the prepuce in monkeys led to inguinal adenitis; the virus could also pass through

the scarified skin. It travelled almost entirely by the lymphatics, and the essential lesion was a reaction of the mesodermal elements in the lymph channels, which become blocked with large mononuclear cells, plasma cells, and lymphocytes with the formation of characteristic nodules in the meninges or meningeal septa of the brain. There was considerable evidence to suggest that the actual virus agents were small granules of the same dimensions as the vaccinia virus. These granules were found in the pus from inguinal buboes, in experimental lesions in animals, and in the chorio-allantoic membrane of the developing chick embryo which had been infected with virus-containing material. The most satisfactory diagnostic method was the isolation of the virus by intracerebral injection of suspected material into monkeys or mice. In addition a number of immunological tests had been employed, of which the best-known was the Frei test, which appeared to depend on the presence of killed elementary bodies in the material injected. It was thus comparable with the allergic reaction following the injection of the killed elementary bodies of vaccinia. Another test, proposed by Wassén, consisted in the injection of a mixture of virus and serum intradermally into guinea-pigs. When the serum contained immune bodies no reaction occurred, but if immune bodies were not present a small papule appeared and broke down to form an ulcer in about forty-eight hours. The intravenous injection of Frei antigen in man was also said to give rise to a febrile reaction if the persons were infected with the virus of lymphogranuloma inguinale, while in normal persons no reaction occurred.

Local News

SCOTLAND

Psychiatric Treatment in Scotland

At a meeting on February 18 of the Edinburgh Women Citizens' Association Dr. David Yellowlees, medical director of the Lansdowne Clinic for Functional Nervous Disorders in Glasgow, said that psychological factors had not been sufficiently allowed for by the law in its treatment of delinquents and criminals. Some people would like to say that mental disease was the one and only cause of delinquency, but the condition was not so simple, for it was too sweeping to assert that no delinquent was mentally normal. It was true to say, however, that no delinquent was as fully developed mentally as he might be. Some delinquents suffered from mental defect, some from a psychoneurotic condition, and a small number from actual insanity. Emotional instability was also a factor. The neurotic group of delinquents suffered not from any inherent defect, intellectual or moral, but from a lack of balance. He thought there would always be need for laws and penalties, although more discrimination was necessary; if a citizen was normal enough to enjoy a citizen's privileges he was normal enough to take a citizen's responsibility.

Dr. G. L. Linklater, school medical officer, Edinburgh, lecturing to the same association on February 22, dealt with exceptional children and their needs. Many children who were called dull, he said, were merely the subjects of mental inertia and took longer to bestir themselves mentally, while many who were regarded as bright, particularly because of verbal fluency, had no depth of intelligence. Too often, however, the apparently dull child who was subject to scorn became self-doubting and soured. The brilliant child was apt to be praised and to develop a self-esteem which was unwarranted, so that he came to be found out, and, with his disillusionment, developed a reaction against society. The prevention of these extremes of estimation lay in testing children for intelligence so that their education could be planned on lines suited to

speaking, of course, of non-emergency operations—to be taken on to the operating table straight off the street, as it were. It was wrong to put off entering the hospital or nursing home until the very last moment, and to expect a considerable operation to be carried out next day. Also—it was perhaps heresy to say so—he could not help going back regretfully to the old days of skilfully given chloroform anaesthesia, for he remembered so well what wonderful recoveries were achieved.

PRURITUS VULVAE

A discussion on pruritus, with special reference to pruritus vulvae, was opened by Dr. R. M. B. MACKENNA and Miss R. NICHOLSON, at a meeting of the Liverpool Medical Institution on February 17, with the president, Dr. E. GILBERT BARK, in the chair.

Dr. MacKenna emphasized the importance of recognizing the condition known as lichenification when dealing with cases of localized pruritus, and summarized the possibilities of treatment by internal remedies, local applications, and psychological methods. Unless an attempt was made to determine the cause of the pruritus in any given case, treatment of the symptom itself was of little avail. Miss Nicholson remarked on the necessity of local examination and of a search for the cause before the treatment of any case of pruritus vulvae was begun. Smegma round the clitoris and nymphae, uncleanliness, pediculi, and threadworms were simple causes and easily dealt with. Vaginal discharges due to endocervicitis might be treated by pessaries, by ionization, and by diathermy of the cervix. The *Trichomonas vaginalis* might also be responsible for pruritus. Abnormal conditions of the urine, including glycosuria, hyperacidity, and oxaluria, were mentioned, and the escape of urine in cases of prolapse or vesico-vaginal fistula, and in later years even poor sphincter control alone causing leakage of a few drops of urine after micturition. Careful drying and sponging after micturition was recommended. Irritation during pregnancy was relieved by alkaline baths and calcium internally. The view of Swift of Australia was that achlorhydria, causing a lack of absorption of vitamin A, was an aetiological factor in this condition, and he advised treatment by the oral administration of dilute hydrochloric acid and vitamin A.

In the discussion which followed Dr. ISABELLA BUTLER spoke on the treatment by electrical methods of pruritus associated with leucorrhoea due to a chronic cervicitis. Diathermy or ionization of the cervix, high-frequency treatment, small doses of x rays to the vulva, and ultra-short-wave therapy using Schliephake's vaginal electrode were possible methods of treatment. Mr. PERCY MALPAS said that the greatest problem in practice was the treatment of those cases of pruritus vulvae for which no local cause could be found. *Trichomonas* infection should be suspected even if there was little or no vaginal discharge, and especially when the symptoms caused by leucorrhoea were out of all proportion to the apparent severity of the discharge. A useful practice was to restrict the amount of sugar in the diet; many patients exhibited a transient glycosuria, usually due to excessive tea-drinking, which might not always be detected at the time of examination. Injections of A.B.A. were not as successful in the treatment of pruritus vulvae as in pruritus ani. As a local dressing the use of drying powders such as talcum might have received more attention. Sympathectomy was inadvisable, but good results had been seen in very severe cases after division of the pudic nerves in Alcock's canal, the only disadvantage of this procedure being the resultant anaesthesia.

Mr. T. N. A. JEFFCOATE said that the administration of oestrogenic hormones was called for only when there was evidence that the pruritus was caused by an atrophic condition of the vulva and vagina; large doses, preferably of the benzoate preparations, were usually required and the results were excellent. Oestrogenic compounds

rarely helped those patients in whom there was no evidence of an underlying ovarian deficiency. Local division of sensory nerves was a useful means of dealing with intractable pruritus of unknown origin. Dr. R. W. BROOKFIELD commented on the influence of vasoconstrictor drugs on generalized pruritus. Ephedrine and adrenaline frequently afforded relief in the itching of urticaria, and he had found that the intolerable pruritus associated with the severer forms of serum sickness, though it might not respond to adrenaline, was relieved in dramatic fashion by the injection of pituitrin. The same result had been observed in the itching of chronic jaundice.

Cardiac Failure

At the same meeting Dr. G. RONALD ELLIS read a short paper on cardiac failure.

Dr. Ellis said that the fundamental problem in cardiovascular pathology was concerned with the immediate cause of the majority of cases of heart failure. Why did the patient with old-standing symptomless aortic regurgitation suddenly develop symptoms of heart failure, when it was known that the valvular lesion had undergone no change for many years? After discussing those instances, as in massive infarction, in which the anatomical findings did seem adequately to explain the cardiac insufficiency, Dr. Ellis described the microscopical changes in the myocardium, and pointed out that for the most part they did not explain the sudden failure. The explanation was probably to be sought in some metabolic change in the heart muscle akin to fatigue in skeletal muscle. In the young person with pneumonia whose heart was healthy primary failure probably never occurred; the circulatory failure being peripheral in type, and symptomatic really of "shock."

In the discussion which followed Professor JOHN HAY referred to the causes of failure in hearts already affected by prolonged strain. The precipitating factor was usually the onset of auricular fibrillation, some toxic process such as influenza, or a defective supply of oxygen to the myocardium, caused by anaemia or a narrowing of the orifice of a coronary artery. Coronary occlusion in late middle life was another factor which had to be borne in mind. Dr. A. J. MCCALL said that myocardial damage due to syphilis was usually attributed to occlusion of the coronary orifices by syphilitic aortitis. A diffuse gummatous infiltration of the myocardium was sometimes found; and, as emphasized by Warthin, might be more common than was generally supposed. Jaundice appearing suddenly in a patient with congestive cardiac failure was frequently attributable to pulmonary infarction. A case of myxoedema with severe angina pectoris was described; both conditions responded to thyroid therapy.

PORADENITIS VENEREA

At a meeting of the Royal Society of Tropical Medicine and Hygiene at Manson House on February 17, with the president, Lieutenant-Colonel S. P. JAMES, in the chair, a discussion on "climatic bubo or lymphogranuloma inguinale" was opened by Dr. H. M. HANSCHALL.

Dr. Hanschall reviewed the 130 cases, all male, seen at the Royal Albert Dock Hospital during the last eighteen years. He expressed his indebtedness to Dr. Marshall Findlay, who had carried out animal inoculations for him, and to Dr. H. S. Stannus, "whose scholarly researches had opened a window on the full extent of this infection." The cases had been studied against a background of nearly 18,000 men with lesions of the genital and inguinal areas, including gonorrhoea, attending the venereal diseases clinic in the same period. All the cases had been infected in the Tropics or sub-Tropics; in eighteen years he had detected no case infected in this country. The condition was strictly a venereal disease of the male and of the Tropics;

reference. Among them was a great-great-grandson of Lennons, Mr. Hugh Elliot. Mr. H. L. Eason replied in a characteristically humorous speech, in which he referred to the "inferiority of Guy's men in the presence of men from Bart's." Mr. Elliot in a few remarks recalled the description his grandfather had given him of Lettison's funeral.

District Nursing in London

The annual meeting of the Central Council for District Nursing in London was held at the County Hall on February 24 with Sir William J. Collins in the chair. The twenty-third annual report, which was adopted, stated that the council had again received from the trustees of the London parochial charities a grant of £4,000, which sum, together with £400 from the funds of the council, had been distributed to seventy-four district nursing associations in affiliation. During the year the council had also distributed £7,575 contributed by the London County Council in aid of the public assistance work performed by district nursing associations. It was mentioned that the home nursing of persons coming within the scope of public assistance had continued smoothly. The cases visited for general nursing and for administering insulin to diabetic patients had numbered between 1,200 and 1,400 each quarter, and the number of visits each quarter about 50,000. The visits for insulin administration were paid for by the L.C.C. at the fixed rate of 6d per visit. The grant for general nursing worked out at between 9^d and 11^d per visit. The central council during the year awarded six bursaries to enable district nurses to take courses in midwifery and maternity work, and fourteen bursaries to enable nurses practising midwifery to study the administration of analgesics. A recommendation was proposed to the meeting from the executive committee, and agreed to, that in view of the increased cost of district nursing and of the inadequacy of the present grants from local authorities it is desirable that payments by borough councils for nursing services under statutory powers be made upon the basis of a consolidated subscription rather than upon a per visit basis. The constituent nursing associations are being asked to take up this question with their respective borough councils. It was stated that the London County Council had already had some discussion with the borough councils in regard to the nursing of maternity complications and the possibility of payment by the borough councils by block grants based on statistics for the past three years. The executive committee was re-elected, one new medical member being added in the person of Dr. P. B. Spurgin, who was proposed by Dr. W. Paterson and seconded by Sir Comyns Berkeley, and the finance committee, with Sir Stanley Woodward as the medical member, was also reappointed.

Guy's Hospital Dental School

Guy's Hospital Dental School celebrated its forty-ninth anniversary on March 5 by an annual clinical meeting, and between 400 and 500 past students returned to renew old acquaintance and to witness demonstrations of modern procedures by members of the present staff. The school presented a busy and crowded appearance throughout the day. Operations of dental interest proceeded in the two theatres, demonstrations of anaesthesia in the general anaesthetic room, pathological specimens were shown in the dental research laboratory, and clinical cases in the conservation department. In the children's department orthodontic cases were shown, prosthetic cases in the denture room, and an exhibition of students' work in the prosthetic laboratory. At a luncheon presided over by the dean of the dental school (Mr. T. J. Evans) it was mentioned that Guy's is the largest dental school of the Empire, and provides the Empire with one-fourth or one-fifth of its dental practitioners. The number of students, which has to bear a certain proportion to the number of medical students, is about 360. The various sections now contain 114 dental chairs, the attendance of patients

in the year has risen to about 100,000, and last year the work done for patients comprised 27,000 fillings, 25,000 extractions, and 2,200 dentures. In the children's department over 1,200 children were under treatment during the year for regulation of teeth and correction of facial deformities, and in the x-ray department over 7,000 patients were dealt with. Emphasis was laid on the need for more room, a difficult problem at Guy's in view of its situation in a crowded London area, but it is hoped that the jubilee next year may be marked by some extension. It was in February, 1889, that the first dental student entered Guy's. The first dental school consisted of a single room with twelve wooden chairs. But the interest of Guy's in dental education dates back much earlier: a dental surgeon was appointed to the staff in 1799. The dean pointed out the understaffing of the dental profession: there are only three dentists for every 10,000 of the population, and dentistry is almost the only learned profession which still provides any amount of room for young people.

Analytical Chemists' Dinner

The Society of Public Analysts and Other Analytical Chemists held a dinner on March 4 to commemorate the sixty-fourth anniversary of the foundation of the society. In proposing the toast "His Majesty's Judges" Mr. E. R. Bolton said that they were the admiration of the world. He made a plea for the institution of a Chair of Chemical Jurisprudence. In response Mr. Justice Singleton paid a tribute to the courage and right-doing of juries who had to determine important questions of fact. The efficiency of juries and the interest and trouble taken by jurors, both men and women, in a serious case to get the right result spoke well for the future of this country. In proposing the health of the society Mr. Norman Birkett, K.C., said that while he agreed with Mr. Bolton in his eulogy of the judicial bench, there were times when he felt that the jury had not taken a correct view of the case. In reply the president, Dr. G. Roche Lynch, asked these present to drink the health of Dr. Bernard Dyer, the only living foundation member of the society. Mr. A. L. Bacharach proposed the toast of "The Guests," and Lord Cornwallis, Sir Philip Game, and Sir Robert Pickard replied.

Committee Against Malnutrition

At a meeting held by the Committee Against Malnutrition at the Royal Society of Arts on March 3 to emphasize the nutritional aspects of the national fitness movement, Miss Marjorie Green (secretary of the Children's Minimum Council) recalled the grave doubts that had recently been expressed regarding the "assessments of nutritional states" in the schools. Quoting from the findings of Mr. Huws Jones in Liverpool and from private communications received from a number of school medical officers, she considered that part of the difficulty lay in the interpretation of the term "normal." Was this a standard of full physiological attainment or merely an average? Experience suggested that we had come to accept one standard for children of the well-to-do and another for children of the poor. The present methods of assessing malnutrition in school children were valueless from a scientific point of view, and from a practical point of view were certainly dangerous. Professor W. E. Le Gros Clark thought that in any scheme to improve national health and physique it was essential to have data regarding the present standard of the population, and particularly of the growing population. It was not easy to find a standard of normality, though this was essential. Rejecting the height-weight-age index as insufficient, the speaker mentioned with approval the ACH index employed by the American Child Health Association; work of this description needed the co-operation of statisticians, anthropometricians, and, above all, of expert clinicians accustomed to the examination of children. Professor Le Gros Clark referred to experiments that were in

capacity and speed. Under-nourishment was an important factor, which, however, was less prevalent among school children to-day than ever before; the pre-school child, however, had not improved in this respect as he ought to have done. The city of Edinburgh proposed to build a unit in country surroundings where there would be provision for a limited number of children who might be termed pre-delinquents or children who under the observation of the teaching staff showed "difficult" tendencies. These children required a change of environment, detailed observation, and treatment. Children who were subject to fear had frequently been too much shielded and had not developed the courage and experience necessary to face the world; they needed to be encouraged to mix on terms of equality with their fellows.

Central Midwives Board

At a meeting of the Central Midwives Board for Scotland Professor R. W. Johnstone and Professor James Hendry were elected chairman and deputy chairman respectively for the ensuing year. The Board appointed examiners and approved, subject to inspection, the list of recognized training institutions, with their teachers, for the training of pupil midwives.

Professor of Dentistry at St. Andrews

A chair of dentistry at St. Andrews University was recently established by a gift of £17,500 from Mr. William Boyd of Dundee, who is chairman of Dundee Dental Hospital, and the University Court has appointed Dr. H. Gordon Campbell, dental surgeon of Dundee, to be the first occupant. Dr. Campbell, who qualified in medicine L.R.C.P. and L.R.C.S., Edinburgh, in 1904, has been lecturer on dental anatomy in the Dundee Dental School and dental officer to the Dundee School Board since 1913. He has done a considerable amount of organizing work in connexion with dental surgery, having been secretary of the Dundee Military Dental Service, which was the first of its kind in the country at the outbreak of the war. He also organized the Dundee Dental Health Association, through which Dundee dental surgeons have given addresses to the public on the importance of the care of the teeth and mouth.

Inquiry into Physical Welfare

It was stated at the annual meeting at Dunfermline on March 4 of the Carnegie United Kingdom Trust that the trustees had set aside a sum of £10,000 to meet the cost of an inquiry into the connexion between the economic and social factors influencing physical welfare. The inquiry will be under the direction of Sir John Orr of the Rowett Research Institute, Aberdeen. It was also stated that in the allocation for 1936-40 a sum of £150,000 had been set aside for land settlement development and that up to the end of last year £68,000 had been paid in grants to the land settlement association. The general purpose of this association is to test the possibility of creating a new opportunity of earning a healthy, happy, and prosperous livelihood by cultivation of the soil and breeding of stock for men in the special areas whose chance of employment has ceased. This association now controls twenty-five estates, comprising 11,000 acres and providing for the establishment on small holdings of about 7,000 persons from the special areas.

District Nursing

The annual report of the Scottish Council of the Queen's Institute of District Nursing for 1937 shows that in the previous year out of the registered births in Scotland numbering 88,928 Queen's nurses attended 14,612, or approximately one-sixth of the whole number. Of these, 2,467 cases were attended by the nurses acting as midwives, and the remaining 12,145 cases by nurses acting under the direction of a medical practitioner. The maternal mortality among cases attended by the Queen's nurses was 3.6 per 1,000 births, while in the other cases

in Scotland the rate was 5.9 per 1,000 births. In view of the increase in salaries of Queen's nurses in England the Scottish Council also decided to make an increase, the nurses in Scotland being put from January 1 last on a scale commencing at £75 rising to £100 per annum for those undertaking maternity nursing, in addition to allowances for board and uniform.

ENGLAND AND WALES

Welsh Board of Health: New Headquarters

On March 1 the Minister of Health, Sir Kingsley Wood, opened the new headquarters of the Welsh Board of Health in Cathays Park, Cardiff. He recalled that the department had its origin in the National Insurance Act, 1911, which was conceived in the fertile mind of one of the greatest of all Welshmen, Mr. Lloyd George. Under the Welsh Board of Health 900,000 working-class people in Wales received medical attention and treatment, 1,000,000 people contributed to the pensions scheme, and 200,000 now received pension allowances. The building would be devoted to war against disease and ill-health, particularly in the interests of two great causes—care of the mother and child and welfare of the blind. Mr. Arthur Greenwood, M.P., a former Minister of Health, said he hoped the building would not only be the latest embodiment of the Welsh spirit of nationality but would become a power-house radiating its influence into the homes of the humble folk in Wales.

Medical Society of London

The Medical Society of London held its 163rd anniversary dinner on March 1, with the president, Mr. J. E. H. Roberts, in the chair. After the loyal toasts had been honoured the health of the Society was proposed by Mr. R. H. Bernays, Parliamentary Secretary to the Ministry of Health, who began by saying: "We politicians have to face up to our results; you can put your results underground." The Medical Society of London, he continued, was the oldest in the country and had helped to advance knowledge in both medicine and surgery. It had also played an important part in preventive medicine, "which means 'Consult your doctor, and consult him in time.'" Lettsom, the founder of the Society, had interested himself in such matters as ventilation and dietetics, and in 1798 had published a tract entitled "Hints respecting the Effects of Hard Drinking." Among other past presidents of the Society Mr. Bernays referred to Dr. John Snow, who had removed the Broad Street pump handle in the cholera outbreak, and to Sir Benjamin Ward Richardson, who had coined the phrase, "National health is national wealth"—which every Minister of Health had since produced as a brilliant impromptu. Mr. Bernays ended a witty speech by making a plea for co-operation between the voluntary and municipal medical services. In responding, Mr. Roberts said that the finances of the Society were on a satisfactory footing, that its meetings had never been better attended, and that the number of Fellows was higher than it ever had been. The Society had recently been presented by Colonel Clutterbuck with a Fothergillian medal and a set of bleeding instruments which had belonged to his forebear, Dr. Henry Clutterbuck, who was president of the Society in 1819. In the early days the Society used to meet in private houses and taverns in the city, until in 1788 it acquired a house of its own. In 1850 the Society moved to George Street, Hanover Square, and in 1871 they acquired the lease of their present house in Chandos Street, which was now, however, no longer modern and too small for their needs. In four years' time certain leases would fall and the question of a building for the Society would then become urgent. The health of the guests was proposed by Mr. Alex. E. Roche, who welcomed each guest in turn with a short and apt biographical

accepting the responsibility in suitable cases of treating malignant disease if a cure is to be achieved by surgery or by radiotherapy. The condemnation of irradiation as a method because of rare cases of overdosage and damage is as groundless as the disparagement—in London, too, and towards the end of a dark winter—of the virtues of ultra-violet light!—I am, etc.,

London, W.1, March 5.

J. H. DOUGLAS WEBSTER.

SIR.—Mr. Percy Furnivall's account (February 26, p. 450) of his treatment by radium and x rays for a small epithelioma indicates what must have been suffered by many patients following similar treatment. His trigeminal pain was almost certainly due to the radio-necrotic ulcer remaining at the site of the primary lesion. Perhaps surgical excision by the knife or by diathermy would leave an ulcer with a normal blood supply which would granulate normally, besides providing immediate relief of the pain and a corresponding improvement in the patient's condition. The reason for the radio-necrosis is, without doubt, local overdosage. I think there is good evidence to show that such overdosage can be avoided to a large extent by ensuring that the radium or radon is distributed in such a way as to ensure homogeneous tissue dosage totalling 5,500 to 6,000 r over about two weeks. The physical principles and their clinical application in the treatment of lesions by radium have been worked out by various investigators. In England, Mayncord of the Cancer Hospital and Paterson and Parker of the Holt Radium Institute, Manchester, have provided us with adequate data, and the papers of the latter workers are particularly useful. I hope that the experience of Mr. Furnivall will persuade more of the people engaged in radium therapy to apply the principles of radium dosage rationally. With regard to the treatment which he received in America, I feel sure that the principles above described were not followed, because in a recent visit to America I found no clinic in the United States, of many visited, where accurate spacing and application of these principles were carried out. The malaise and local symptoms due to the x rays were unavoidable, and with such a dose only temporary. I think that the account given by Mr. Furnivall justifies a special plea for extreme care and the rational scientific application of known principles in dealing with every case treated by radium or radon. Mistakes are bound to occur in everyone's experience, but will be much less common if this plea is heeded, while the reasons for them will be understood.—I am, etc.,

F. ELLIS,

Sheffield, March 2.

Medical Director, Sheffield Radium
Centre, Royal Infirmary.

SIR.—I am surprised at the number of letters I have received from strangers about radium treatment, following the publication of my own case in Clinical Memoranda on February 26. I hope to answer them all in time. These letters show that disastrous results occur more frequently than I had any idea of; and that patients are not told beforehand of the possibility of such results. I am now more than ever convinced of the necessity of further research on the effects of radium emanations, and care in selecting cases for radium treatment; also the inadvisability of handing out radium for indiscriminate treatment.—I am, etc.,

PERCY FURNIVALL,
Consulting Surgeon to the
London Hospital.

Northam, N. Devon, March 5.

Scapulo-humeral Periarthritis

SIR.—I have read Dr. Douthwaite's article in the *Journal* of February 26 with some interest, more particularly as I disagree largely with the views therein expressed.

I have treated a number of cases of periarthritic fibrositis of the shoulder-joint by the method advocated by Dr. Douthwaite, but have long given it up in favour of less drastic but equally satisfactory methods. Though it may prove quite a satisfactory proceeding to break down by forcible measures isolated adhesions resulting from injury to an otherwise healthy shoulder, it is quite another matter when the joint capsule, subacromial bursa, tendons, and other structures are all matted together by diffuse periarthritic fibrositis. The force required to break down adhesions in such cases and obtain immediate free movements of the joint is very considerable, and inevitably results in injury of the tissues involved. I personally know of one case where an enthusiastic manipulator succeeded in causing a fracture through the neck of the humerus, and I understand that this is not an isolated instance. Forcible tearing of adhesions results not only in "loud snaps" but in exudation of serum or blood, with inflammatory reaction likely to set up more fibrosis and so retard, rather than hasten, the patient's ultimate recovery. The majority of these patients, as Dr. Douthwaite's cases show, are middle-aged or elderly people, many of them in indifferent health, and it appears quite unnecessary and, I venture to think, quite unjustifiable to subject such patients to the severe general disturbance and still more severe pain which may last for a week or more after forcible tearing of adhesions.

Dr. Douthwaite's observation that the treatment of this condition by baths is "futile and waste of time" argues a lack of experience. These cases, which incidentally are very common, respond, as a matter of fact, quite well to suitable forms of balneological treatment such as hot "undercurrent" douches in an immersion bath, hot packs, manipulation in a pool bath, etc., followed by massage and graduated passive movements. Treatment should, in any case, be sedative in type with a view to relaxing muscular spasm—to which, incidentally, much of the pain and rigidity is due—increasing circulation through the neighbourhood of the joint, and reducing inflammation.

Whatever form of treatment is adopted it is quite true, as Dr. Douthwaite remarks, that the active co-operation of the patient is required to attain a satisfactory result. My own experience is that as this "active co-operation" is so much more painful following forcible manipulation than it is during or after a course of balneological treatment, one is more likely to obtain it with the latter. Having given both methods a fair trial, I can confidently say that treatment on the lines I have indicated above is equally satisfactory and much less painful, and so less detrimental to the general health of the patient, than that advocated by Dr. Douthwaite.—I am, etc.,

Bath, March 1.

F. G. THOMSON, M.D., F.R.C.P.

SIR.—Under this title Dr. A. H. Douthwaite has described (*Journal*, February 26, p. 441) a condition which has attracted attention during the last few years. Possibly this has been so, not only because of the number of sufferers but because of the success of treatment by movement of the joint under anaesthesia. In the majority of cases treatment by heat, massage, and exercises alone seldom cures the condition. Dr. Douthwaite has cured

progress to determine whether the rate of growth of the finger-nails could be used as an indication of the nutrition of children, and remarked on the value of the vitamin tests now employed by Dr. L. J. Harris. In his own opinion it would be necessary to discover the "normal" from an examination of a large sample of children known to come from families which were comfortably off and to have had the benefit of a good diet and wholesome environment. Professor J. R. Marrack, illustrating his remarks with slides, gave a brief account of the development of modern dietetic knowledge. He referred especially to the effects of deficiency of vitamin A upon the visual purple and upon the surface of the eye; it was probable that such deficiencies manifested themselves in slow rate of growth and in impairment of the powers of the epithelium to resist infection. It was, in the speaker's opinion, undesirable to rely on vitamin doses; the necessary constituents should be obtained from a thoroughly balanced diet consumed in comfort and without anxiety of mind. Only then could the body take full advantage of the food absorbed. Dr. Janet M. Vaughan also illustrated her remarks with slides, showing statistical evidence of anaemia in the women and infants of the working class. It was her task to explain the character of one type of food deficiency as it affected the health of the population. While iron preparations could effect surprising improvements in health, it was better that the iron should be supplied through the normal diet. Women had informed her that the iron medicaments had the disadvantage of "making them feel too hungry." This in itself suggested that an all-round supplement of diets in poorer families was necessary.

Correspondence

After-effects of Modern Treatment of Carcinoma

SIR,—It would be a thousand pities were Mr. Percy Furnivall's account (*Journal*, February 26, p. 450) of his unhappy experience following radiation treatment for an epithelioma of the pharynx to receive wide acceptance as an accurate picture of what is to be expected as the normal or usual sequence of events.

The position that Mr. Furnivall made for himself in the surgical world a decade ago, and his reputation for cautious judgment and keen inquiry, coupled with very natural sympathy for his protracted sufferings, will naturally focus the attention of all who are in any doubt about the best method of dealing with this kind of growth, and may put a brake on the onward march of progress which in this type of carcinoma in particular has shown such notable advances.

These advances have not been gained without many misadventures, but happily they are becoming increasingly rare; and if there is one fact that stands out above all others in the welter of failures, recurrences, radio-necroses, and all the other miseries that we have had to deal with in the past it is that we have learnt that no matter how carefully and how scientifically radium needles or radon seeds may be implanted, particularly in a soft and yielding structure like the pharynx subject to constant movement and disturbance, it is a physical impossibility to ensure a strictly homogeneous field of irradiation. There are bound to be areas where the degree of radiation is much above the general average of the irradiated field, and if on the top of this a major dose of x rays reaches the affected tissues disaster is only too probable, with the long-drawn-out misery of radio-necrosis as a consequence.

The radium bomb would now appear to be the answer to pharyngeal carcinoma, and is receiving increasing recognition in this country. It is not, of course, a complete answer in every case—that would be too much to hope—but given the necessary care and knowledge on the part of those responsible for its application, and the courage and determination required by the patient to undergo a tedious and distressing treatment, the results are more satisfactory than anything ever seen before, and twelve weeks rather than twelve months may be regarded as the average and normal period of disability.

Mr. Furnivall is a man of high courage, and is, I am sure, not asking for sympathy, but it may be some comfort to him to know that those of us who have had large experience of these cases, and of the kind of complication he has experienced, recognize that in cases where radio-necrosis has been extensive the destruction of the growth is so much the more complete and permanent. His ultimate and complete recovery is therefore assured, and it will be the earnest hope of all of us that it may be soon.—I am, etc.,

London, W.1, March 1.

CECIL ROWNTREE.

SIR,—Mr. James Phillips's remarks on deep x-ray and radium beam therapy (*Journal*, March 5, p. 538) are on a par with his statement that "ultra-violet rays produce senile changes." Can it be thought that the multitudes who travel every winter to Central Europe, the Riviera, and further south in search of the sun find the effect is senility? On the contrary, with few exceptions they return rejuvenated. Individual patients have a "dose limit" for x rays, radium, and sunlight, as they have for certain drugs; the history and clinical judgment should enable one to select cases suitable for full doses in an attempt to cure and cases suitable for milder palliative methods. I can recall patients treated with full courses of deep x rays many years ago for testicular and uterine primary malignant conditions who have not only not suffered but on the contrary are fit for their usual duties and are happy; at my weekly out-patients' follow-up department I see many cases in a state of normal health and good spirits. Not only the total dosage but the time factors in its administration and the methods used (for example, minimal dosage to normal parts) are of consequence, as are associated factors, such as the blood count, diet, exercise, etc.

Mr. Percy Furnivall has been unfortunate in having much pain following the implantation of radon seeds and deep x-ray therapy. In planning such combined treatments it is very difficult to judge the safety margin of total dosage; the intense caustic effect around radon seeds is apt to be followed by pain, still more so if the treatment is supplemented by full doses of deep x rays; hence the increased use in recent years of either deep x rays or tele-radium, without insertion of needles or seeds, for primary malignancy of the tongue and tonsil. Needles or seeds are reserved by many for small, highly resistant residues, or for late recurrences seen at an early stage.

Mr. Phillips seems to regard Mr. Furnivall's disability as due entirely to x rays, whereas it would seem primarily to be an unfortunate result of the insertion of radon seeds, as the local condition is now apparently a radium necrosis: "an ulcer with a wash-leather slough on it about the size of a penny piece where the original growth had been." Mr. Furnivall himself refers to his "radium neuritis and myalgia." "Not too much of anything" is a motto which must often be generously interpreted in

never hope to get another job if she loses her present one, and therefore becomes a time-server to hospital committees, which in many instances are still only too ready to economize at the expense of their nursing staff both in respect of numbers in relation to occupied beds and also as regards the way in which they are fed and housed. I think too that the General Nursing Council and or the College of Nursing should take to themselves greater powers, and pay at least half-yearly visits to recognized teaching hospitals to see that probationer nurses are properly cared for and not overworked.

I hope, Sir, that you will publish this letter and that it may serve to stimulate medical members of hospital committees to inquire more carefully into the conditions under which their nurses work.—I am, etc.,

Great Yarmouth, March 5.

R. LEONARD LEY.

Medical Secrecy and the Matrimonial Causes Act

SIR.—The first cases under the new Matrimonial Causes Act will shortly come before the Courts, and medical practitioners being to some extent affected by the provisions of the Act, it is interesting to examine the position. Evidence from medical practitioners will be required under Sections 2 (d) and 7 of this Act. Section 2 (d) provides that "a petition for divorce may be presented to the High Court . . . on the ground that the respondent is incurably of unsound mind, and has been continuously under care and treatment for a period of at least five years immediately preceding the presentation of the petition." As to whether a practitioner can say that any given person is "incurably of unsound mind" is of course for him to judge.

The real question affecting medical practitioners under this section of the Act is, Does the usual relationship of doctor and patient exist in such cases? It may be said that the patient does not voluntarily come to the doctor under whose care he or she will be, whether in a private or public institution. A patient is placed under the doctor's care by some person or authority who is responsible for the patient—whether it be a relation or a local authority matters little. It may be argued that the doctor is responsible not to the patient but to the person who employs him for the purpose of caring for the patient. In ordinary circumstances presumably a doctor without hesitation would give information regarding the health and prognosis of a patient to a husband or wife. Is, therefore, the extent of the information sought, or the purpose, a factor to be considered by a practitioner in giving or withholding information? It must be remembered that under the Act the interests of the patient in the event of a petition for divorce are safeguarded either by the patient's Receiver or the Official Solicitor, and the financial provisions of the old Act are made applicable to the new Act. Will the doctor, by giving such information, be committing a breach of professional secrecy? By refusing, he will be stultifying the law, particularly so far as poor persons are concerned, for the poor person will not be able to afford to requisition the services of a practitioner from outside the institution to examine the patient with a view to certifying, although those in more fortunate circumstances may be able to do so. Even in the latter case the outside practitioner could hardly form an opinion without being granted access to the records of the patient. It has been suggested that those practitioners working at municipal mental hospitals may seek to cover themselves by getting their visiting committees to direct them to give such

information. Even if it were desirable that practitioners should shelter from their responsibilities in this way, would it safeguard a practitioner from a charge of breach of patient's privilege?

Section 7 is easier. Under it, suits for nullity may be brought on the grounds that either party was at the time of the marriage of unsound mind or a mental defect within the meaning of the Mental Deficiency Acts, 1913 to 1927, or subject to recurrent fits of insanity or epilepsy, or at the time of the marriage suffering from venereal disease in a communicable form, or at the time of the marriage pregnant by some person other than the petitioner. Obviously, here a practitioner must not give information obtained as a result of professional attendance except with the consent of his patient or under the direction of a judge.

It may be said that it is not the business of the medical practitioner to obstruct the law; but before they facilitate the law practitioners are entitled to know that their own interests are not jeopardized. The questions above referred to are of considerable importance as they raise new problems on the much-discussed question of professional secrecy, and the opinions of your readers will be both interesting and valuable to those who are called upon to advise on these questions.—I am, etc.,

RICHARD W. DURAND,

Secretary, London and Counties Medical Protection Society, Ltd.

London, W.C.2, March 7.

The Population Question

SIR.—Dr. Grace Leybourne in the *Sociological Review*, 1934, estimated that there would be a drop between 1931 and 1951 of about four million children (from nine and a half millions to five and a half millions), of workers under 45 of about one million, and an increase of those persons above the age of 45 of about two and a half millions. This is because we have been doing everything to save and prolong life and nothing to encourage its reproduction. Suppose the drop in young and the increase in old people were not so large, even only half that estimated, it would cause a profound economic disturbance in the next fifteen years—think of the schools, training colleges, children's hospitals, the supply of girls as servants and factory hands, of errand boys, typists, and clerks, of miners and labourers, of soldiers, sailors, and air pilots. The Minister of Labour has warned us that there will be a shortage of youthful labour, and the Minister of Health that there will be vacant places in the schools. Who is to pay for the pensions of the increasing number of aged if the earnings of youth fall away?

All the democratic countries, except Canada and Eire, have a birth rate considerably below maintenance level; England, France, Austria, Sweden, Norway, one of 15 per 1,000 or less; U.S.A., Australia, and New Zealand, 17 per 1,000 or less. On the other hand, the birth rate in Italy is 22 per 1,000—fully maintenance level; Germany recently has raised her level from 14.7 to 19 per 1,000. Poland, Yugoslavia, and Rumania have birth rates still considerably above maintenance level: Turkey has added two and a half millions to her population in recent years; Japan, numbering seventy millions, increases by about a million a year. Russia's population is expected to increase from a hundred and fifty to two hundred and fifty millions in twenty years. India under our rule has put on some forty millions in ten years, and now has a population of four hundred millions. It is surely obvious that we cannot maintain the British Empire on a population falling

all his patients, except for two who have had some persistence of pain, and in resistant cases he carries out manipulation at more than one sitting.

The method of manipulation he describes is that "the scapula should be immobilized so far as possible by a band passing around the chest and held on the opposite side by the assistant. Forced shoulder movements must be brisk, and should be carried out in the normal planes of movement." Presumably there was no intention of giving a detailed description of the necessary manipulation of the joint, but the above two statements are obviously open to criticism. Fixation of the scapula by a band held by an assistant has always seemed to me impossible. Movement can be restricted almost entirely if the patient is placed on his face and the scapula held by an assistant, but as this is an uncomfortable position for the operator it is not recommended. Secondly, with regard to movement, it is not clear from Dr. Douthwaite's account if the manipulation should consist in the movements of flexion, extension, abduction, and adduction in the scapular plane only (Johnston, *Brit. J. Surg.*, 1937, 25, 252), or whether rotation is to be acquired by movement in the four directions mentioned.

In manipulating the shoulder the difficulty of fixation of the scapula and manipulation of the humerus on it can be overcome by reversing the procedure. The patient lies flat on his back with the affected side at the edge of the couch. The arm (and scapula) are abducted as fully as possible, the humerus is fixed by grasping the arm with one hand, and the axillary border of the scapula is pushed away from it by the operator's other hand with "brisk movements." This frees abduction. The patient's arm is then internally rotated while still in abduction and the scapula again moved. The arm is then externally rotated and again the scapula is moved. It is most important that the humerus should not be forcibly rotated on the glenoid, as complications, such as effusion into the joint or fracture of the neck of the humerus, are liable to occur in elderly patients.—I am, etc.,

London, W.1, Feb. 28.

ST. J. D. BUXTON.

Transport of Iron

SIR,—Reading the leading article with the above title on page 455 of your issue of February 26, I was a little disappointed to find no reference to the work of Dr. George Barkan, who has been experimenting and publishing papers relating to the subject for the last thirteen years, and who, in his last communication, in conjunction with Dr. Otto Schales,¹ was, I thought, particularly suggestive and inspiring. The issue of this paper was subsequent to the publication of the book and the two papers mentioned in your article, but it appeared in the early part of the current winter session.

One cannot cover the contents of such a paper in a short letter, but the following points are of interest in the matter of the "leicht abspalgbares Bluteisen," which one may dub the "loose iron" in the blood. The smaller and quantitatively more variable plasma fraction (originally called E¹, and now considered as a pseudo-methaemoglobin), since it appears derived from the larger corpuscular fraction (originally called E, and now considered as a pseudo-haemoglobin), I shall leave over just now, simply stating that the iron in it is supposed finally mostly to leave the corpuscle to become attached to the globulin of the plasma, thereby contributing to the sum of the iron in the plasma. Within the corpuscle oxidative rupture,

at one methine bonding of the porphyrin ring of haemoglobin, is supposed to lead to formation of a pseudo-haemoglobin, from which the iron becomes capable of extraction by weak acid (0.1 N). The deferrification of fraction E fails to yield a porphyrin. The opened porphyrin ring is supposed to yield bilirubin, and to contribute, after combination with serum albumin, to the plasma stock of that substance. The well-known reversible combination of the corpuscular substance yielding "loose iron" with both oxygen and carbon monoxide (the CO affinity said to be 800 to 2,000 times the O₂ affinity) is taken as related to the pseudo-haemoglobin structure, as also the paralysis of the weak acid extraction effect by carbon monoxide.

Barkan's present view, then, is that the substances yielding "loose iron" to weak acid are intermediates in the degradation of some of the haemoglobin of the corpuscle to bilirubin, and, on this idea, a constant slow passage of both iron and bilirubin into the plasma is occurring. The experiments detailed in the paper appear to me to withstand criticism, and I hope that the ideation may assist progress in knowledge of this matter.—I am, etc.,

Edinburgh, March 1.

E. W. REID.

Iron for Subnutrition

SIR,—I was interested in the article on the effect of iron administration in cases of subnutrition, by Drs. E. Blackstock and J. M. Ritchie of Birkenhead, which appeared in the *Journal* of March 5 (p. 512).

For at least ten years at the Heckmondwike School Clinic I have recommended ferri et ammon. cit. to parents whose children presented a clinical picture similar to that described therein. My results over this fairly long period entirely support the conclusions reached by the authors of the article.—I am, etc.,

G. H. PEARCE, M.D., M.R.C.P.,
Medical Officer of Health.

Batley, March 7.

The Shortage of Nurses

SIR,—I think that your readers will agree that the medical profession could not exist and function without the aid of the nursing profession. Yet I submit that we are doing little or nothing to avert the Nemesis that will shortly fall upon, and paralyse, at any rate the smaller hospitals. I refer, of course, to the great and growing difficulty of recruiting nurses. I am aware that an Interdepartmental Committee is dealing with the subject, but these Government committees work all too slowly.

The subject is a vast one, but the chief troubles seem to be the lack of financial inducement to enter the nursing profession, and, even more than this, the very bad advertisement given to the profession by the conditions which exist in many hospitals. Every year a larger and ever-growing section of the community is treated in hospital, and hospitals can no longer claim to be regarded as charitable institutions, yet nurses are still exhorted to consider their work as a vocation—"they give their services to the poor and needy," etc. Nurses could be and should be better paid. This would serve two purposes: first, it would encourage recruiting; secondly, and this is perhaps even more important, it would enable a properly constituted central authority to enforce a sufficiently large yearly levy on the nurse's salary to ensure an adequate retiring pension—say, at the age of 50. This would go a very long way towards eliminating that dreadful incubus of the profession, the ageing matron, who can

¹ *Z. physiol. Chem.*, 1937, 248, 96.

Asthma and Sensitivity to Aspirin

SIR.—The problems in connexion with asthma seem to reach their peak in the aspirin-sensitive type. As originally noted by Dr. Alexander Francis and mentioned by him in the *Journal* of February 26 (p. 485), these people usually suffer from nasal polypi. Why is this so?

Although the aspirin-sensitive type is by far the most severe type of asthma one sees, such patients never touch aspirin from one end of the year to the other, except by some gross misadventure. Their attacks are almost always precipitated by a cough. Again, quite unlike other asthmatics, they may have the most dreadful asthma each night, requiring five or more injections of adrenaline to check it; yet by day the chest may be perfectly free from all adventitious sounds. I have only seen twenty-three of these cases in the last 1,000 asthmatics, mostly in women. In the more recent cases there has been found a *Staphylococcus citreus* in the nose. Probably the polypi are a true allergic manifestation according to von Pirquet. The most recent cases of all have responded very satisfactorily to vaccine from this organism, given in minute doses. They belong to Group III, by the differential sedimentation test.

Another peculiarity of those sensitive to aspirin is that, whereas anaphylaxis in animals is shown by a definite syndrome affecting many parts of the animal, with aspirin only one "shock" organ seems to be affected in each patient. An overdose of dust or pollen produces urticaria, asthma, and sneezing, but aspirin will cause only asthma in one patient—even in the gravest forms, in which the patient becomes unconscious, there is no nettlerash. In another, aspirin always produces urticaria but never asthma. Another is sick, always sick, after aspirin, again without asthma or urticaria.

With regard to the treatment of the polypi, sufficient should be "removed" from time to time to keep the airway clear through the nose, possibly with some improvement to the sense of smell, but with no hope of improving the asthma and a fair chance of making it worse.—I am, etc.,

London, W.1, Feb. 28.

FRANK COKE, F.R.C.S.

Ascorbic Acid in Urine

SIR.—I was interested to learn from the paper by Drs. Fleming and Burrows that sulphuric acid has been found unsatisfactory as a preservative of ascorbic acid in urine. It is perhaps of interest to note that in the course of a series of vitamin C estimations at present being carried out at this station we also have had cause to reject this method of preserving the ascorbic acid content of urine, but on rather different grounds from those given by your contributors. Attempts were made to preserve the urines by adding 5 per cent. by volume of dilute sulphuric acid (B.P.) sufficient to lower the pH to between 3 and 4. It was found that even in the case of fresh urines consistently higher reducing values were obtained by this method than in the case of urines treated with acetic acid. We then found that if a solution of 5 per cent. dilute sulphuric acid were added to a dichlorophenolindophenol solution under the same conditions as those obtaining in the actual titrations the colour of the dye was slowly discharged, showing that the acid has a destructive effect upon the dye. For this reason the use of sulphuric acid as a preservative has been discontinued.—I am, etc.,

E. A. G. GOLDIE, M.B., B.Ch.,
Civilian Medical Practitioner, R.A.F.

Royal Air Force Station, Peterborough,
Feb. 22.

Somatic Pain

SIR.—I wonder how many of your readers were, like myself, thrilled to the core by Sir Thomas Lewis's article in the *Journal* of February 12 (p. 321) on the subject of somatic pain. We now know much more than ever before of skin, muscle, and "web" pain: is it too much to hope that further investigation may add an equally, and perhaps more, important contribution to our knowledge of joint pain? The most interesting joints from this point of view are presumably unapproachable—namely, the sacro-iliac, and inter-vertebral and costo-vertebral joints. But many others are easily accessible, and knowledge of the nature of pain radiating from these might increase our knowledge of what happens in those less accessible. I hope Sir Thomas will forgive the hint, and, equally, that he may be induced to act upon it. It would help to solve the unknown answer to the question, "How does joint manipulation relieve referred pain?" That it does so in many cases is beyond doubt. As this is so, is it not possible that the relief is due to cessation of irritation of the sympathetic nerve supply to the joint? Our whole conception of the connexions of the sympathetic nervous system might thus be expanded and clarified, and another step be taken to afford scientific explanation of a clinical fact, the mechanism of it being still hidden from us.

Of Mr. J. H. Kellgren's article (*Journal*, February 12, p. 325) it may be hoped that, read in conjunction with Sir Thomas Lewis's communication, it will lead to a long-established (though modified) therapeutic measure being more widely adopted. To practitioners of physical medicine and to many others the facts about the nodal points of muscular sensitiveness with which he deals are common knowledge. Let us hope this article will change the "hundreds" into thousands, and that much unnecessary pain and incapacity will thus be saved. Unfortunately, Mr. Kellgren appears to ignore the possibilities of pressures, frictions, and needling in the treatment of the "nodal points" from which pain is referred.

There is one notable omission in this paper. When searching for the point at which to give the injection it may be localized as a rule far more accurately by faradism than by pressure. Indeed, not infrequently acute sensitiveness to faradism of pin-point dimensions will reveal the appropriate spot even when pressure fails to elicit any sign of sensitiveness. Moreover, if the spot indicated by pressure does not coincide with that indicated by faradism, it is wise to select the latter as the site for injection. Sometimes the sensitive area from which pain is radiated is too diffuse for injection with novocain or for treatment by pressure. In this event a very brisk reaction dose of ultra-violet light may either clear up the condition without further treatment or suffice so to diminish the general sensitiveness that the nodal point can be localized by faradism to a nicety. Finally, when the area involved is really widespread, a subcutaneous injection of oxygen will often prove successful when all other methods have been tried and found wanting. It is particularly efficacious when pain is marked as a result of "skin rolling."

One last word. Is there anything really new about the injection treatment of these nodal points? Formerly treatment by "needling" was a favourite prescription. The red-hot needle gave way to needling without heat; this tended to die away until revived by the use of the galvanic needle; and now we—in the kindness of our hearts—use a local anaesthetic. Is it the anaesthetic nature of the material injected, or is it the needling, that "does the trick"? Perhaps Sir Thomas can help us with

off in youth and increasing the number of its aged. Is it not madness to spend colossal sums on social improvements and rearmament if heavy taxation leads to a fall in the birth rate, which saps the strength of the country, while the keeping alive of the aged takes away money which should enable the young to have children?—I am, etc.,

St. John Clinic, Feb. 28.

LEONARD HILL.

Contraceptives and Fertility

SIR,—Not without reason did the ancients name the delicate arrangement of the ciliated epithelium of the cervix *arbor vitae*, a tree that the National Birth Control Association and its satellites would destroy root and branch in their adherence to, and advocacy of, highly acid chemicals and the application by septic fingers of various caps before or in the early days of matrimony. Quite apart from ethical, religious, or sociological reasons, surely they do not maintain that such fronded epithelium is likely to be unaffected by these irritants, and will accept the conclusive evidence and experience of Gardner Child (*Sterility and Conception*, p. 89); Beckwith Whitehouse (fourth edition of Eden and Lockyer's *Gynaecology*, p. 429); Blair-Bell (*Principles of Gynaecology*, p. 336); Meaker (*Human Sterility*, pp. 39 and 125); and others that such irritation gives rise to conditions which "make the endocervical mucus inimical to spermatozoa by creating a viscosity—such viscosity is a hostile factor, in that viscid secretions impose a barrier which spermatozoa are rarely able to surmount" (Meaker).

It was this condition which Mr. George H. Alabaster referred to and which goes on to the erosion and endocervicitis which is so commonly seen in patients who use contraceptives. Since the social, economic, and imperial policy of this country depends upon an increasing rather than a decreasing population, surely the promiscuous donation of advice to nulliparous young women is anti-social, however good the reasons may be for giving the same advice to parous women who wish to space their children. Only such advice, I understand, is given in the clinics of the Constructive Birth Control Society. Admittedly the problem is a thorny one, but it is not without interest to observe that orthodox Jewesses and Roman Catholics in the absence of hypoplasia are rarely found to be sterile. Why?—I am, etc.,

London, W.1. Feb. 25.

V. B. GREEN-ARMYTAGUE.

Miners' Nystagmus

SIR.—In your article (*Journal*, February 26, p. 465) which deals with the Departmental Report on Miners' Nystagmus you refer to my view that failure to work is caused by the breakdown of the man's ability to withstand the stresses of the mine—poor illumination and danger—and in contrast to this you go on to state that "in a large number of cases disablement is entirely due to ocular movements and the man is otherwise well."

I am very familiar with cases in which, at first sight, this may appear to be the case, but must point out that the observation that the man is "otherwise well," like every other observed fact, involves two elements—a fact, and an observer. It has been my experience that sufficiently prolonged and careful interrogation of these cases discloses that, with very rare exceptions, the apparently "well" man is the victim of a neurosis which arises either from the conditions of his employment or from some economic or domestic source. So often is this

search for neurosis successful, that one is tempted to think that in the remaining cases it may be the observer who fails rather than the neurosis which is absent. This view largely endorses the findings of Professor Millais Culpin, who has reported a series of thirty-six cases and whose further findings were outlined in a paper to the Royal Society of Medicine in 1933.

But even if it be taken that the pathogenesis of the ocular movements is itself physical and not psychological (personally I have an open mind on this point), I suggest that there is an extremely close relationship between the severity and distress on the one hand and the emotional state on the other, and I suggest that the determining factor in failure to work is psychological.

In one of my cases it was impossible to induce oscillation by any of the recognized means until, unexpectedly, a whistle in a speaking tube close to the man was loudly blown from an upstairs office. The man then gave a start and at once began to display oscillation.

In another case, a man aged 38, who appeared "well" apart from his eye movements, ultimately imparted the following information, which was only elicited with great difficulty and was not uppermost in his conscious thought. When he was 15 years old he had been walking along by himself in the mine when he had come across the body of a man who had been trapped and killed under a fall. This, he said, had upset him, but he had not allowed anyone to see how he felt, and had afterwards continued his work. More recently another man working in his proximity had received a seriously crushed back. The man's further statement—"As soon as I go down the pit I am finished straight"—was possibly associated with his mental state, and to describe a man as being, apart from eye movements, "otherwise well" would, I submit, constitute an incomplete observation of fact.

I further submit that the statistics quoted in my paper also indicate an important mental influence of economic factors.

Thirdly, among fifteen collieries of North Wales, one, and one only, remained completely free from certified cases of nystagmus during the ten-year period of my observations. This pit was not better lit than the others, though it used a good type of spirit lamp. There were no features which strikingly distinguished this pit from the others in the coal-field, except that the incidence of accident was extremely low. It was also noticeable that the ventilation system was particularly good, the seams were high, and also there was a particularly happy relationship between employer and employed; but it should also be said that this mine was situated at a considerable distance from all the others in the field and did not absorb many men leaving the other pits. It had been reported that some of the men in this mine did in fact show oscillation of the eyes, but the fact remains that no cases of disablement were recorded throughout the decade. The factors distinguishing this pit from the others were those capable of exerting a psychological rather than a physical effect.

It is not clear from the account in the *Journal* whether the Departmental Committee has followed the suggestion of the B.M.A. Committee in the particular mentioned on page 9 of the latter's report—namely, that the Medical Board should include "a physician with some knowledge of psychological medicine." If this advice has not been followed, it appears most regrettable. Personally I would have liked to hear that the Board would consist of a consultant psychologist and a physician with some special knowledge of the processes of mining; for I submit the general indications are that disability from the disorder does not particularly concern the department of the oculist.—I am, etc.,

Wrexham, March 2.

RAYMOND BROCK.

complaining of any ill effects he was put to bed and regarded as suffering from influenza. His temperature, however, continued to rise each day to 102° F. or 103° F., and since there appeared to be no change in his condition I was asked to see him after he had been in bed ten days. His temperature was then 102° F., but apart from this no physical signs were to be elicited.

On the strength of the history and the paucity of clinical findings I made a tentative diagnosis of a *Br. abortus* infection, and immediately started the patient on one tablet of prontosil album four-hourly. His blood was examined by Professor W. J. Wilson of Belfast, who reported that agglutination occurred with *Br. abortus* up to 1 in 2,500. After twelve days the temperature remained below 100° F., and the dose of prontosil was then reduced to one tablet eight-hourly; this was maintained for a further ten days. By this time the temperature was only rising to 99° F. every second or third day. The prontosil was then discontinued, and after four more days the temperature remained normal. At no time was the spleen palpable. Including the ten days that elapsed before I saw him the illness lasted altogether approximately five weeks, which is, I think, sufficiently short of the usual period to be noteworthy. In this case there was no sudden fall in temperature, such as Dr. Lloyd and Dr. Matthews have reported. The temperature, which was recorded four-hourly, gradually stepped down over a period of twenty-two days.

There is an impression among many medical men that drugs belonging to the sulphonamide group are highly toxic. It is interesting to note that a boy of 10 years took 675 grains of prontosil album in twenty-two days without showing any ill effects. The usual precautions regarding (a) sulphur intake and (b) agranulocytosis were of course taken.

On another aspect of this disease I would welcome information. I have a friend who a few years ago suffered from abortus fever for seven months. He would willingly have given his serum for use in this case. I have been unable to find out whether such serum has been used before. I have since heard, however, of a case of abortus fever which was admitted to a hospital in Belfast some years ago. This patient ran the usual temperature for about three weeks. He then accidentally got an injection of "normal cow serum," and from the following day his temperature remained normal. The doctor who told me of this case thinks that possibly the serum had been obtained from a cow which had recovered from abortus fever. As I now have two sources from which I can obtain serum I should be very glad to know if it has been previously used.—I am, etc.,

Lisburn, March 3.

W. A. PAGE, M.D.

Time for Midwifery

SIR,—Dr. John Elam (*Journal*, February 26, p. 485) is wrong in suggesting that I have not studied the Maternal Mortality Report for 1937. I have studied all the recent reports on that subject, and the more I study them the more convinced I am that my suggestion regarding the postgraduate training of practitioners who intend to practise midwifery is correct. How many of us would trust our wives to a man who had no more experience of midwifery than he had gained during his student days? There is a difference between "want of time" and "want of taking time." The man who has not enough time for midwifery should not practise it. There is no excuse for "not taking time." A man who has a sound training in midwifery will understand that parturition is a normal

physiological process and that the less it is interfered with the better. He will not let himself be hurried into interference either by the patient, her friends, or his golf appointment. He will know how to diagnose a position correctly, and when and how to apply forceps. "Failed forceps" cases will become less frequent. I do not agree with Dr. Elam that the conduct of the normal confinement is best left in the hands of the competent midwife. Two years ago my son was engaged to attend a woman. He diagnosed a breech position. The midwife (competent according to the health authorities) told the woman that my son was wrong. The result was that my son received a note cancelling the engagement. Time proved him correct. A year or two ago a patient of mine returned from a municipal home with a complete perineal tear. She had not been seen by a doctor. My partner tells me he has seen five other cases of the same kind in the last three years.—I am, etc.,

Birmingham, Feb. 26.

ROBERT ANDERSON.

SIR,—With reference to Dr. Elam's letters I am of the opinion that medical women are not always the best to attend obstetric cases, nor do I agree that they have more time at their disposal than men. In this county we have a very large number of well-informed medical men who practised obstetrics long before a county hospital service was available. They have done magnificent service in the past and have welcomed our hospital and emergency services.

I am also of the opinion that no man can efficiently practise his calling without having had sufficient training. The medical student of to-day has not enough obstetrical experience, though material available in many of our municipal maternity hospitals is not being utilized to anything like its full extent. The recently qualified man who has gone into practice on his own without having obtained sufficient experience in obstetrics is the one who is likely to find himself in difficulties. I can sympathize with this young man, who admits failure in the eyes of his patient if he calls in an experienced practitioner. The new Maternity Services (Scotland) Act, 1937, provides for a domiciliary service. Those who are to carry out the provisions of the Act must have a sufficient knowledge gained either before or immediately after graduation.—I am, etc.,

County Maternity Hospital,
Lanark, Feb. 28.

H. J. THOMSON.

Founders of British Otology

SIR,—It has afforded me great pleasure to read in the *Journal* of February 26 (p. 464) a recognition of the debt which British otology owes to James Yearsley, who is justly entitled to be considered as the first Englishman to establish our special branch of surgery upon a sound clinical basis. In an article on the foundations of British otology, published in the *Journal of Laryngology* for August, 1913, I pointed out that "at least six great names must endure as inseparable from the rise and growth of British otology—William Harvey, John Hinton, George Pilcher, Joseph Toynbee, William Wilde, and James Yearsley"—and I insisted that the work of the last-named foreshadowed much of what is the basis of modern treatment and prevention, because it was he who first stressed the connexion between deafness and diseases of the nasopharynx. He was the first to advocate the removal of tonsils (he removed those of my own father), and he nearly discovered adenoids. The soundness of his doctrines is to be found in his written works. The Yearsley family is an old one, and my tree goes direct

the answer. Certain it is that, when injection has failed, injection followed by a very free "needling" throughout the injected area will bring relief, and particularly if the area is subjected to a process of (not too vigorous) hammering of the area by blows from a mallet transmitted through a rod of wood protected by a felt pad.* Whether this treatment forces the injected fluid away from the spot "hammered" with sufficient force to stretch any adhesions that may have formed round the nodal point is a matter for speculation. The fact remains—it works.—I am, etc.,

London, W.1, Feb. 25.

JAMES MENNELL.

P.S.—Another problem for Sir Thomas Lewis. Can he tell us how the reaction dose of ultra-violet light diminishes sensitiveness? Is it due to chemical action and perhaps the formation of histamine?—J. M.

Referred Pains Arising from Muscle

SIR,—During the past two years I have used novocain injections in treating muscle, bone, and joint injuries. I therefore read Mr. J. H. Kellgren's article in the *Journal* of February 12 (p. 325) with great interest, and I should like to congratulate him on the careful and accurate recording of his cases. I have described the results obtained with this method of treatment in the *Journal of the Royal Naval Medical Service* (January, 1938, p. 48), and also recorded my finding that the results in cases of shoulder injury are very uncertain, this being almost certainly due, as Mr. Kellgren has shown, to the fact that referred and "true" pain are confused by the patient. With such careful records as Mr. Kellgren has kept this difficulty should soon be overcome. Mr. Kellgren has confined his article to muscle pains, but it has been found that bone, joint, and muscle injuries can all be relieved by novocain. I think that the discovery of this method of treatment should be credited to Professor René Leriche of Strasbourg, who as long ago as 1928 described this method in the treatment of sprains, and has since extended its application (*La Presse Médicale*, 1930, No. 25).—I am, etc.,

Dundee, Feb. 27.

WALTER GORDON CAMPBELL.

Chronic Littritis

SIR,—Dr. R. C. Webster is to be commended for directing attention, in his paper on chronic littritis (February 26, p. 448), to the dangers associated with the use of the hand syringe in the treatment of acute gonococcal urethritis. While in full agreement with this conclusion, I find it difficult to accept the pressure theory by which he explains this fact. He admits that the use of unusual, or too concentrated, solutions as irrigating media tends to produce chronic littritis, and this statement cannot be reconciled with the pressure theory advanced. It is inconceivable that the glands of Littre and the ducts leading from them to the urethra escape infection in acute urethritis, in spite of any valve-like action which might be postulated for the ducts in virtue of their tortuous path from the submucous layer to their openings on the surface of the urethral mucosa. I therefore submit that acute infection of the glands of Littre in varying degree is commonly associated with acute urethritis, and I believe that the production of chronic littritis, assuming a normal resistance on the part of the patient, is dependent on failure to promote and maintain adequate drainage of the infected glands and ducts. This failure

* Reference is made in the issue of February 26 (p. 488) by Dr. Stuart Goldhurst to the efficacy of this treatment as described by Dr. T. Stacey Wilson.

may arise through several causes, which include improper irrigation whereby the potential space of the urethra is insufficiently, or too seldom, adequately dilated, and also premature closing of the ducts consequent on fibrosis due to the use of too concentrated irrigating solutions, a second infection of the urethra, or unusually rapid resolution of the inflammation which, in some cases, may follow the use of the sulphonamide preparations. The prevention of chronic littritis therefore depends on the institution as early in the disease as possible of regular irrigations, using the proper concentration of a suitable solution at the optimum temperature (105° F.), and on ensuring that the correct technique of douche-can and nozzle irrigation has been demonstrated to, and is being practised by, the patient. Urethral lavage with the hand syringe cannot hope to achieve an adequate and even dilatation, nor can the irrigating fluid be maintained at the correct temperature.

The following figures from cases recently treated in Liverpool appear to support these views. In 132 patients with gonorrhoea chronic littritis developed in eleven; two gave a history of previous gonorrhoea, one reported for treatment six weeks after the appearance of the discharge, one had irrigated with a douche can at home without instruction or observation, one had difficulty in irrigating satisfactorily due to severe phimosis, and two had used a hand syringe. Again, of twenty-five cases of acute urethritis in which irrigations and sulphonamide were used concurrently from the beginning of treatment, twelve developed persistent chronic anterior urethritis; but of fifty-three cases in which sulphonamide was given after the patients had been irrigating for about a fortnight, only five developed chronic anterior urethritis. In all cases gonococci were demonstrated and syphilis excluded, and the diagnosis of chronic littritis was based on the persistent presence of threads in the first glass of the two-glass test, with palpable Littre's glands in cases in which the urine had been clear and the prostate and vesicles free from pus cells.—I am, etc.,

Liverpool, March 1.

SYDNEY M. LAIRD.

Treatment of Boils and Carbuncles

SIR,—I was much interested in Mr. John Hosford's article (February 19, p. 400). I have treated boils and carbuncles successfully by means of short-wave diathermy, and I think that this method deserves some recognition. The machine I use has a 6-metre wave-length, and I find that one treatment lasting five or seven minutes is sufficient to abort a boil in the early stages. If it is more advanced matters are brought to a head within about eight hours. I have also used x-ray therapy for boils, employing voltages varying from 90 kV up to 200 kV, delivering 200 r at the surface of the lesion. Short-wave diathermy is much more certain in its results. Carbuncles may require one or two treatments, but even large sloughing areas, 10 cm. or more in diameter, will respond to the treatment.—I am, etc.,

Glasgow, March 2.

S. D. SCOTT PARK.

Br. abortus Infection Treated by Sulphanilamide

SIR,—I should like to add the report of a third case of *Br. abortus* infection to those already described in the *Journal* by Dr. J. H. Lloyd (January 15, p. 145) and Dr. N. Matthews (February 26, p. 483). In January I was asked to see a boy aged 10. His mother had noticed that he was looking pale and out of sorts, and found that he had a temperature of 102° F.; as he was not

whose historic Minster he had been a member of the Governing Corporation under the foundation of Queen Elizabeth for many years.

Sir Kaye Le Fleming writes:

Batterbury was one of the last of what may be termed the old school of general practitioners. The advance of medicine and social evolution have made their mark on the conduct of medical practice more deeply in the last half-century than perhaps in any similar period of time. Beginning his career as a country practitioner, driving in all weather over rough country roads intersected by turnpike gates, Batterbury saw the introduction and steady development of modern surgery. Stage by stage he witnessed the advent of local hospitals, the discovery of x rays, the development of bacteriology with the use of vaccines and sera. The bicycle, telephone, and, later, motor cars replaced the messenger on foot or horseback, and relieved much of the physical strain of the country doctor's life. Such a life was bound to develop a fine clinical sense, which was the admiration of all his colleagues and the envy of not a few. Batterbury's quiet confidence and self-reliance and his outstanding knowledge of his work soon established him as the leading doctor of the district, and founded the large practice to which he devoted his whole life. He was the trusted colleague and loyal partner in the large firm which now carries on the practice. His single-hearted devotion to his work, and the large claims which it exacted, left him little time for outside interests except in the field of Masonry.

Always a staunch supporter of the B.M.A., he was president of the Dorset and West Hants Branch in 1889 and a regular attendant at its meetings, and gave every encouragement to the writer to serve the Association. He also held office as chairman of the Bournemouth Division in 1922-3. He was the perfect partner, wise in his counsel, rich in the wisdom of experience, sound and safe in consultation, and I look back with happy memory on a partnership of thirty-five years devoid of a single disagreement or misunderstanding. The great traditions of our profession were safe in his hands, and to men like Batterbury the whole profession owes a debt of gratitude too little recognized but none the less outstanding.

JOHN FREDERICK WALKER, M.B., J.P.

By the death of Mr. J. F. Walker, at the age of 63, on February 27, following an operation at the London Hospital, the British Medical Association loses a keen worker and loyal supporter and the borough of Southend-on-Sea a useful citizen and much respected and loved practitioner. In both these spheres of his activities his outstanding personality came to the fore at a comparatively early age.

Born in London, he was educated at King Henry VIII School, Coventry, and at the City of London School, where the early signs of his future oratorical powers were recognized by the award of the John Carpenter medal for elocution. From school he took up his medical studies at the London Hospital, where he was Buxton scholar and held the post of house-physician. While at hospital he was a keen association football player, and he was always proud of the fact that it was during his secretaryship of the club that "The London" won the inter-hospital cup for the first time in its history. In 1903 he settled in partnership at Southend-on-Sea, and it was here that his life's work lay. He soon acquired a reputation as the best type of family practitioner—

friend as well as medical adviser. His influence in civic affairs, particularly as they affected the local profession, was soon felt, and as honorary secretary of the South Essex Division of the Association he played an important part in the negotiations in connexion with the newly introduced National Health Insurance Act. In 1925 he was appointed to the Commission of the Peace for the borough. He also held the appointment of police surgeon, being the first to hold that post on the creation of the Borough Constabulary in 1913.

Walker's work for the Association was not confined to the South Essex Division, and in 1924-5 he was elected to the Council, and again in 1930-1. He was first chairman of the newly formed Charities Committee in 1925, and remained a member until 1935. He was particularly keen on this branch of the Association's work, and organized a plan for the collection of funds in the South Essex Division which might well be taken as a model by many other Divisions. He represented the Division at the Annual Representative Meetings in 1912, 1913, 1919, and 1925, and served on many other committees and sub-committees at headquarters. He was chairman of the Division in 1926, and at the time of his death was president of the Essex Branch. During the latter part of the war he became visitor for the Central Medical War Committee, with the rank of Deputy Commissioner of Medical Services, under the Ministry of National Service, and his services received special commendation in a minute passed by the General Purposes Subcommittee on November 27, 1918. From 1929 to 1933 he was a member of the Ministry of Health Joint Advisory Committee on Disciplinary Procedure.

In spite of his many activities he found time for recreation, and although taking to the game fairly late in his life he became a golfer of no mean order. Twice, in 1927 and 1933, he was elected captain of the Rochford Hundred Golf Club, and at the time of his death was one of its trustees. It was a bitter blow to him when arthritis of the hip, which attacked him in the last few years of his life, compelled him to give up the game about which he was so keen. All his life a staunch Conservative, he took a great interest in politics, and in 1935 he was elected chairman of the Southend-on-Sea Conservative Association. Here his powers of oratory were used to great effect, and in this sphere particularly his place will not easily be filled. As an after-dinner speaker and witty raconteur he earned a reputation second to none in the district.

He possessed a very human heart and a very sound judgment, and he will be greatly missed, not only by a wide circle of friends but by many devoted patients, and not least by his professional brethren in South Essex, to whom advice, so often sought, was always so freely given.

Dr. WILLIAM ALEXANDER YOUNG of Mukden died at his home in Edinburgh on February 20, aged 64. He graduated M.B., C.M. at Edinburgh University when 21. These are bald facts concerning an unusually brave and capable man of whom our profession has reason to be proud but of whom it knew little because he always shunned the limelight. A son of the manse, he went straight after graduation to the mission field in Manchuria, and after his thirty-three years' work there became a recognized authority on Chinese affairs. Because of the Boxer rising in 1900, in which he was stoned and nearly lost his life, he joined the Navy for a year, but returned to Mukden in 1902. During its siege in the Russo-Japanese War he succeeded in evacuating from it a party of friends, but returned to it for the sake of the refugees, and nearly died of typhus fever rampant there. He then worked at two

through the male line to the Wars of the Roses. Our ancestor, who held manors in Yorkshire, was an officer of the Wardrobe of King Henry VI. From him came the Gloucestershire branch, and in this branch James Yearsley was a first cousin to my grandfather (also a James), the latter belonging to the senior line. The tree shows descent in the male line from the Yorkshire Yearsley above mentioned through fifteen generations to my own son. James Yearsley was a man of fine presence and ready wit, and there are many amusing stories of him.—I am, etc.,

London, W.1, March 1. MACLEOD YEARSLEY, F.R.C.S.

Obituary

HAROLD SIMMONS, M.B., B.S.

Consulting Surgeon, Royal Victoria and West Hants Hospital, Bournemouth

We have to record with much regret the death on February 22 of Dr. Harold Simmons of Bournemouth. Although in his seventy-sixth year he had continued in the active work of an extensive general medical practice, doing a full day's work with keenness and enthusiasm, until illness laid him aside a fortnight or so before his death. He had qualified L.S.A. in 1884, M.R.C.S. in 1885, L.R.C.P.Lond. in 1887. In 1894 he proceeded to the M.B., B.S.Durh.; in 1895 to the D.P.H. of the English Conjoint Board. He was a student of the Bristol Medical School and of the Middlesex Hospital. Before settling in practice he occupied the posts of house-physician at the Middlesex Hospital, resident medical officer at the Royal Hospital for Diseases of the Chest, City Road, and assistant medical superintendent of the Fulham Infirmary. For an interval he acted as medical officer on ships of the Union Castle and P. and O. shipping lines.



Dr. Simmons had practised in Bournemouth for forty years, being for the greater part of that time associated with the Royal

Victoria and West Hants Hospital, first as assistant surgeon, which post he resigned shortly after the war, being then appointed a consulting surgeon to the institution. Before the amalgamation of the Royal Victoria Hospital, Poole Road, with the Boscombe Hospital he was medical officer to the out-patient department of the former. During his long association with the hospital he took an active part not only in the professional side of his work but also in the management of its affairs. Up to the last he was a member of the house committee and of the medical council, to both of which he frequently contributed from his wisdom and long experience. Soon after qualifying he became a member of the British Medical Association, and he had been chairman of the Bournemouth Division. He was a member of the Bournemouth Medical Society; and from the start of the movement was a keen, attentive Rotarian. An enthusiastic motorist, he was one of the original members of the Hampshire Automobile Club founded in the year 1906, being honorary treasurer of the Southern Division of the club. For a great many years Harold Simmons was police surgeon for the County Borough, being frequently called upon in the

course of his work to give medical evidence in the cause of justice. As a police witness he was exact, thorough quite unprejudiced; could always be relied on to adhere to facts and, when called on, to offer expert medical guidance which was scientific, just, and eminently fair. What will, perhaps, remain as a delightful memory to friends and colleagues alike was the unfailing sense of humour which he possessed as well as the wisdom he brought to bear in all his relations with his colleagues—by whom he was held in the highest respect. At the funeral service former patients joined with members of the medical profession, representatives of motoring organizations and of public bodies to pay their grateful tribute to his memory. The esteem in which he was held was evident from the great number who attended, many in advanced years. Much sympathy will be felt for his widow, who had been his constant companion and help for more than forty years, and for his daughter and his son, himself in medical practice in Bournemouth.

S. W. S.

Dr. L. A. Weatherly writes: I first knew Harold Simmons some fifty-five years ago when he was a student at the Royal Infirmary, Bristol, near which I had then been in practice some twelve years. Thirty-one years ago, when I came to Bournemouth, he was one of seven medical men who gave me a kindly and helpful welcome. They were all my juniors and all are now gone except one. During those thirty-one years I have frequently met Harold Simmons. We have never had an unfriendly word, and if I were asked to give my opinion of him as a medical practitioner I, with all sincerity, should say that from my experience of him I looked upon Harold Simmons as the embodiment of medical ethical integrity.

The Rev. W. Yorke Batley writes: My friend Harold Simmons was a representative type of the old-fashioned family doctor, which is perhaps becoming rarer in these days of specialized scientific medicine. As a doctor he was concerned not only with the particular ailment but with the whole personality of his patients, and all his knowledge and his sympathy were ungrudgingly offered them. The consequence was that, as they often put it, they really felt better when he visited them. Speaking as a layman I should say that his cheery, expansive personality, combined with a real clinical flair and an intense personal interest in his patients, gained and kept for him their complete confidence and persistent affection. He retained an open and receptive mind to modern medical and scientific developments to the very end of his long life. Every year he attended refresher courses at the Middlesex Hospital. His profession was his hobby as well as his livelihood, and he dreaded the coming of a time of retired leisure.

GEORGE HENRY BATTERBURY, M.D.

We regret to announce the death on March 3 of George Henry Batterbury of Wimborne after a period of sixty years' practice in that town. Born in 1850, he was educated at King's College, London, and entered the Medical School in 1869, where he had a distinguished career as Warneford prizeman and senior scholar. Taking his M.R.C.S. in 1873, he was house-physician in 1874 and medical registrar in 1875. In the London M.B. examination of the same year he was awarded the University scholarship and gold medal in medicine and the gold medal in obstetrics. From hospital he went direct to Wimborne, where the rest of his life was spent. The funeral service was held on March 7 at Wimborne, of

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on February 26 the following medical degrees were conferred:

D.M.—G. R. P. Aldred-Brown (*in absentia*), J. Wright.
B.M.—D. M. T. Gairdner.

UNIVERSITY OF CAMBRIDGE

Professor William Lawrence Bragg, D.Sc., F.R.S., has been elected to the Cavendish Chair of Experimental Physics in succession to the late Lord Rutherford. Professor Bragg is the son of Sir William Bragg, O.M., P.R.S., and held the Langworthy Chair of Physics in the University of Manchester from 1919 to 1937, when he was appointed Director of the National Physical Laboratory.

The following have been examined and approved for the degree of M.Chir.: P. H. R. Ghey, D. N. Matthews, W. F. Nicholson.

UNIVERSITY OF LEEDS

Dr. W. E. Adams has been appointed Lecturer in Histology.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—P. H. Beamish, G. H. L. Bullmore, P. C. Conran, A. W. Frankland, S. J. Nathan, J. R. Rose.

MEDICINE.—F. E. Buckler, E. E. Bullock, G. G. O. Evans, J. B. Good, M. W. Hemans, I. M. Monare, B. Oppenheim, E. S. Reed, A. T. Rogers, G. L. Young.

FORENSIC MEDICINE.—A. Backman, F. E. Buckler, E. E. Bullock, J. B. Good, M. W. Hemans, B. Oppenheim, E. S. Reed, A. T. Rogers, G. L. Young.

MIDWIFERY.—P. H. Beamish, G. E. N. Bird, F. P. S. Malone-Barrett, B. Oppenheim, A. Smith, B. W. S. Spurgin.

The Diploma of the Society has been granted to P. H. Beamish, E. E. Bullock, G. G. O. Evans, A. W. Frankland, J. B. Good, S. J. Nathan, E. S. Reed, A. T. Rogers, and G. L. Young.

The Services

HONORARY PHYSICIAN TO THE KING

Air Commodore Harold Edward Whittingham, C.B.E., has been appointed an Honorary Physician to the King, vice Air Vice-Marshal Sir Alfred William Iredell, K.B.E., C.B., who has relinquished his appointment on retirement.

DEATHS IN THE SERVICES

Surgeon Captain EDMUND CORCORAN, R.N. (ret.), died at Devonport on February 24, aged 79. He was educated in the school of the Royal College of Surgeons in Ireland at Dublin, and took the L.R.C.P. and S.I. in 1880. He entered the Royal Navy soon afterwards, attained the rank of fleet surgeon on February 11, 1900, and surgeon captain on January 6, 1914. He served through the war of 1914-18, receiving the medals. He was in receipt of a Greenwich Hospital pension.

Squadron Leader DAVID EDMUND STODART, D.S.O., D.F.C., R.A.F. (ret.), died at Brighton on February 26, aged 55. He was born in Victoria, Australia, on July 31, 1882, the son of D. E. Stodart, J.P., and was educated at Edinburgh University, where he graduated M.B., Ch.B. in 1910, studying afterwards in the Middlesex and London Hospitals. In 1912 he took up flying, and was appointed second lieutenant in the Royal Flying Corps, Special Reserve, on May 17, 1913. In February, 1914, he was appointed Flying Officer in the R.F.C., and went to France with No. 3 Squadron in August, 1914. He served throughout the war, chiefly in France, later at Aden and in India; was thrice mentioned in dispatches, and received first the Distinguished Flying Cross and later the

D.S.O. The latter award was recorded in the *London Gazette* of September 21, 1918, when it was stated that, while in command of a flight of the Royal Air Force, all the other officers in the flight were incapacitated through sickness or wounds, and he carried out their duties in addition to his own administrative work as commanding officer. "In a period of twenty-one days this officer was thirty-seven hours in the air, performing all the duties of an entire flight, a record which it would be difficult to surpass." He was placed on the retired list on March 1, 1931, and became assistant physician in the dermatology department of the Middlesex Hospital. In 1934 he competed in an air race to Melbourne, coming in sixth.

Medico-Legal

THE DEFENCE OF INSANITY

From time to time the criminal courts remind us of the wide gap that exists between the legal view of insanity and the knowledge gained by psychiatrists in the century which has elapsed since the formulation of the "rules in M'Naghten's case." A man recently charged at the Old Bailey with the murder of an elderly woman in a fit of temper pleaded that he was insane when he did the act. The evidence showed that he gave himself up, saying that he had killed two women, and confessed that after he had killed the elder a girl of 12 had come in and he had tied her up and stabbed her with a sharp poker. (He was not charged with the second crime.) His conduct had been peculiar, and one of his grandmothers had died insane. The medical officer of the prison said that the man was sane, and that he could not tell whether he had been sane or insane at the time of the offence. Dr. Denis Carroll said that he thought the man would be certifiably insane in about a year. Lord Hewart, the Lord Chief Justice, said in his summing-up that few things surprised him more than the apparent levity with which juries were sometimes asked to find a fellow creature insane, with all the consequences which being found to be a criminal lunatic involved. (The consequences of being found to be a sane murderer are different but not more desirable.) The same defence was raised by the "Felixstowe" murderer, the mate of a barge who shot his skipper. Counsel on his behalf sought to prove that he was suffering from *mania à potu*, or acute insanity due to a drinking bout. Lord Hewart, as president of the Court of Criminal Appeal, said on February 21 that the defence of insanity requires three things: (1) that at the material time the offender was suffering from a disease of the mind; (2) that because of that disease of the mind he was suffering from a defect of reason; and (3) that because of that defect he either did not know the nature of his acts or did not know that they were wrong. In the Felixstowe case, he said, the so-called defence of insanity did not even begin to establish any one of those three things.

Without the whole of the evidence before us it would be improper even to hint that a wrong decision was reached in either of these cases. The Lord Chief Justice is frequently reported as demolishing the insanity defence with the hard cudgel of the M'Naghten rules. This is his duty, and in doing it he invariably displays absolute fairness. It does, however, seem anomalous that the law of criminal responsibility should leave out of account altogether the grave contributions which mental disorder makes to the commission of an act of violence, and the extent to which it often destroys real responsibility without bringing the patient within the M'Naghten rules. To the enlightened medical mind of to-day the act of murder is more often than not the culminating explosion, or crisis, of a long series of events for which the murderer is only in part, and sometimes hardly at all, responsible. Our civilization has not yet quite grown out of retributive human sacrifice.

branch hospitals and travelled widely in Manchuria doing dispensary work, and in 1915 joined the staff of Mukden Medical College, founded by Dr. Christie, as many younger men had left for the great war. Again in 1922 he risked his life in an endeavour to stop the civil war between North and South China—and succeeded. On Christie's retirement he became manager of Mukden College, and there lectured on public health, a job for which he had qualified himself by taking his D.P.H. while on furlough in 1911. Under him the College steadily expanded, and when he came home a few years ago for the sake of his children's education he succeeded Christie as secretary to the College. He was untiring and resourceful in his efforts for it, bought an old motor car for £20 and travelled the length and breadth of Scotland on behalf of the Manchurian work, and was specially pleased when he got the licensing bodies at home to recognize Mukden Medical College as an authorized teaching institution for students. He had a statesmanlike vision, and it was no surprise to his intimates that he became special correspondent for the *Manchester Guardian*, and was employed to lecture on Far Eastern affairs to the four Scottish universities. For the latter purpose he made ingenious jigsaw maps of his own design. By his later lectures he raised more than the £4,000 required for the Christie Memorial Chair. But his heart was in Manchuria, and, perhaps all the more because he bemoaned the seizure of the country by the Japanese, he had made up his mind last year to return to the beloved land of his adoption. Notwithstanding the great gifts for which all admired him, and his forceful personality, he was the humblest of men.—J. A.

Dr. JOHN YOUNG MACFADYEN, M.B.E., who died suddenly at the age of 56 on Christmas Eve, 1937, in Charlottetown, had been for the last twenty years a prominent resident in the British West Indies. He was a graduate of Prince of Wales College and Queen's University, and had served for twenty years as medical officer in the Colonial Service in the British West Indies, residing latterly on the island of Nevis. On several occasions he had acted as Colonial Administrator, and in recognition of his services he was created M.B.E. in the New Year Honours in 1930. Dr. Macfadyen joined the British Medical Association in 1925, and belonged to the Leeward Islands Division. He is survived by his widow, one brother, and one married sister.

Dr. JAMES HENRY GILBERTSON of Hitchin, Herts, died suddenly on February 22 at the age of 77. A student at St. Bartholomew's Hospital, he obtained the M.R.C.S. in 1883 and the L.R.C.P. in 1885. In addition to carrying on a busy practice he rendered fine service to the St. John Ambulance Brigade, of which he was ultimately elected an honorary life member and created an Officer of St. John of Jerusalem. He had held the appointments of medical officer of the second district in Hitchin and of the German Convalescent Hospital in that town. He was for some years honorary consulting medical officer to the North Hertfordshire and South Bedfordshire Hospital. He joined the British Medical Association in 1892, and was a representative at the Annual Meetings at Aberdeen in 1914 and London in 1916.

Dr. GEORGE DAVID KNIGHT, who died in Streatham on January 30 after a brief illness, had been a member of the British Medical Association for fifty-one years. Born in Aberdeen in 1861, he received his medical education in that city and in Edinburgh, graduating M.B., C.M. Aberd., in 1882, in which year he was bracketed "student with the highest honours" with Dr. T. Wardrop Griffiths, who is now emeritus professor of medicine at the University of Leeds, their percentage of marks in all their final examinations averaging 95. Dr. Knight proceeded M.D. in 1893, again with the highest honours, his thesis being an original study of movable kidney and

intermittent hydronephroses. He then came to London to join Dr. Walter Verdon in practice at Brixton, later removing to Streatham. Highly esteemed by his colleagues, he carried on a large general partnership practice in Brixton and Streatham, and was for some time a medical officer to Brixton Dispensary. He was appointed a Justice of the Peace, and in that capacity had much to do with the care of mental cases, in institutions and elsewhere. Endowed with exceptional professional skill and knowledge in many branches of medicine, his kindly nature and firm integrity won him very many friends in private as well as professional life. In his earlier years he had taken a keen interest in politics, being a strong Liberal in outlook.

By the sudden death at the age of 58 of Dr. JOSHUA BOWER DALTON on February 23 the staff of the Leicestershire County Council have lost a good friend and a very valuable colleague. In his capacity as assistant school medical officer Dr. Dalton was a familiar and popular figure to the school teachers in the county, and his death will be felt very keenly by them. Graduating M.B., Ch.B. at Manchester University in 1905, he was shortly afterwards appointed senior house-surgeon at the Crumpsall Hospital, Manchester. After various other appointments he held a commission in the R.A.M.C. during the late war, and as a result of this service he suffered from an eye defect which, though a distinct handicap, he was able to overcome. He was appointed to the staff of the Leicestershire County Council in 1921, and during the past seventeen years his work brought him into contact with a large proportion of the school population in the county, by whom he was looked upon not only as the school doctor but as a friend.

With the death of Dr. JOHN MACWATT, J.P., of Duns, Berwickshire, on February 24 there passed one of the most widely known medical practitioners in the South of Scotland. He received his medical education in Edinburgh, where he graduated M.B., C.M. in 1878. He then held the posts of house-surgeon to the Royal Maternity Hospital, Edinburgh, and the Edinburgh Royal Infirmary; he was also resident gynaecological assistant to the Glasgow Royal Infirmary. Later he settled in Duns, succeeding his father in practice; he held numerous public health appointments, including those of medical officer for the borough of Duns and for several parishes in the vicinity and police surgeon. When he retired in 1934, after fifty years' service, he was presented with a cheque for £500 as an expression of the gratitude of a large population among whom he had worked and of the very high esteem in which he was held. Dr. MacWatt joined the British Medical Association in 1899, and remained a member until his death. He took great interest in horticulture, and was the author of a book on *The Primulas of Europe*.

Dr. JOHN HARMER DREW of Weston-super-Mare died on February 27 suddenly at his residence in that town at the age of 56. He received his education at St. Thomas's Hospital, and graduated M.B., B.S.Lond. in 1905, obtaining the diplomas M.R.C.S., L.R.C.P. in the same year. He proceeded M.D. four years later. His first appointments included those of house-surgeon to St. Thomas's Hospital, house-surgeon to out-patients and senior casualty officer, and clinical assistant in the Ear Department in the same institution, resident medical officer to the West London Hospital, and resident surgical officer to the North Staffordshire Infirmary and Eye Hospital. During the war he held a commission as captain R.A.M.C., and was a surgical specialist in the British Expeditionary Force. At Weston-super-Mare he was physician to the General Hospital, and carried on a busy general practice. He joined the British Medical Association in 1911, and was a member of the East Somerset Division.

EPIDEMIOLOGICAL NOTES

Small-pox

Small-pox was introduced into this country on Friday, March 4, when the P. and O. liner *Cathay* arrived at Tilbury with a patient suffering from an attack of the severe type of small-pox (variola major), from which he died seven days after arrival. An appeal by broadcast on the same evening was made requesting all passengers who had left the ship to communicate forthwith with the medical officer of health in the district in which they were staying. A case of small-pox, apparently of the mild form (variola minor), has been notified at Leighton Buzzard in a girl aged 5 years. The diagnosis has been confirmed since admission to hospital.

Typhoid Fever

There have been 42 cases to date in the outbreak of typhoid fever in Somerset, with 7 deaths. In Pembrokeshire an additional death from typhoid occurred last week, bringing the total number to 10.

Diphtheria and Scarlet Fever

Diphtheria continues to decline slightly in all five areas from which notification returns are made, but the numbers notified are still in excess of the median value for the last nine years for England and Wales, and very much in excess of the figures for the corresponding week last year, which were lower than the median value. In London the number is slightly less than in the corresponding week last year and than the median value for the last nine years. On the other hand, scarlet fever appears to be on the increase in England and Wales and Northern Ireland, while in Scotland—459 against 490 last week—and in Eire—90 against 100 last week—there has been a decrease. The increase of notifications in England and Wales is due more to a general rise over a wide area than to the presence of local outbreaks or epidemics. Thus in Devon there were 26 (16) notifications, of which 8 (1) occurred in Paignton; in Durham county there were 107 (90), of which 13 (8) were in Chester-le-Street; in Kent 72 (46) cases were notified, the increase being scattered over the whole county; in Lancaster there were 359 (97); in Liverpool 93 (80); in Manchester 73 (59). In Surrey there were 64 (43) notifications, the increase being scattered over the whole county. The figures in parentheses denote the numbers notified in the previous week. During the same week there were 198 cases in London, a number which remains less than the median value of 250. During the week under review there were no deaths from scarlet fever in London, Dublin, and Belfast. While there was a general decrease in the notifications in Scotland as a whole, 190 cases were notified in Glasgow, an increase of 2 over the previous week, with 1 death; in Edinburgh there were 50 cases (an increase of 7 over the previous week).

Measles

An increase in the numbers of cases of and deaths from measles has to be reported in the week under review: in the Great Towns 50 deaths were recorded compared with 31 in the previous week; of these 13 occurred in London, 2 in Manchester, 1 in Liverpool, 3 in Salford, 3 in Wigan. Details are available of the spread of the London epidemic: thus, 1,801 cases of measles were reported in the L.C.C. elementary schools, compared with 1,551 in the previous week, and the daily admissions to the L.C.C. fever hospitals were 68, compared with 61 for the previous week. Notifications for Bermondsey, Shoreditch, Southwark, and Stepney for the week under review—that is, ending February 26—are 38, 11, 178, and 42 respectively. In Scotland 1,653 cases were notified compared with 1,691 in the previous week: the figures for Glasgow being 1,264 (19), Edinburgh 112 (3), Paisley 118, Dundee 26,

Aberdeen 15. The figures in parentheses denote deaths. In Northern Ireland there were 259 cases, compared with 384 in the previous week: the figures for Belfast were 281 as against 362, while the deaths were 17, compared with 20 in the previous week. During the week 4 deaths from measles were recorded in Dublin.

Typhus in Morocco

Although typhus prevails in endemic form in Tunis, Algeria, and Morocco, returns received show that there was a noteworthy increase in the incidence in these countries during the winter of 1936-7. This winter the increase has been greatest in Morocco, the epidemic starting in late November or early December in Marrakesh. At the beginning of December, although the actual number of cases reported had not been large, the authorities recognized the danger of a rapid spread in a town of the type of Marrakesh, and made arrangements for the vaccination of large numbers of the native population. It was claimed that by the middle of January over 150,000 had been vaccinated. It was stated that the vaccination is not employed for Europeans as they do not stand it well, and it is noteworthy that the incidence of the disease among Europeans has been relatively high. The accompanying table shows the incidence in the Marrakesh

Typhus in Marrakesh District

	9/12/37	16/12/37	23/12/37	30/12/37	6/1/38	13/1/38	20/1/38	27/1/38	3/2/38	10/2/38	17/2/38
Cases	183	182	267	150	3	130	106	93	100	148	134
Deaths	22	17	14	66	0	41	30	11	16	20	19
European cases	4	9	11	0	1	8	9	24	7	16	6
European deaths	—	1	1	2	0	2	3	2	8	3	1

district week by week. The majority of cases occurred in the district round Marrakesh, the figures received to date for the town of Marrakesh being 65 cases in December and 75 cases in January. On January 7 it was reported that a focus had appeared at Taroudant and in surrounding native encampments. Two fatal cases occurred in British subjects in this town.

Casablanca is also affected, the number of cases reported in the area during December being 78 and during January 173. Of these only 6 and 15 respectively occurred in the town of Casablanca itself. On January 12, however, it was reported that there was a serious outbreak in the town. No actual figures are available up to date, but it is stated that the authorities regard the situation with apprehension and are inaugurating extensive vaccination and other precautionary measures.

During January and the first half of February, 24 cases were reported in Fez. It is stated that a number of these are in persons coming from Marrakesh and other parts of Morocco.

On the occasion of the International Congress in Budapest in 1909 the International Medical Postgraduate Committee was formed. This committee held its second session during the International Medical Congress held in London in 1913. In August, 1937, an international medical postgraduate congress was held in Berlin, at which forty-four nations were represented, and the organization of an International Medical Postgraduate Academy in Budapest was decided upon. The next session will take place on April 24, 1938, when a series of lectures will be delivered by foreign savants under the heading "Research and Postgraduate Training." The arrangements are in the hands of the Hungarian Medical Postgraduate Committee, under the presidency of Professor Emile de Grösz. Address: Budapest, VIII, Üllői-ut, 26.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended February 26, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns (ii) in Eire. (e) The 10 principal towns (iii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	29	6	9	1	—	15	3	12	2	—		
Deaths		2	1				1	5				
Diphtheria	1,565	152	226	62	34	1,252	155	223	60	38	1,259	158
Deaths	34	3	5	4	—	26	1	5	1	—		
Dysentery	214	62	58	—	—	21	4	39	—	—		
Deaths												
Encephalitis lethargica, acute	4	—	—	—	—	8	1	4	—	—		
Deaths							2					
Enteric (typhoid and paratyphoid) fever	18	1	5	3	3	45	7	23	7	—	30	—
Deaths	1	—	—	—	—	4	—	—	—	—		
Erysipelas			71	10	7			80	9	2		
Deaths		2					2					
Infective enteritis or diarrhoea under 2 years												
Deaths	66	22	4	5	2	43	11	10	5	2		
Measles			1,653		295*			92		5		
Deaths	50	13	22	4	19	7	1	1	3	—		
Ophthalmia neonatorum	115	11	55		1	71	4	37		—		
Deaths												
Pneumonia, influenzal§	1,188	83	6	11	15	1,372	101	60	28	7	1,641	150
Deaths (from Influenza)	59	11	4	1	3	242	23	23	19	8		
Pneumonia, primary			243	7				227	4			
Deaths		24		45	18		20		24	13		
Polio-encephalitis, acute	1	—				2	—					
Deaths												
Poliomyelitis, acute	6	—				4	—					
Deaths												
Puerperal fever	4†	4	13	2	—	53	9	19	4	—		
Deaths							2					
Puerperal pyrexia	184	12	16		6	107	11	26		—		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,429	198	459	90	87	1,619	195	309	82	34	1,895	250
Deaths	2	—	1	—	—	5	1	2	—	—		
Small-pox	—	—	—	—	—	—	—	—	—	—		
Deaths												
Typhus fever	—	—	—	—	—	—	—	—	4	—		
Deaths												
Whooping-cough			40		13			763		3		
Deaths	16	2	—	2	2	31	10	17	5	3		
Deaths (0-1 year)	472	77	71	60	31	468	89	89	42	26		
Infant mortality rate (per 1,000 live births)	79	63				75	74					
Deaths (excluding stillbirths)	5,609	1,078	745	241	208	5,384	1,031	812	272	191		
Annual death rate (per 1,000 persons living)	13.8	13.6	13.3	16.3	18.4	13.4	12.8	15.1	18.5	18.3		
Live births	6,870	1,298	900	438	258	6,228	1,175	364	301	220		
Annual rate per 1,000 persons living	16.9	16.3	18.4	29.6	22.9	15.5	14.6	17.7	20.5	21.1		
Stillbirths	267	36				277	44					
Rate per 1,000 total births (including stillborn)	37	27				43	36					

(i) 122 great towns in 1937.
(ii) 12
(iii) 9

* 231 cases in Belfast alone.

† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Deaths from puerperal sepsis.
§ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Vaccination Regulations at Woolwich Arsenal.—On March 1, in reply to Mr. Leach, Mr. HORT-BLISHA said that instructions would be issued that, except in the event of a small-pox epidemic, persons under 21 years of age were not in future to be required to be vaccinated, or revaccinated before entering civilian employment at the Royal Arsenal, Woolwich, or other War Department establishment in this country. Similarly, in the case of boys enlisting in the Army schools, vaccination or revaccination would not be required on enlistment or entry.

Birth Rates in Certain Occupational Groups.—Sir KINGSLEY WOOD said on March 3 that the Registrar-General's report upon occupational birth rates in 1931 was not yet complete. He could give certain advance figures for England and Wales as follows:

Occupational Birth Rates, 1931

	Crude live-birth rate per 1000 married males under 55 years of age
All married males (including unoccupied)	
under 55 years of age	95.9
Clergymen (Anglican)	70.5
Teachers	59.9
Professional occupations (excluding clerical staff)	73.5
Social Class III, skilled workers	95.3
Social Class V, unskilled workers	122.2

Notes in Brief

During 1937 extensions of stay were granted to 813 foreign professional men and women who had arrived during the last three or four years. These included sixty-six dentists and 181 doctors, and nearly 300 research workers.

Mr. W. S. Morrison hopes that legislation to give effect to the proposals contained in the Government's White Paper on milk policy will be introduced shortly after the Easter Recess.

Only the Corporation of Sheffield has by a local Act power to deal generally in milk. Five other local authorities have a limited power to sell prepared milk for infants.

Medical News

The Tavistock Clinic, Malet Place, W.C., announces with regret that owing to illness Professor Jung will be unable to give the four seminars at the Clinic which were to have been held on April 4, 5, 7, and 8. Professor Jung has had to cancel all his engagements, but hopes, if his health permits, to carry out the programme originally arranged during the week October 3-7.

The annual dinner of the Medical Superintendents' Society will be held on Saturday, March 19, at the Langham Hotel, London, W., at 7.15 p.m.

A meeting of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, March 18, at 5 p.m., when there will be a discussion on "Hospital Policy in Relation to Preventive Medicine," to be opened by Dr. Arthur Massey and Dr. James Ferguson.

The next clinical meeting of the Society of Radiotherapists will be held at 11, Chandos Street, W., on Friday, March 18, when there will be a discussion on "Methods of Measuring and of Recording Dosage," to be opened by Drs. Stebbing, Paterson, Windeyer, and Clarke.

A meeting of the Chelsea Clinical Society will be held at the Hotel Rembrandt, Thurloe Place, S.W., on Tuesday, March 15, at 8.30 p.m., when Dr. A. F. H. Coke will open a discussion on "Sedimentation Tests in Rheumatism." The meeting will be preceded by dinner at 7.30 p.m.

On Saturday, March 26, at 8 p.m., a demonstration of men's and women's recreative gymnastics will be given in the Albert Hall, London, under the auspices of the Central Council of Recreative Physical Training. Lord Stanhope, President of the Board of Education, will speak, and Lord Aberdare will take the chair. Tickets at various prices may be had from the Anglo-Swedish Society, 10, Staple Inn, W.C.1.

The sixty-second congress of the German Society of Surgery will be held in the Langenbeck-Virchow House from April 21 to 24. A conjoint meeting with the German Society for Orthopaedics, Industrial Accidents, and Insurance Medicine will be held on April 22.

The German Society for Internal Medicine will hold its fiftieth annual meeting from March 28 to 31 at Wiesbaden in conjunction with the German Society for the Study of Children's Diseases, under the presidency of Professor Assmann of Königsberg. The following subjects will be discussed: examination of cardiac function, function and diseases of the suprarenals, vitamin B₂, and acute inflammatory diseases of the central nervous system. Further information can be obtained from Professor Assmann, Schubertstrasse 19, Königsberg.

The February number of the *Journal of Nervous and Mental Disease* publishes Paul Schilder's "Psychoanalytic Remarks on Alice in Wonderland and Lewis Carroll." When his paper condemning this children's classic as a sadistic fantasy was read before the American Psychoanalytic Association in December, 1936, it provoked a storm of discussion in the newspapers.

The January issue of the *Medico-Legal and Criminological Review* has appeared in a new shape which is easy to handle and pleasant to the eye. It is proposed in the future to increase the scope of this journal, which in addition to publishing the papers read before the Medico-Legal Society will include articles of general interest to members of both the legal and the medical professions.

The February issue of the *Bulletin de l'Office International d'Hygiène Publique* contains articles on yellow fever by Colonel S. P. James, president of the Yellow Fever Committee, Professor Ricardo Jorge, the delegate of Portugal, Dr. van Campenhout, delegate of the Belgian Congo; and on chronic rheumatism by Drs. R. J. Weissenbach and F. Françon of the French Ministry of Health.

A dramatized life of Oliver Wendell Holmes, "an American of many attainments," was broadcast by *Cavalcade of America* on February 9. The first scene introduces him as a law student of 21 at Harvard, writing his stirring poem "Old Ironsides," which aroused public sentiment, saved the most famous ship in the history of the U.S. Navy from being scrapped, and brought him national fame. He is next depicted battling with his own profession over the contagiousness of puerperal fever. We meet him again at the "Mutual Admiration Society," the Boston Saturday Club, which the "Autocrat of the Breakfast-Table" enchanted with his wit and urbanity. The play closes with Holmes reading his last poem at the breakfast given in honour of his seventieth birthday.

The Léon Bernard Foundation of the International Union against Tuberculosis announces that the biennial prize of 2,500 francs in memory of Professor Léon Bernard will be awarded in 1938. The subject for competition is "Social Aspects of Tuberculosis." The articles, which must be written in French or English and not exceed 10,000 words, should be sent to the secretary of the International Union against Tuberculosis, 66, Boulevard Saint-Michel, Paris VI, before May 1.

The King has granted Dr. Charles Albert Bentley, C.I.E., authority to wear the Insignia of Commander of the Order of the Nile, conferred upon him by the King of Egypt in recognition of valuable services.

Sir Harold Gillies has been nominated a corresponding member of the Berlin Medical Society, before which he read a paper on plastic surgery on February 9.

March 5 marked the centenary of the birth of Gustav Theodor Fritsch, who died on June 12, 1927, the collaborator with Hitzig in the discovery of the motor cells of the cerebral cortex in 1870.

The Yugoslav State has allotted a sum of four million dinars to the Yugoslav Society for the Scientific and Social Campaign against Cancer to enable a cancer institute to be formed at Belgrade.

Medical Notes in Parliament

The second reading of the Collecting Charities (Regulation) Bill was set down in the House of Lords for this week. On March 8 the Blind Persons Bill and the Population (Statistics) Bill passed through committee. The Dogs Act (1871) Amendment Bill (which provides that there should be an appeal from a court of summary jurisdiction to Quarter Sessions against an order for the destruction of a dog) was read a second time in the House of Lords on March 8, as was the National Health Insurance (Amendment) Bill.

The House of Commons discussed defence policy and Supplementary Estimates for Palestine and Colonial Services. The Army Estimates were also to be considered.

The Housing (Financial Provisions) Bill passed through committee in the House of Commons on March 3. On March 7 the Registration of Stillbirths (Scotland) Bill was read a second time, and sent to a standing committee.

A New Borstal Institution

In Committee of Supply in the House of Commons on March 1, on the Vote for Prisons in England and Wales, Sir SAMUEL HOARE said that a supplementary estimate was required for the provision of another Borstal institution, which was needed at once. It was proposed to take over the former London County Council centre for the unemployed at Hollesley Bay, Suffolk. It had been found that their efforts to increase the self-reliance and feeling of responsibility of the boys succeeded better if they dealt with them in small groups. At Hollesley Bay it was proposed to divide the boys into four or five units, each of them run on what was called at schools the "house" system, and all of them open to the country and not enclosed by high walls. There would eventually be about 300 boys at Hollesley Bay, but it was proposed to start on a smaller scale. It was desirable not only to get away from the old penal conditions but from the old penal terminology.

After debate, Mr. GEOFFREY LLOYD said that there would be no steps taken for psychological treatment at the new colony, for that work was centralized in the boys' prison at Wormwood Scrubs. The Home Office expected a report to be made very shortly on that work, when the whole subject would be reconsidered. Although they all knew now that a certain number of specially difficult cases did respond to psychological treatment in an extraordinary way, there were failures—as must be expected. Most of the boys did not need psychological training, but would respond to the ordinary common-sense instructional methods that were used at the Borstal institutions. There was now a scheme under which a proportion of the housemasters in Borstal institutions—and this would apply to the colony—were being trained, at the Institute of Industrial Psychology, in vocational guidance. They would have to that extent psychological training, which would be useful. The Home Office welcomed this new colony as a place where experiments could be carried out, notably in the direction of increased responsibility for the boys.

The Vote was agreed to.

Registration of Stillbirths in Scotland

Major NEVEN-SPENCE introduced in the House of Commons on March 2 a Bill to provide for the registration of stillbirths in Scotland, and it was read a first time. Its backers included Dr. Howitt and Mr. Graham Kerr. Major Neven-Spence said the Bill was not intended to deal with miscarriages, whether criminal, legal, or brought about by natural causes. Scotland, almost alone among civilized nations, did not provide for registration of stillbirths. In England stillbirths were registered and entered into the computation of the maternal mortality rate. There was therefore no true

comparison between the English and the Scottish rates. A recent report from the Committee on Health Services in Scotland made a specific recommendation for registration of stillbirths. Those in charge of public health administration in Scotland held that the information so obtained might throw light on the causes of the wastage of infant life, on maternal mortality, and on puerperal sepsis. Scotland, with some of the finest medical schools in the world, had an infantile mortality rate nearly thrice that of New Zealand, and the maternal mortality rate in Scotland showed no sign of decrease at 6 per 1,000.

Mr. BUCHANAN said he and his friends reserved the right to oppose the Bill.

Criticism of the B.M.A.'s Milk Advertisements

On March 7 Mr. GARRO-JONES asked the Minister of Agriculture whether he was aware that the expenditure of the Milk Marketing Board on advertising the merits of milk was being largely covered by an advertising campaign sponsored by the British Medical Association, in which all milk which had not been treated by certain methods was stigmatized as dangerous to health; whether he was aware that statements in these advertisements were damaging the interests of farmers producing and selling milk which, though not treated by the methods favoured by the Association, was accepted by the Ministry as of satisfactory quality; and whether he would recommend to the Milk Marketing Board an advertising policy which would neutralize the damage done to the industry by unsubstantiated statements sponsored by private interests. Mr. W. S. MORRISON said he had no information whether the advertisements referred to had had the effect ascribed to them, and he did not think that any useful purpose would be served by suggesting to the Milk Marketing Board that they should change their present advertising policy, which was designed to encourage the consumption of milk generally.

Mr. Garro-Jones said that as the Minister did not appear to appreciate the repercussions of this advertising campaign, he (Mr. Garro-Jones) would raise the matter on the motion for the adjournment of the House at the earliest opportunity.

Mr. MACQUISTEN: Will the Minister inquire who supplied the money for these costly advertisements? It is not the doctors, I presume. (An hon. member: "The distillers.")

Sickness among the Insured Population.—Sir KINGSLEY WOOD, answering Mr. Harold Macmillan on February 24, said statistics showing the incidence of sickness among women and girls in the insured population of England and Wales were not available in his Department and could be obtained only by reference to the detailed records of the 7,000 approved societies and branches which administered health insurance benefits. He was considering the question of a comprehensive investigation into the extent and incidence of various forms of incapacitating sickness among insured persons of each sex and at various ages.

Welfare Authorities and Dried Milk.—On February 24 Sir KINGSLEY WOOD said he did not know that advertisements were being sent to maternity and child welfare committees from firms manufacturing dried milk urging them to supply from firms patent products on the grounds that they could not be used for general purposes. In some instances dried milk was supplied by welfare authorities on the recommendation of their medical officer of health where this appeared desirable on medical or other grounds. The choice must be one for the discretion of the welfare authorities concerned.

Deaths from Vaccinia in 1937.—Sir KINGSLEY WOOD said on March 1 that no deaths from small-pox were registered during 1937 in England and Wales. Nine death certificates were received during the year 1937 on which death was attributed entirely or in part to vaccination, post-vaccinal encephalitis, or vaccinia. The ages of the persons concerned were respectively 3 months, 4 months (four cases), 5 months, 7 months, 14 years, and 24 years. All the deaths, except that of one child of 4 months had been assigned to the vaccinia class.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

199 Infectious Mononucleosis and Diphtheria

F. WULFF (*Ugeskr. Læge.*, January 20, 1938, p. 51) finds infectious mononucleosis to be so common and so clinically like diphtheria that some twenty to thirty cases of the former disease are admitted every year to his fever hospital in Denmark with a diagnosis of diphtheria. The importance of an early differential diagnosis is so great that the rule has now been adopted in his hospital of undertaking a leucocyte count before any diphtheria serum is given to a new case. An early leucocyte count saves the patient not only from the discomforts of serum treatment but also from prolonged hospital treatment. In a few cases of mononucleosis, the appearance of the leucocytes is not sufficiently characteristic to justify the withholding of serum, and in such doubtful cases serum should be given, as the lack of it may prove fatal in a case of genuine diphtheria. If the practitioner has not mastered the technique of the necessary blood examination he should either confide it to other hands or admit the patient to hospital for observation: he should above all remember that diphtheria is much more common than infectious mononucleosis. The clinical evidence of mononucleosis is apt to be indecisive, and even the one crucial test—the leucocyte count—may be ambiguous, for in about 2 per cent. of the cases of diphtheria in small children the behaviour of the mononuclear leucocytes is identical with that in mononucleosis.

200 Traumatic Tuberculosis

S. WIDERÖE (*Nord. med. Tidskr.*, January 15, 1938, p. 81) begins his exposure of what he calls "the legend of traumatic tuberculosis" with an account of a medico-legal case in which he had to give an expert report. The patient was a ship's captain who, between 1929 and 1934, had developed tuberculosis in four different sites, including the right knee and the left hip. Though the author admits that there is both a theoretical and experimental foundation for the conception of traumatic tuberculosis, and that up to 20 per cent. of the cases of tuberculosis of the knee have hitherto been regarded as traumatic, he maintains that this condition is a figment of the imagination copied from one textbook into another with uncritical fidelity. Trauma may, indeed, aggravate an already existing tuberculosis of a bone or joint, but if it were capable of implanting tuberculosis into hitherto non-tuberculous tissues it would assuredly have done so in one at least of about 8,000 fractures which the author has seen during twenty-five years' hospital practice. In many of these cases of fracture the patients were definitely tuberculous, yet not one of them developed tuberculosis at the site of fracture. Every year the author has treated several cases of injury to the knee with effusion of blood into the joint, but he has not seen secondary tuberculosis of the knee develop in even one of these cases. If Thiems was right in his recognition of what he called "contusion tuberculosis," justification of it ought by now to be easily found in the available clinical evidence; but such justification, in the author's opinion, is conspicuous by its absence. He has repeatedly operated on the subjects of pulmonary tuberculosis for hernia, appendicitis, and the like, but never once has he found tuberculosis develop in the track of the operation. The same is true of thoracoplastic operations for the relief of pulmonary tuberculosis. The millions of war-wounded, many of them tuberculous, in some cases at least should have demonstrated the traumatic development of tuberculosis in previously healthy tissues were the Thiems teaching correct.

Surgery

201 Fractures of the Carpal Scaphoid

O. ALEMAN (*Acta chir. scand.*, 1937, 80, 3, 217) considers that there is general agreement with regard to the treatment of recent fractures of the carpal scaphoid by prolonged immobilization, any radical operative treatment being contraindicated. On the other hand, when treatment is required for old-standing fractures or for pseudarthroses there is no unanimity as to the best treatment. Between 1916 and 1935 the author treated eighty-three patients in an army hospital in Stockholm for fractures of the scaphoid. As in two cases the lesion was bilateral and in six cases conservative treatment was subsequently supplemented by operative treatment, his "cases" totalled ninety-one, fifty-two of which concerned the right hand and thirty-nine the left. Impression fractures accounted for three cases, marginal fractures for nine, and transverse fractures and pseudarthroses for seventy-nine. During 1935 and 1936 information was obtained by examination and correspondence in about eighty-six cases. The results were found to be good in 75 per cent., not so good in 3 per cent., and bad in 22 per cent. when immobilization by plaster had been effected within three months of the fracture. The results were found to be good in 84 per cent. and less good in 16 per cent. when, with an interval of more than three months between fracture and treatment and when pseudarthroses had developed, an operation had been performed and the smaller fragment of bone had been removed. When the fragments had been of equal size the distal (radial) fragment had been removed. There were no bad results in this second group. In a third group consisting of six cases of old fractures and pseudarthroses the treatment had consisted of drilling by Beck's method followed by immobilization in plaster. The results in this group were without exception bad. The author ascribes the failures in his first group to the inadequate period of immobilization, and he now insists on immobilization for four to eleven weeks for recent transverse fractures.

202 Carcinoma of the Ampulla of Vater

W. A. COOPER (*Ann. Surg.*, December, 1937, p. 1009) describes carcinoma of the ampulla of Vater as a rare but distinct clinical entity in the group of diseases causing obstructive jaundice. This lesion is more common in men than in women, and the average age in the series of fourteen cases reviewed was 49.3 years. There was seen to be a definite relation between carcinoma of the ampulla of Vater and cholelithiasis, which was present in 22 per cent. of cases. In most instances the histogenetic origin of the tumours could not be determined, and usually the entire ampullary region was involved. Metastases are relatively uncommon, due not to any inherent benign quality of the tumour but to its location. Biliary obstruction occurs while the tumour is relatively small, and death usually takes place before there has been time for extensive growth or metastasis. Obstruction of the biliary and pancreatic ducts at the ampulla of Vater causes changes in other organs: the liver is larger than is usual in common bile duct obstruction; the head of the pancreas is often nodular and indurated; the gall-bladder and common bile duct are always dilated, and the gall-bladder may contain thick dark, or white, bile. Symptoms at the onset consist of upper abdominal or epigastric pain, followed by increasing constant obstructive jaundice, with pale stools, dark urine, and pruritus. There is rapid loss of weight, anaemia is often present, and the stools contain occult blood. The average duration of life once the diagnosis has been made is only a few months, although

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Hormones for Enlarged Prostate

Dr. S. (Bombay) writes: A physician, aged 55, is suffering from hypertrophy of the prostate. Can anyone give his experience of injections of testosterone propionate and pituitary hormones in such cases? How much of the testicular hormone should be injected, and how often? Should the pituitary hormone be given at the same time as or after the injections of testicular extract? Does this treatment obviate the need for operation?

Glycosialia?

Dr. ISOBEL G. SMITH writes: A female patient of mine, aged 70, is complaining of an almost constant sweet taste in the mouth. The condition began about a year ago, but at that time only occurred some time after a meal. The dentures which she wears become covered with a sort of sticky adherent film, in spite of washing them after eating food. The gastric juice is normal and the bowels are kept regular. A catarrhal condition of the nasopharynx was dealt with and frequent mouth washes and paints have been used, but the patient continues to complain bitterly of the disagreeable taste. I would be most interested to know if anyone can suggest a cause, and, more especially, a treatment.

Incapacitating Diarrhoea

"D. G. O." in reply to "Emdee" (*Journal*, December 11, 1937, p. 1206), writes: I suggest that "Emdee" takes one drachm of acid, hydrochlor. dil. in a wineglassful of water or lemonade, thrice daily, after meals. This very simple prescription has proved effective in a similar case of unexplained diarrhoea.

Primary Vaccination

Dr. C. LUTHER BATTESON (Watford) writes: I am in agreement with Dr. S. H. de G. Pritchard (*Journal*, March 5, p. 550) when he expresses the opinion that post-vaccinal encephalitis is largely due to the use of rabbit lymph. So far as my recollection goes these cases were not met with until some bright economist thought of using animals other than calves for the supply of lymph.

Income Tax

Employment of Maidservant

"SIGMA" asks: "What is the usual amount allowed in respect of a maid's help?" Hitherto he has been allowed £80 per annum, but the inspector of taxes wants to restrict it to £52 in future.

It is difficult to offer any general guidance because so much depends on the particular circumstances. The

amount must have regard to (a) the total cost (including board, laundry, etc.) of the domestic staff, and (b) the proportion which relates to the professional side—looking after the waiting room and surgery, attending on callers, etc. In our experience where two maids are kept an allowance of £100 per annum is not uncommon.

LETTERS, NOTES, ETC.

Human Embryos Wanted

Dr. MARY CRIPPS writes: I am doing a piece of research on human embryos, and find it very difficult to obtain specimens, especially the early ones. Those I particularly need are embryos of the sixth week of pregnancy. I would like them put in very weak formalin (2 or 3 per cent.). Readers of the *Journal* who are kind enough to send specimens of this age should address them to me at the Histology Department, Royal College of Physicians, Forest Road, Edinburgh. They must be packed in accordance with Post Office regulations.

Hydrotherapy for Rheumatoid Arthritis

"CRIPPLED" writes: With regard to the question raised by Brigadier-General F. E. Burnham as to the advisability of giving hydrotherapy in the acute stage of rheumatoid arthritis (*Journal*, February 5, p. 308), may I suggest that it is perhaps, as he has found, not hydrotherapy which should be avoided, but rather the application of heat without water. No doubt each patient reacts differently, but the following facts are from my own personal experience. In the first place, ordinary "reclining baths" with the water at a scalding temperature, in which I lay until I felt faint—that is, for about ten minutes—followed by a cold sponge, relieved pain and stiffness, but only for a few hours. Secondly, radiant heat applied to the limbs immediately produced a violent exacerbation of the symptoms. Thirdly, steam vapour baths produced a gradually cumulative damage with disastrous final results. In these baths the whole body except the head was exposed to both radiant heat and steam vapour. Finally, hot weather often increased the severity of the pain. In my own case the relief afforded by heat when applied through water was nearly as remarkable as the exacerbation of the pain when heat was applied without it.

Disclaimers

Dr. GEOFFREY KONSTAM writes: In an article in a daily newspaper on March 1 concerning an operation on a hospital patient of mine suffering from Pick's disease mention was made of my name and address. I was greatly distressed on reading this article, which was written without my knowledge or consent, and I took immediate steps to prevent a repetition of such unwanted publicity. The information was apparently given to the Press by a member of the patient's family, and I was unaware of it until the article was shown to me after publication.

Mr. FRANK J. P. O'GORMAN (Doncaster) writes: A recent article in the local Press makes reference to one of my cases in which an intracardiac injection of adrenaline was given. The report was of certain proceedings where, on behalf of others, I made a presentation to a retiring midwife. Through the courtesy of your columns I would like to disclaim any connexion with the ridiculous sensationalism of the report about this case.

Corrigenda

Drs. Jenkinson and Milne wish to draw attention to an error in their article on "Insulin-Tannic-Acid-Zinc Suspension in Treatment of Diabetes Mellitus," published in our issue of February 19. The end of the last sentence in paragraph three (page 381, sixth line of first column) should read: "with the addition of zinc, 1 milligramme to 500 units of insulin"—not "1 gramme to 500 units."

In the *Journal* of March 5 we published at page 514 an article by Dr. A. Morton Gill on "Pneumonitis." At page 517, under paragraph (f), "suffering from chorea and rheumatic carditis complicated by pneumonia," should have read, "suffering from chorea and rheumatic carditis complicated by pneumonitis."

concussion or even hard blows on the head. The reason why this sequel has hitherto largely passed unnoticed is that men dislike voluntarily confessing to impairment of their sexual activities. Indeed hardly any of the thirty-three male patients whom Professor Stier investigated referred to it of their own accord. As for its frequency, it may be noted that between writing this article and correcting the proofs thereof the author saw fifteen more cases. To recognize them it is, however, necessary to question the patient directly on the subject or to listen to what his wife has to say about it. In almost all the cases in which an aural examination was made disturbances of equilibrium were demonstrable. The chances of injuries to the head impairing the sexual activities would seem to rise with age, for all the twelve men whose sexual potency was fully retained after injury to the head were under 40 at the time. But even in these cases there was a loss of libido. Professor Stier discusses in some detail the site of the brain lesion in such cases, and he expresses doubts as to their being amenable to treatment with sex hormones or psychotherapy.

207 Traumatic Arachnoiditis

G. G. I. RADEMAKER (*Nederl. Tijdschr. Geneesk.*, January 15, 1937, p. 464), who records four illustrative cases, states that cases of traumatic arachnoiditis are often not recognized but are regarded as examples of compensation neurosis. The patients complain of headache or pains in the neck, back, or loins, which are aggravated by physical exertion and often do not develop until a year or more after the accident. There may also be sensory disturbances, changes in the reflexes, and impairment of mobility. The diagnosis can only be made after a careful examination with lipiodol.

208 Primary Melanoma of Leptomeninges

M. T. SCHNITKER and D. AYER (*J. nerv. ment. Dis.*, January, 1938, p. 45) report in detail a case of primary melanoma of the leptomeninges, and review the literature of this condition. The case at first presented the signs and symptoms of a compressive lesion at the ninth thoracic segment. A tumour with only a few granules of melanin pigment was removed at operation. Six months after operation the patient returned, complaining of vomiting, hiccoughing, blurred vision, and headaches. These symptoms progressed, and examination one month later showed that the left eye was blind with early optic atrophy, while vision in the right eye was greatly reduced, and that there was weakness of the sixth, seventh, and twelfth cranial nerves on the left side. Cerebration was poor and there was marked loss of memory. At necropsy a widespread and massive infiltration of the leptomeninges of the brain and spinal cord with tumour cells and melanin pigment was found. A small mass projecting into the third ventricle posteriorly had caused internal hydrocephalus recognized clinically by ventriculography. Neither in this case nor in any of the thirty described in the literature was the diagnosis made before death. This is in contrast to sarcomatosis of the meninges, in which the cerebrospinal fluid generally contains tumour cells. The histogenesis of melanomas of the leptomeninges is discussed.

209 Thrombophlebitis causing Hydrocephalus

C. P. SYMONDS (*Brain*, 1937, 60, 4, 531) discusses thrombophlebitis of the dural sinuses and cerebral veins as a cause of hydrocephalus and focal cerebral symptoms. The author previously described the syndrome of otitic hydrocephalus, characterized by headache, vomiting, and papilloedema in association with otitis media without abscess formation and with spontaneous recovery, as due to either excessive secretion from the choroid plexuses or defective absorption from the arachnoid villi. He now suggests that mural thrombophlebitis of the superior

longitudinal sinus may be the underlying pathological change. Evidence for this is furnished by the occurrence of cases in which hydrocephalus has been associated with proved thrombosis of the superior longitudinal sinus and also with thrombophlebitis not arising from otitis media. It is also suggested that the occurrence of focal epilepsy, or acute or subacute hemiplegia following otitis media, is most probably due to thrombophlebitis involving the superficial cerebral veins. Cases supporting this viewpoint are described. The changes in the cerebrospinal fluid in intracranial thrombophlebitis are variable. Fatal occlusion of the superior longitudinal sinus as a rule leads to the appearance of blood in the cerebrospinal fluid, but mural thrombosis in the sinus may occur with a normal cerebrospinal fluid, as has often been observed in otitic hydrocephalus. An inflammatory reaction may, however, be found.

210 Tuberculosis and Dementia Praecox

M. and A. BENVENUTI (*Lotta c. Tuberc.*, November, 1937, p. 1040) discuss the relationship between tuberculosis and dementia praecox. Such a relationship has been alleged to exist by a number of authors and denied by others, but has perhaps never previously been investigated under such favourable conditions for controlled observation. The authors were able to draw upon an unusually large mental population, since the asylum from which they drew their material houses no less than 3,800 inmates. They had no difficulty in finding fifty cases of dementia praecox, and they selected to act as controls fifty other patients whom they considered to be comparable to the praecox patients in regard to external circumstances, general hygiene, length of sojourn in asylum, duration of illness, age incidence, etc. The average age of the praecox cases was 35 and their average sojourn in the asylum eight years, as against the control group's average age of 26 and average sojourn in the asylum of nine years. Their general conclusion is that though schizophrenics may show a slightly higher incidence of tuberculosis than other asylum inmates the difference is not important enough to justify the idea of a causal nexus between the two conditions. Similarly, there would seem to be no particular form of tuberculosis more liable to occur in schizophrenics than in other mental patients, since apical, pleural, and glandular lesions were found with equal frequency in both sets of cases.

211 Physiology of Sleep

L. R. MÜLLER (*Münch. med. Wschr.*, January 21, 1938, p. 81) discusses some of the causes of insomnia. (1) Certain diseases localized in the mid-brain induce true sleeping states. They include encephalitis, narcolepsy, lesions of the posterior thalamus, and tumours of the pituitary pressing on the central aspect of the base of the brain. The existence of a sleep centre in the grey matter between the third ventricle and the Sylvian aqueduct is proven. Economo's hypothesis of a dual nature of this centre, one promoting waking, the other sleep, is probably correct. (2) Cerebral anaemia, hyperaemia, or haemorrhages into the brain do not produce sleep states in the strict sense but only loss of consciousness. Various agents induce sleep by a general action on the central nervous system, not on the sleep centre. They include alcohol, hypnotics, bacterial toxins, and infections of the brain. The assumption of hypnotoxins which poison the brain as a result of physiological metabolic processes being the factors inducing sleep has much to be said for it, but has not been proved. (3) Psychological disturbances, pain, and mental disease may all cause insomnia. Müller believes that the induction of the sleeping or waking state can be explained on the basis of the ion fluctuations in the body. In sleep potassium and calcium ions wander from the serum into the neuromuscular apparatus; the sodium ions move from the liver into the mucous membranes. Potential energy is stored during sleep. In the

some cases have lived for three years or more. Operative treatment, which is often delayed by the poor condition of the patient, is rarely more than palliative, as by cholecystostomy or cholecystogastrostomy. In any case it should aim first at the relief of the biliary obstruction, secondly at the removal of its cause by transduodenal resection or by radical resection of the duodenum and head of the pancreas. A two-stage operation is fully described which has been devised for use in cases in which the tumour is ulcerating and infiltrates the duodenal wall.

Therapeutics

203

Oleo thorax

F. RAVAZZONI and G. CROCE (*Riv. Patol. Clin. Tuberc.*, December 31, 1937, p. 951) discuss the question of the prevention of exudates after the induction of an artificial pneumothorax. They begin by surveying the effects, good and bad, of pleural effusion in these cases, and come to the conclusion that the bad outweigh the good. Accordingly they set out to try to prevent the development of effusions by Unverricht's method of injecting 1 or 2 c.cm. of sterile olive oil into the pleural cavity at one of the early refills, the theory being that the minimal trauma thus produced gives rise to a degree of fibrosis sufficient to act as a barrier against the spread of infection and increase the natural or spontaneous defensive powers of the pleura. They treated seventy-two patients by this method. The proportion of patients with no effusion at the end of one year was 67 per cent., which, as they point out, is fairly high. The injections were well borne by most of the patients; as Unverricht also noted, they complain of some pain and slight dyspnoea and there is also some pyrexia during the first twenty-four hours after the injection, and there is a slight basal effusion which persists for a few days after the disappearance of the other symptoms. The authors state that refills after the introduction of the oil should be kept at a low tension for some time, so as to avoid a double stimulus to the pleura. As a result of their investigations the authors conclude that in addition to being harmless Unverricht's method is definitely useful in reducing the occurrence of effusions after the induction of artificial pneumothorax.

204

Pernicious Anaemia

E. MEULENGRACHT (*Med. Welt*, January 22, 1938, p. 132) discusses the theory of the treatment of pernicious anaemia in the light of present-day knowledge. He begins by restating his belief in Castle's well-known three-factor theory involving (1) an intrinsic factor in the stomach, (2) an extrinsic factor in the food, and (3) a liver factor (usually referred to as the P.A. factor) formed by the interaction of (1) and (2), absorbed from the intestine and stored chiefly in the liver. This factor is relatively thermostable, and would appear to be a fairly simple compound with a relatively small molecule. It has not yet been chemically identified. The extrinsic factor is thermostable and occurs in a variety of substances all containing the vitamin B complex. The intrinsic factor is thermolabile, and seems to be of the nature of an enzyme, since it is not active by itself but only becomes so in the presence of the extrinsic factor. Meulengracht has studied the comparative histology of the porcine and the human stomach. In both the intrinsic factor is believed to be produced by the pyloric gland cells, but the area of these glands is much more restricted in man than in the pig. Curiously enough, these cells do not appear to be greatly affected in pernicious anaemia, but Meulengracht does not consider that this evidence is sufficient to invalidate the theory that the anti-anaemic factor is produced by these pyloric glands. He thinks

that quantitative investigations may afford an explanation of this apparent paradox. Regarding the treatment of pernicious anaemia, Meulengracht states that this may be based either on the liver factor or on the other two factors—that is, it may be administered in the form of liver extract, pylorus-gland powder, or some form of food containing the extrinsic factor. He deprecates the present-day vogue for parenteral liver therapy, and thinks this method should be reserved for emergencies. He believes that the future lies with some form of combination therapy, either by giving preparations in which the mucosa of the pig's stomach has been allowed to act on liver substance and then dried into a powder or by mixing pylorus-gland powder with a liver preparation and water immediately before administration, as he has himself been doing for the last two years. This has the advantage that much smaller quantities can be given, since the effect is increased by potentiation, so that it is much greater than the sum of the ingredients of the mixture. Moreover, the liver residue left over from the preparation of liver extract may be utilized in this way instead of being thrown away.

Neurology

205

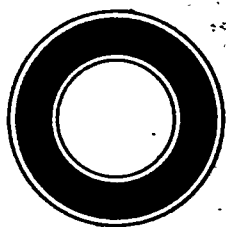
Surgery of Facial Neuralgia

D. PETIT-DUTAILLIS (*Progr. méd.*, Paris, January 15, 1938, p. 82) emphasizes the good prognosis which follows the surgical treatment of facial neuralgia. The mortality is practically nil in the hands of a skilled surgeon. Injections of alcohol into the infra-orbital canal give only temporary relief and may be followed by the appearance of haematomata or by oculomotor paralysis, while injections round the nerve trunks where they emerge from the skull may cause trismus, temporo-maxillary ankylosis, or necrosis of the superior maxilla. The injection of alcohol around the Gasserian ganglion gives a satisfactory result, but is accompanied by the risk of keratitis. To avoid these complications electrocoagulation of the ganglion has been tried, but the results are still too recent for the efficacy of this method of treatment to be judged. Various forms of operative treatment have been tried, and one which has proved satisfactory is the division of the root behind the ganglion—retro-Gasserian neurotomy. This is carried out by trephining through the temporal fossa. It is suggested that in some cases it may not be advisable to cut right across the root in order to prevent recurrence, but partial neurotomy is only applicable to those cases in which the site of the neuralgia is localized to one of the two inferior branches and is not suitable for ophthalmic neuralgia. Neurotomy by the temporal route is a comparatively safe operation, the mortality being low. In forty-one cases so treated there were only two deaths due to the operation, and there were no instances of post-operative facial or oculomotor paralysis. Thirty-eight per cent. of cases developed keratitis following total neurotomy, and only 10 per cent. after partial neurotomy. This procedure is recommended for old people, for fat persons with short necks, and in cases in which treatment has been delayed or recurrence is feared. The posterior route is indicated in the case of young persons in good physical condition, when a sympathetic neuralgia is suspected, or when complete section of the nerve is necessary. Operation by this method offers the least danger of keratitis.

206

Head Injuries and Sexual Activities

E. STIER (*Dtsch. med. Wschr.*, January 28, 1938, p. 145) has found that in a high proportion of cases of injury to the head the sexual activities are more or less seriously impaired. This is so not only with fractures of the skull and severe concussion of the brain but also with slight



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PROC. ROY. SOC. MED., JULY, 1936, p. 1094.

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waking state it is discharged and the positive ions go back into the blood serum. A sudden fall in the electrical potential has been noted in Addison's disease and infectious conditions characterized by insomnia. The difference in the need of sleep in different persons may be explained on the grounds of greater or lesser rapidity of exchange of ions or in the intensity of exchange. In old age the electrical potential sinks. Insomnia in the aged may be regarded as a physiological process.

212 Neuromyelitis Optica

- M. GOZZANO (*Riv. Neurol.*, December, 1937, p. 530) describes a case of neuromyelitis optica (so-called Devic's disease), of which some 130 cases, with forty-nine necropsies, have been described since 1894; his patient died within three months. Both clinical and histological findings were typical. The former consisted in acute flaccid paraplegia from transverse myelitis, shortly followed by blindness from bilateral retrobulbar neuritis with initially normal ophthalmoscopic findings, the latter in intrachordal necrosis affecting chiefly the myelin sheaths but also axis cylinders and neuroglia (with no proliferative changes in the latter), with similar changes in the optic nerve from chiasma to bulbus oculi. The histological changes, although most marked at the seventh dorsal segment, extended throughout the cord; their distribution suggested a passage of the unknown virus along the central canal, and was not perivascular. Gozzano regards neuromyelitis optica as differing from all other diffuse and disseminated non-suppurative morbid conditions of the brain and cord. From disseminated sclerosis, of which it has been said to be a special manifestation, it is distinguished histologically (although clinical confusion is possible in old, stationary cases of Devic's disease and in disseminated sclerosis which began acutely) by the distribution of the lesions and their non-sclerotic nature. It is also to be distinguished from Schilder's disease (periaxial encephalitis), in which although demyelination is prominent neurological proliferation is present, and although blindness accompanies paraplegia amentia follows. The occasional occurrence of transitional forms, in which necrotic changes coexist with sclerotic plaques, cannot, however, be denied.

Obstetrics and Gynaecology

213 Follicular Hormone Treatment of Sterility

C. REICHELT (*Med. Klinik*, January 21, 1938, p. 82) in the treatment of primary sterility advises the daily administration in tablet form of 1,000 mouse units of folliculin from the first to the twenty-first day of the menstrual cycle; if this is unsuccessful after six months fifteen injections of 10,000 units should be given twice weekly. Additional measures are the exhibition of vitamins E and D, and hydrotherapeutic treatment to improve the blood supply of the pelvic organs. Three successful instances of the injection therapy are described, the patients having been married five, seven, and fourteen years respectively. The preliminary investigations which should precede such a treatment include examination of the husband, search for organic disease in the uterus, vagina, and adnexa, and tubal inflation; little is to be expected from the correction of abnormal positions of the uterus—they are often an expression of genital infantilism, for which hormone treatment is well adapted.

214 Caesarean Section for Extensive Venous Thrombosis

F. ISBRUCH (*Zbl. Gynäk.*, January 8, 1938, p. 83) would add extensive venous thrombosis, especially when affecting the pelvic veins, to the indications for Caesarean section. In his own case of bilateral saphenous thrombosis extending on one side into the pelvis he believes that vaginal delivery would have brought the risk of

tearing the oedematous parts, or of embolic detachment during the increase of blood pressure accompanying the pains or from pressure of the descending part on the large venous trunks. The rarity of reports of extensive thrombosis at term and during labour is possibly due; as Sahler suggests, to such cases being recognized only at necropsy or not at all. Six cases of lethal embolus during or just after labour in those with venous thrombosis are mentioned; in two Caesarean section was done, but after thirty hours' labour in one and after the embolism had occurred in the other. In the author's case and four others early Caesarean section was successful. Isbruch believes that the undetected consequences of thrombosis explain many obscure cases of sudden death associated with labour.

Pathology

215 Transmissible Myeloid Leukaemia in Mice

E. STORTE (*Rif. med.*, December 4, 1937, p. 1731) records his observations on a series of 120 white mice infected with a strain of myeloid leukaemia recently isolated by Furth. In dealing with the relations between acute and chronic leukaemia he emphasizes the importance attaching to consanguineous factors and the route of inoculation in experimental leukaemia. He shows that in animals as in man there exist both chronic and acute forms of the leukaemic process, differing profoundly from one another in their manifestations, but that both these forms of leukaemia are produced by the same aetiological agent and therefore are merely two expressions of the same disease. The demonstration that in the animal the acute leukaemic form, which is in every way comparable with the human form, is obtained without the intervention of microbial agents or filterable viruses proves that the factors concerned are not so much exogenous as conditions closely inherent in the individual and of a completely unknown character. From every point of view the resemblances between the transmissible myeloid leukaemia in mice and human myeloid leukaemia cannot be more numerous or complete. In conclusion Storte maintains that the affection can only be produced by living cells, and arises by multiplication of the inoculated leukaemic elements. On subcutaneous inoculation of the blood or any material containing the living leukaemic cells a tumour arises, while on intravenous injection of the same material typical leukaemia is produced. The bone marrow is the tissue which is always affected first by the leukaemic process, and in a more intense degree than any other organ. The extramedullary leukaemic tissue, such as that which infiltrates the liver, spleen, etc., does not have an autochthonous origin, but originates from leukaemic elements in the bone marrow. Finally Storte maintains that the transmissible myeloid leukaemia of the mouse shows the fundamental characteristics of a neoplastic growth, or at least of an affection in every way identical with the typical transmissible neoplasms of mammals.

216 Allergic Skin Reactions in Undulant Fever

G. ANDREI and F. BUA (*Minerva med.*, December 23, 1937, p. 684) have found that a suspension of *Br. abortus* produces more intense and lasting positive reactions, which are easier to interpret and can be more clearly distinguished from the slight reactions sometimes found in persons who are not infected but presumably have been rendered allergic by having swallowed food containing bacterial antigens, than does Burnet's test. They therefore employ 0.1 c.cm. of a stock vaccine which in positive cases gives rise to reactions lasting more than four days, while with higher doses the reactions may persist for as long as thirty days. In 100 controls the test was negative with one exception.



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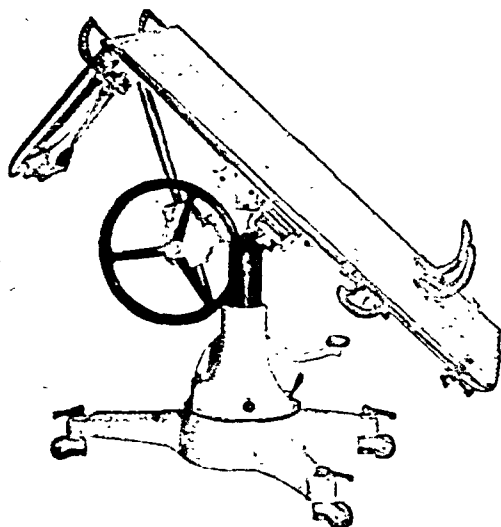
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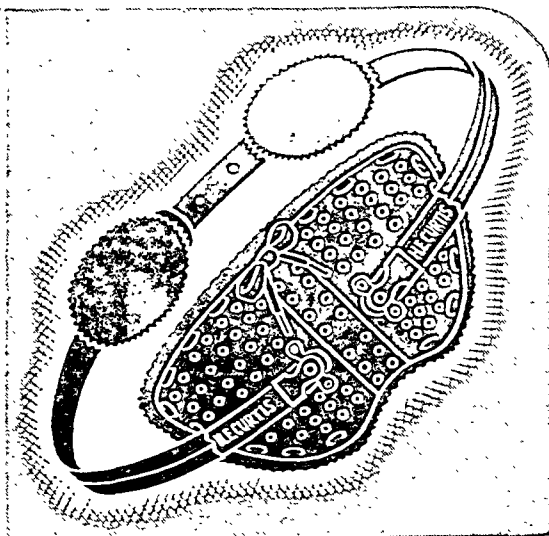
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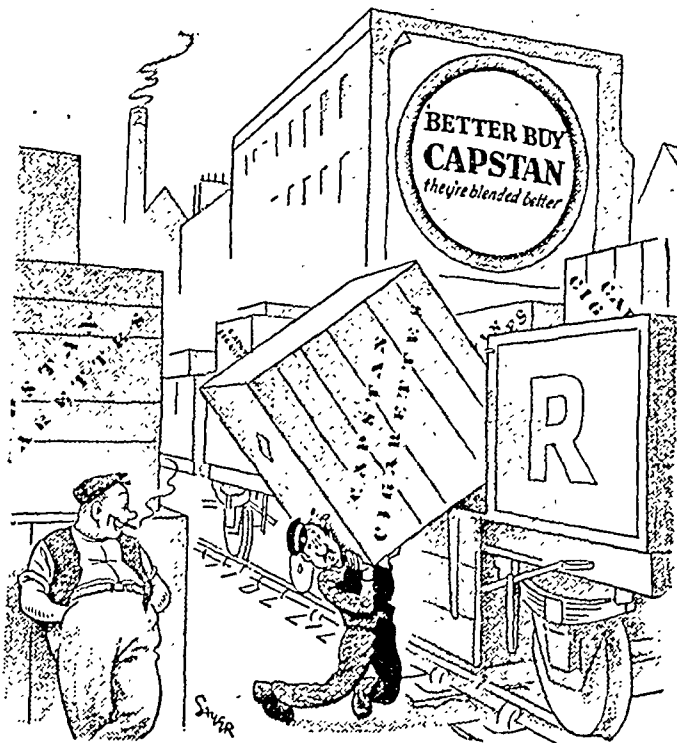
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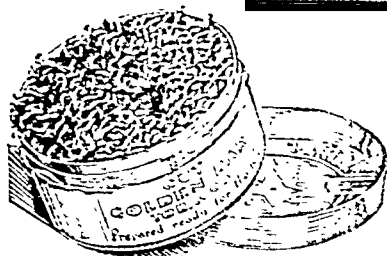
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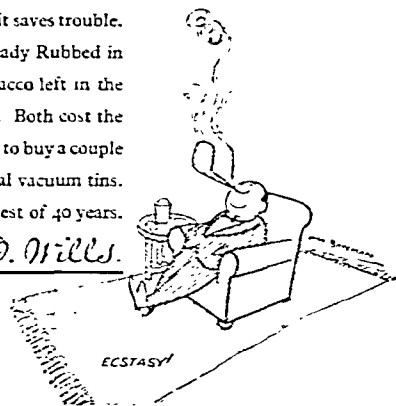
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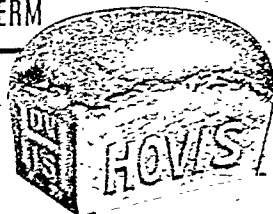
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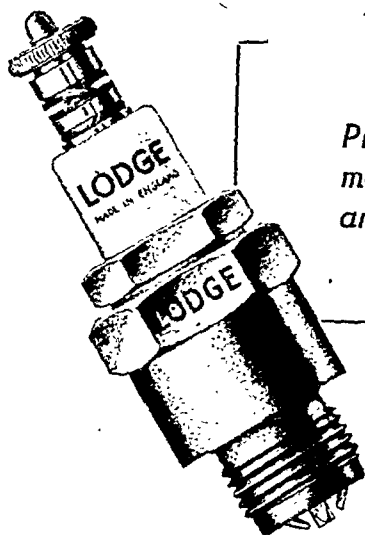
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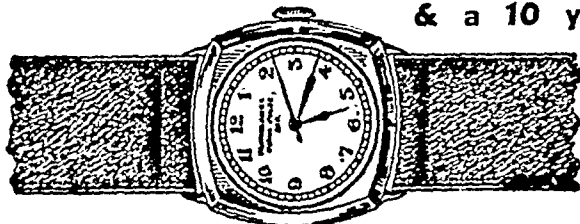
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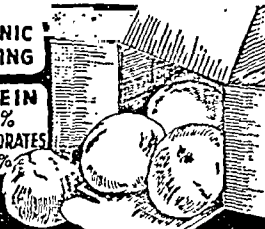
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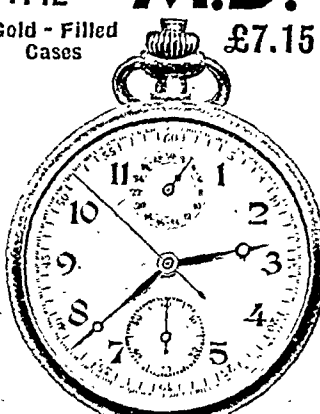
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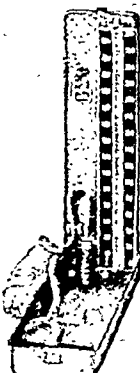
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Rendlesham Hall, which is open to receive patients, is essentially a Sanatorium. Its daily life and routine are that of an ordinary comfortable holiday or health resort, or of a large country house. Each patient has all the privileges of a guest consistent with the prescribed medical treatment.



RENDLESHAM HALL—SOUTH VIEW

Rendlesham Hall has 45 bedrooms and about 450 acres of gardens and park. It has also a private nine-hole golf course, tennis and croquet lawns, and bowling green.

Illustrated booklet giving particulars as to terms, etc., can be had on application to the
RESIDENT MEDICAL SUPERINTENDENT.

Telegrams and Telephone: **WICKHAM MARKET 16.** (Toll Call from London.)

Proprietors: The Norwood Sanatorium, Limited.

RUTHIN CASTLE, NORTH WALES

A Private Hospital or Clinic for the diagnosis and treatment of Internal Diseases (except Mental or Infectious Diseases). The Clinic is provided with a full staff of doctors, bacteriologists, chemists, radiologists, dietists, nurses, masseurs, and masseuses.

The surroundings are beautiful. The climate is mild. There is central heating throughout. The annual rainfall is 30.5 inches, that is, less than the average for England.

The inclusive weekly fees are from 15 guineas a week, according to the room occupied; rooms with bathroom are from 21 guineas. The charges include all chemical, bacteriological, X-ray or other examination advised by the doctors, and all the usual forms of treatment, in addition to board and lodging. There are no extra charges except for alcohol (when ordered) and laundry. An examination and consultation fee of 15 guineas is charged on the first visit.

Address: The SECRETARY, Ruthin Castle, North Wales. Telegrams: Castle, Ruthin. Telephone: Ruthin 66.

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5.

Telegrams: "PSYCHOLIA, LONDON."

FOR THE TREATMENT OF MENTAL DISORDERS

Telephone: Rodney 4242 (2 lines)

Also completely detached villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Rackets, Recreation Hall with Badminton Court, and all indoor amusements, including Wireless and other Concerts, Occupational Therapy, Callisthenics, and Dancing Classes, X-ray and Actino-therapy, Prolonged Immersion Baths, Operating Theatre, Pathological Laboratory, Dental Surgery, and Ophthalmic Dept. Chapel. Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also resident, and visiting Consultants. An illustrated prospectus giving fees which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is HOVE VILLA, BRIGHTON, and is 200 feet above sea-level.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15.

Telegrams: "Alleviated, London."

Telephone: Rodney 2611-2612.

The above House, which was established in 1826, is an Institution for the care and treatment of persons suffering from mental diseases and nervous disorders. Certified voluntary and temporary patients are received. Separate houses for treatment and accommodation of special cases adjoin the Institution. There is a seaside branch, Kearney Court, near Dover, to which patients may be sent for treatment or on holiday. Motor and carriage exercise is provided as required. Patients can avail themselves of a course of physical drill. Tennis courts. Entertainments, dances, and indoor amusements held throughout the year. Terms from £3 3s. per week. Illustrated prospectus and further particulars can be obtained from the Medical Superintendent.

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for **Rheumatism**

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SPECIAL RATES FOR PHYSICIANS AND THEIR WIVES, ranging from £14 to £31 inclusive for 21 days' cure.

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PISTANY AGENCY, LTD.,
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Telephone: Langham 4214.

The Chairman of Pistany Spa will give a lecture illustrated by lantern slides on "The significance and natural phenomena of Pistany Spa," at 4.15 p.m. on April 25th at the Savoy Hotel. Members of the Medical profession are invited to attend. Invitations sent on request to the Pistany Agency Ltd.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,000 patients are admitted to the Wards annually, and in the Ante-natal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)

CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

THE ROYAL SOCIETY

MOSELEY RESEARCH STUDENTSHIP.

Applications are invited by the Council of the Royal Society for a MOSELEY RESEARCH STUDENTSHIP of the value of £350 per annum, awarded for "the furtherance of experimental research in pathology, physics and chemistry, or other branches of science, but not in pure mathematics, astronomy, or any branch of science which aims merely at describing, cataloguing, or systematizing."

Preference will be given on this occasion to applications with reference to research in a biological subject, having some bearing on the problems of pathology.

Applicants should give the names of two referees. Testimonials will not be considered. The subject of the proposed research and the place at which it would be carried out should be given.

The appointment will be for two years in the first instance and may in exceptional cases be renewed from year to year up to a maximum of five years in all.

Applications should be made on forms to be obtained from the Assistant Secretary, The Royal Society, Burlington House, London, W.1, and should be received as early as possible, in any case not later than May 1st, 1938.

February, 1938

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

DIPLOMA IN PUBLIC HEALTH

The Royal Institute of Public Health and Hygiene

The Course of Instruction can be commenced at any time. Special provision is made for students who can give only part time to the work.

A prospectus and further particulars can be obtained from the Secretary.

Telephone: Langham 4200.
28, Portland Place, London, W.1.

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M.S. LONDON. M.C. CANTAB.

and all Higher Surgical Examinations.
For particulars of short Intensive Postal and Oral Revision Courses apply SECRETARY, Medical Correspondence College, 19, Welbeck Street, W.1.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. "Pre-eminent success in education and treatment of stammering and other speech defects."—"Times." "Thoroughly physiological principles."—"Lancet." "The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

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F.R.C.S. (Eng.).	Primary 188 1919-36 Final 183	
M.R.C.P. (Lond.).	1919-36	270
D.P.H.	(Various) 1900-36 (Completed Exam.)	342
F.R.C.S. (Edin.).	1918-36	63
M.R.C.S., L.R.C.P.	Final 1919-36 (Completed Exam.)	587
M.D.	Various. By Thesis. Many successes.	

Preparation for the above, also for Medical Preliminary and all examinations leading up to M.R.C.S., L.R.C.P., or M.B. of various Universities, also for M.R.C.P. (Edin.), D.P.M., D.O.M.S., D.T.M. & H., D.L.O., D.C.H., D.A., D.M.R.E., M.M.S.A., L.M.S.S.A., D.C.O.G., and some exams of Dominions Universities.

ORAL CLASSES

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MEDICAL PROSPECTUS (48 pp.)

CONTENTS: The method and the cost of entering the Medical Profession. Particulars of all Medical Examinations, Postal Courses, and Oral Classes. Suggestions for the Higher Medical Examinations. Suggestions for the Higher Surgical Examinations. Suggestions for the Special Diploma Examinations. Refresher Courses. Openings for Women. Hints for writing theses.

Medical Prospectus gratis along with list of Tutors, etc., on application to the Principal, 17, Red Lion Sq., London, W.C.1. (Telephone: Holborn 6313.)

UNIVERSITY OF LONDON

A Lecture, entitled "SOME REMARKS ON VESTIBULAR PHYSIOLOGY," will be given by PROF. DR. A. P. H. A. DE KLEIN (Professor of Rhinology, Laryngology and Otology in the University of Amsterdam), at UNIVERSITY COLLEGE, LONDON (Gower Street, W.C.1), on TUESDAY, MARCH 15th, at 5 p.m. The Chair will be taken by Prof. H. H. Woodard, D.Sc., M.D., B.S. (Professor of Anatomy in the University). Lantern illustrations.

ADMISSION FREE, WITHOUT TICKET.

S. J. WORSLEY.

Academic Registrar.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

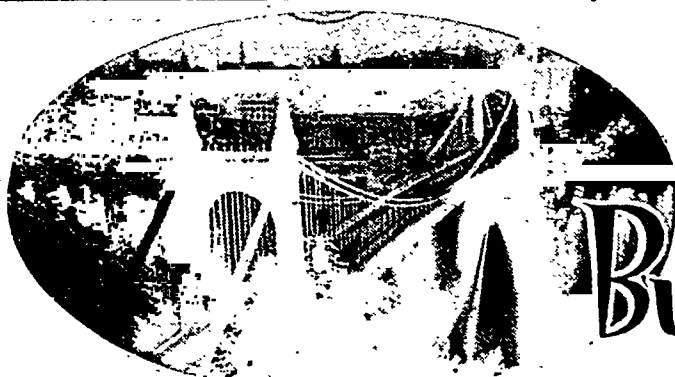
Dr. GEORGE RIDDOCH will deliver the Lumleian Lectures on March 15th and 17th at 5 o'clock at the College, Pall Mall East, S.W.1.

Subject: "Pains of Central Origin."

Any Member of the Medical Profession admitted on presentation of card.

By Order of the President.

H. M. BARLOW, Secretary.



Budapest Spa

The distinguished record of successful cures effected in Hungary's delightful capital indicates in some slight measure the remarkable healing powers of its natural water springs.

All told there are more than 80 sulphur and radio-active thermal springs (96° F. to 162° F) in addition to over 200 aperient water springs. These, it is calculated, produce 11 million gallons of curative waters daily.

Unsurpassed in comfort and efficiency, the modern Spa establishments remedy many kinds of disorders, particularly of Rheumatic Diseases, Sciatica, Arthritis, Fibrositis, Diseases of Women, Chronic Skin Disorders, etc.

As additional incentives to the visitor, Budapest offers all the amenities and attractions of a large metropolis, amid the glorious surroundings that have made Hungary famous the world over.

Three weeks' treatment in Budapest, including accommodation at Spa Hotel, sight-seeing, tips, taxes, and second-class ticket from London, costs only **£32:15:0**

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Rheuma Spa of Wales

KINMEL HALL ABERGELE



SITUATED between the lovely Welsh foothills and the sea, Kinmel Hall commands a thousand acres of its own parkland and golf course.

Exquisitely furnished and equipped with every aid to comfort, it is an ideal residence for those needing rest, recreation, or modern Spa treatment.

All Spa treatments for Rheumatic and similar disabilities are given in a separate wing of the building, under the supervision of a fully qualified Resident Physician and Spa staff.

The cuisine is first-class and careful attention given to special diets.

Terms from 4½ Guineas per week.

A visit of inspection is invited.

- Recreation facilities include: own golf course, tennis, squash, badminton, riding, fishing, shooting, open-air swimming pool. Country Club adjoining (licensed).

Brochure, photographs, and full particulars from Secretary (Rheuma Spa Ltd.), Kinmel Hall, Abergel, N. Wales.

Resident Physician: C. Noel Davis, M.D. (London) D.P.H. (Camb.).

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INDIAN MEDICAL SERVICE

RECRUITMENT OF EUROPEAN OFFICERS

Applications are invited from Medical Men for Permanent Commissions in His Majesty's Indian Medical Service. The terms offered include a gratuity of £1,000 on retirement after six years' service, or of £2,500 after 12 years' service, together with free return passages, for those who no longer desire to remain in the Service. In other respects the terms will be as detailed below.

British subjects of pure European descent who are under 32 years of age and who are registered under the Medical Acts in force in Great Britain and Northern Ireland are eligible to apply.

CAREERS.

The Indian Medical Service offers a permanent career with wide opportunities of medical experience, including clinical, preventive, specialist and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. An officer may apply after one year's Indian Service to have his name registered for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of Civil Officials and for general medical administrative purposes; to specialist (for example, public health and bacteriological) services; to research posts; and to professorships at the Medical Schools.

RATES OF PAY.

Years of Service	Rank	Basic Pay Rs. per mensem	Over-seas Pay £ per month	Total £ per annum
1	Lieutenant	450	15	585
2	Captain	500	25	750
3	"	550	25	775
4	"	550	25	775
5	"	600	25	825
6	"	600	30	900
7	"	700	30	990
8	"	700	30	990
9	"	700	35	1050
10	"	700	35	1050
11	Major	800	35	1140
12	"	800	40	1200
13	"	800	40	1200
14	"	800	40	1200
15	"	800	40	1200
16	"	950	40	1335
17	"	950	40	1335
18	"	950	40	1335
19	"	1100	40	1470
20	"	1100	40	1470
21	Lieut. Col.	1350	40	1695
22	"	1350	40	1695
23	"	1350	40	1695
24	"	1500	40	1830
25	"	1500	40	1830

Note.—(1) The rupee is at present stabilized at a rate equivalent to 1s. 6d.

(2) An officer promoted to the rank of Lieut.-Colonel before completion of 20 years' service will receive pay at the rate of Rs. 1250 per mensem (basic) plus £40 per month overseas pay.

Extras.—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

ANTEDATES IN COMMISSION.

Candidates possessing certain higher medical qualifications or holding the Diploma in Public Health may be granted an antedate in their commissions. Past service in certain hospital appointments may also render candidates eligible for an antedate. Persons holding or about to hold resident posts at recognized

hospitals may be seconded in those posts for a period. The maximum period of antedate, secondment, or antedate and secondment combined, admissible under this paragraph, is limited to 18 months.

OUTFIT ALLOWANCE.

Officers on appointment will receive an allowance of £75 towards the cost of outfit.

PRIVATE PRACTICE.

With the exception of Administrative Officers, military or civil, and officers holding certain special appointments, officers are not debarred from taking private practice so long as it does not interfere with their proper duties.

LEAVE.

Leave can be taken at reasonable intervals, and adequate rates of leave pay are provided. Extra leave (known as study leave), which may not exceed twelve months in all during an officer's service, may be granted to officers desirous of pursuing special courses of study of a postgraduate nature. During such leave, study allowance, at present fixed at the rate of 12s. a day in the United Kingdom, £1 a day on the Continent of Europe, and £1 10s. a day in the United States of America and Canada, is granted to an officer in addition to ordinary rates of leave pay.

PENSIONS.

The rates of pensions are as follows.— Per annum.

After 17 years' service for pension	Per annum.
.. 18	£372 Os.
.. 19	£400 Os.
.. 20	£428 Os.
.. 21	£465 Os.
.. 22	£502 Os.
.. 23	£539 10s.
.. 24	£576 10s.
.. 25	£614 Os.
.. 26	£651 Os.
.. 27	£697 10s.
.. 28	£744 Os.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

PASSAGES.

An officer on appointment is provided with free passage to India. The families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India, subject to the payment of messing charges. Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

INSTRUCTION PRIOR TO EMBARKATION.

Officers are required to undergo courses of instruction at Royal Army Medical College and at Aldershot, lasting approximately three months, prior to their embarkation on first appointment. Information as to the rates of pay during this period and subsequently up to the date of embarkation is contained in the memorandum referred to.

A memorandum giving full details regarding these appointments and forms of application may be obtained from the OFFICE OF STATE FOR INDIA, MILITARY DEPARTMENT, INDIA OFFICE, LONDON, S.W.1. Office early in April next, and the selected candidates, unless seconded for hospital appointments, will be required to report to the India Office for instruction commencing about 1st May, prior to sailing for India in September, as soon as possible.

INDIA OFFICE, MARCH, 1938.

BRITISH POSTGRADUATE MEDICAL SCHOOL

DEPARTMENT OF PATHOLOGY DEPARTMENT OF MEDICINE

A COURSE OF FOUR LECTURES

on

RECENT WORK ON VIRUSES

will be given by

DR. C. H. ANDREWES, M.D., F.R.C.P.,

on

APRIL 6th, 13th, 20th, 27th, 1938,

at 4.30 p.m.

A COURSE OF SIX LECTURES

on

DISEASES OF SMALL AND LARGE INTESTINE

will be given by

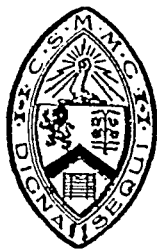
SIR EDMUND SPRIGGS, K.C.V.O., M.D., F.R.C.P.,

on

MARCH 28th, APRIL 4th, 11th, 19th, 25th,
MAY 2nd, 1938,

at 2.30 p.m.

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, to medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12.



Chartered Society of Massage and Medical Gymnastics

CHARTERED MASSEUSES and MASSEURS receive Hospital Training. They are qualified to administer MASSAGE, REMEDIAL EXERCISES, ELECTRICAL and LIGHT TREATMENTS.

The Society was granted a Royal Charter in 1920 in recognition of the high standard of work maintained. C.S.M.M.G. Members do not advertise individually and pledge themselves to treat patients only under medical direction. All members of the Society are eligible for enrolment on the National Register of Medical Auxiliary Services.

Names and addresses of members practising in any district in this Country or abroad, can be obtained from

THE SECRETARY, C.S.M.M.G., TAVISTOCK HOUSE (NORTH), TAVISTOCK SQUARE, LONDON, W.C.1.

Phone: Euston 1676-7-8.

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Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

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And all other Surgical Degrees and Diplomas.

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- 2 Both at the Primary and Final F.R.C.S. England the majority of our Students are successful at the first attempt, and Candidates who have failed at these Examinations on several previous occasions get through without difficulty after going through our courses.
- 3 The Surgical Tutors of the College all hold either the M.S. Lond. or F.R.C.S. England, or both, and are highly experienced teachers.
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"How to Pass the F.R.C.S." free on application to the Secretary.

HIS MAJESTY'S COLONIAL SERVICE

COLONIAL MEDICAL SERVICE.

A VACANCY exists for an ASSISTANT PATHOLOGIST in the MALAYAN MEDICAL SERVICE.

Candidates must be British subjects of European parentage, between 25 and 35 years of age, and must possess medical qualifications registrable in the United Kingdom, and have had at least six months' experience of post-graduate work in a recognised hospital or clinical laboratory.

Appointment is on probation for three years in the first instance, with a salary of £700 a year rising annually by £35 to £770. Thereafter, subject to satisfactory service, the officer may be placed on the permanent pensionable establishment with salary of £805 a year rising by annual increments of £35 to £1,120 a year. Private practice is not allowed.

DUTIES. The selected candidate will be required to perform such bacteriological and pathological work of the Government Institutions in Malaya as may be directed by the Director/Adviser, Medical Services, and possibly to give lectures at the King Edward VII College of Medicine, Singapore, and teaching institutions.

FREE PASSAGES provided for the officer and his family, not exceeding five persons in all.

QUARTERS. Furnished quarters provided, if available at a rent of 6% of salary.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W.1. Completed applications must be received by March 21st.

UNIVERSITY OF DURHAM.

KING'S COLLEGE, NEWCASTLE-UPON-TYNE.

Applications are invited for the whole-time post of ASSISTANT BACTERIOLOGIST in the Public Health Laboratory in the Medical School. Applicants must be registered Medical Practitioners with some experience of practical Bacteriology. Preference will be given to holders of a Diploma in Public Health.

Salary £350 to £450, according to experience.

Full particulars may be obtained from the Secretary to the Council, King's College, Newcastle-upon-Tyne, 2, to whom seven copies of applications, stating experience, with seven copies of three recent testimonials, should be submitted not later than Saturday, March 20th, 1938.

UNIVERSITY OF LONDON

The Senate invites APPLICATIONS for GRANTS for specific projects of research to cover approved expenses, and for the provision of materials and apparatus not otherwise available. Applicants must be members of the University of London or teachers in a School of the University. Forms of application (which should be returned by March 1st, 1938) and Regulations may be obtained from the Academic Registrar, The Senate House, University of London, W.C.1.
March, 1938.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes—H. C. ORRIN, F.R.C.S., Surgeon's Hall, Edinburgh

THE KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.

Applications are invited from duly registered medical practitioners (male, single) for the post of ASSISTANT RESIDENT MEDICAL OFFICER (twelve months' appointment) at the North Wales Sanatorium (247 beds for female pulmonary and male, female and children non-pulmonary cases), Denbigh, North Wales.

Salary £200 per annum, plus maintenance. Applications, stating age, qualifications, experience, etc., together with copies of three recent testimonials, should reach the undersigned not later than Thursday, March 17th, 1938.

Memorial Offices, D. A. POWELL,
Westgate Street, Principal Medical Officer
Cardiff. March 7th, 1938.

BRITISH POSTGRADUATE MEDICAL SCHOOL.

Applications are invited for the post of ASSISTANT (non-resident) in the Department of SURGERY at the above-named School. Candidates should hold a higher qualification in Surgery. The post will normally be at a salary of £250-£500, according to experience and qualifications. Further particulars can be obtained from the Dean of the School, Dr. J. Shepherd, 2, W.12, to whom applications should be accompanied by two testimonials and a list of names of two referees, should be submitted not later than the first post on March 25th, 1938.

COUNTY COUNCIL OF MIDDLESEX. APPOINTMENT OF OBSTETRIC SURGEONS.

Applications are invited from registered Medical Practitioners for the following appointments on the permanent staff. The appointments are senior ones in the Council's general hospital service, and applicants are expected to be medical men or women of high qualifications and professional attainments who have devoted their time wholly or chiefly to the practice of obstetrics and gynaecology. The successful candidates will work under the direction of the Medical Superintendent of the respective hospitals, and the whole of their time must be given to their official duties. They must be prepared to undertake the teaching of students, if required, and to carry out such other duties as the County Council may from time to time direct.

REDHILL COUNTY HOSPITAL,
Edgware.

SENIOR OBSTETRIC SURGEON.

Salary £850 per annum, rising by annual increments of £50 to £1,350 per annum, together with a non-resident cash allowance of £150 per annum in lieu of emoluments.

NORTH MIDDLESEX COUNTY HOSPITAL,
Silver Street, Edmonton, N.18.

OBSTETRIC SURGEON.

Salary £700 per annum, rising by annual increments of £50 to £750 per annum, and after five years' service, by two further increments of £50 to £850 per annum, together with a non-resident cash allowance of £150 per annum in lieu of emoluments.

The successful candidates will be required to reside within a short distance of the hospitals to which they are appointed. In the case of an unmarried officer, if accommodation is available, full residential emoluments may be provided in lieu of the non-resident allowance.

The above salaries are inclusive, and any fees received by the officers appointed must be paid over to the County Council.

The appointments will be subject to medical examination, will be held during the pleasure of the Council, and are terminable by three months' notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Obstetric Surgeon."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z."

Clerk of the County Council.

Middlesex Guildhall,

Westminster, S.W.1.

February 26th, 1938.

AMENDED ADVERTISEMENT.

BOROUGH OF EALING.

ASSISTANT MEDICAL OFFICER

Applications are invited from fully qualified Medical Men (single) with a Public Health qualification for the position of Assistant Medical Officer.

A candidate must have had experience in the treatment of cases of infectious disease at an Isolation Hospital. The duties will include the medical care of patients in the Chiswick and Ealing Isolation Hospital, South Ealing, and the medical inspection and treatment of school-children at schools and health centres in the Borough of Ealing.

The person appointed will reside at the Isolation Hospital where furnished rooms and board will be provided.

He will be required to devote his whole time to the duties and will not be allowed to engage in private practice. The salary will be at the rate of £450 per annum, rising by £25 per annum to a maximum of £550, plus board and residence, as indicated above and valued at £150 per annum.

A deduction of 5 per cent will be made from the salary in accordance with the provisions of the Local Government and Other Officers' Superannuation Act, 1922, which has been adopted by the Council, and the appointment will be subject to passing the Council's medical examination in connection therewith. Canvassing will be a disqualification.

Copies of the application forms and terms of appointment can be obtained from Dr. Thomas Orr, Medical Officer of Health, Town Hall, Ealing, W.5, to whom application, accompanied by copies of not more than three recent testimonials, must be delivered not later than March 17th.

H. WANKLYN,

Town Hall, Ealing, W.5.

Town Clerk.

COUNTY COUNCIL OF MIDDLESEX. PHYSICIAN

Applications are invited from registered medical practitioners for the permanent appointment of a Physician to the COUNTY SANATORIUM, HAREFIELD. Applicants are expected to hold high qualifications, and to have devoted themselves wholly or chiefly to the practice of clinical medicine with special experience in the treatment of pulmonary tuberculosis.

The successful candidate will work under the direction of the Medical Superintendent, and the whole of his time must be given to his official duties. He must be prepared to act as consultant to general medical practitioners outside the sanatorium if called upon to do so, to undertake the teaching of post-graduate students if required, and to carry out such other duties as the Council may from time to time direct.

The appointment is non-resident, and the successful candidate will be required to reside within a short distance of the sanatorium. The appointment, which will be subject to medical examination, will be held during the pleasure of the Council, and is terminable by three months' notice on either side.

Salary £1,600 per annum (including living-out allowance of £150 per annum), rising by annual increments of £50 to £1,650. The salary is inclusive, and any fees received by the officer appointed must be paid over to the Council.

The Harefield County Sanatorium, which accommodates 378 patients (men, women and children), has just been completely rebuilt and embodies many new features in hospital construction.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Physician, Harefield County Sanatorium."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z."

Clerk of the County Council.

Middlesex Guildhall,

Westminster, S.W.1.

February 26th, 1938.

GLOUCESTERSHIRE COUNTY COUNCIL.

TWO ASSISTANT COUNTY MEDICAL OFFICERS OF HEALTH.

Gloucestershire County Council invite applications for the appointments of Two Assistant County Medical Officers of Health.

The salary in each case will be on the scale £500 p.a. to £700 p.a., and the local government service will be counted in assessing the commencing salary. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

The posts are designated for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidates will be required to pass a medical examination by the Council's medical adviser. Applicants must be registered Medical Practitioners and should hold a Diploma in Public Health. Previous experience in various branches of public health and school medical work is desirable.

Forms of application, with particulars of the duties and conditions of appointment, may be obtained from the County Medical Officer of Health, Shire Hall, Gloucester, to whom completed applications, with copies of three recent testimonials, should be sent not later than March 24th, 1938.

Canvassing, directly or indirectly, will disqualify.

RICHARD L. MOON,

Clerk of the County Council.

Shire Hall, Gloucester.

COUNTY BOROUGH OF WEST BROMWICH. HALLAM HOSPITAL (472 Beds).

HOUSE SURGEON.

Applications are invited from fully qualified male registered practitioners for the above-mentioned post. The appointment is for six months, with eligibility for a further six months. Either party may give six weeks' notice terminating the appointment. There is a visiting staff of eight physicians and surgeons, one resident surgical officer, and three resident medical officers.

Salary £200 per annum, with board-residence. All fees received by the person appointed will be payable into the funds of the Council.

Applications, stating age, experience and qualifications, together with copies of three recent testimonials, must be forwarded to the Medical Officer of Health, 2, Lodge Road, West Bromwich, so as to arrive not later than by first post on Wednesday, March 16th, 1938.

Town Hall,

West Bromwich.

March 3rd, 1938.

G. F. DARLOW,

Town Clerk.

COUNTY COUNCIL OF MIDDLESEX. ANAESTHETIST.

WEST MIDDLESEX COUNTY HOSPITAL,
Isleworth.

Applications are invited from registered Medical Practitioners for the above appointment. Candidates must have held resident appointments in a general hospital, and must be specially skilled and experienced in the administration of anaesthetics by modern methods. The officer appointed will be required to administer anaesthetics, and to carry out such other duties as may be allotted to him.

Salary £400 per annum, rising by annual increments of £25 to £475 per annum. The successful candidate will be required to reside within a short distance of the hospital, and will be paid a cash allowance of £100 per annum in lieu of residential emoluments.

The appointment (which will be subject to medical examination) will be held during the pleasure of the Council, and will be terminable by one month's notice on either side) is for a period of four years, the last year of which period the officer will leave the Council's service. In special cases the Council may decide to retain an officer on the established staff, in which case the salary will be increased to £500 per annum, which will be the maximum for a non-resident officer in this grade.

The officer appointed will work under the control of the Medical Superintendent, will devote the whole of his time to official duties, and will have no rights under the Council's superannuation scheme.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Resident Anaesthetist, West Middlesex County Hospital."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z."

Clerk of the County Council.

Middlesex Guildhall,

Westminster, S.W.1.

February 26th, 1938.

N.B.—The West Middlesex County Hospital is a General Hospital with accommodation for approximately 500 acute and 600 non-acute cases.

COUNTY COUNCIL OF MIDDLESEX.

NORTH MIDDLESEX COUNTY HOSPITAL,
Edmonton.

JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER

Applications are invited for the above appointment. Candidates must be registered Medical Practitioners who have held a resident appointment in a General Hospital. The duties of the appointment will be mainly obstetrical and gynaecological. Salary £250 per annum, with board, laundry and laundry, valued at £100 per annum.

The officer appointed will work under the direction of the Medical Superintendent, and will devote his or her whole time to official duties.

The appointment (which does not at present carry any superannuation rights, will be subject to medical examination, and is terminable by one month's notice on either side) is for a period of six months in the first instance, and may be extended for an additional six months.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 15th. Relationship to any member or officer of the Council must be disclosed in the application.

Application forms are not provided. Envelopes must be endorsed "Junior Assistant Medical Officer, North Middlesex County Hospital." Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z."

Clerk of the County Council.

Middlesex Guildhall,

Westminster, S.W.1.

February 23rd, 1938.

ROCHDALE INFIRMARY AND DISPENSARY. (110 Beds. Three Residents.)

The Board of Management invites applications for the appointment of HOUSE PHYSICIAN (Male). The salary attached to the appointment is at the rate of £150 per annum, with board, residence, laundry. The duties include work in the Out-patient, Aural, Ophthalmic, etc. Departments, as well as in the wards. The Hospital covers a large industrial area and affords excellent opportunity for experience.

Applications, stating age, nationality, etc., with three recent testimonials, to be sent to the Secretary, Rochdale Infirmary.

Infirmary Office.

Rochdale.

W. WYNNE,

Secretary.

MEDICAL RESEARCH COUNCIL**KATHLEEN SCHLESINGER RESEARCH FELLOWSHIP.**

The Medical Research Council invite applications for the **KATHLEEN SCHLESINGER RESEARCH FELLOWSHIP**. This Fellowship is provided from a fund established by the late Mr. Eugen M. Schlesinger and Mrs. Schlesinger in memory of their daughter. It will be awarded by the Council, under the terms of the Trust Deed, to a suitably qualified person who will devote his or her whole time "to investigating the origin and nature of cysts of the brain, whether arising from tumours or not, or to such studies of other conditions of the central nervous system as the Council may from time to time permit." It will ordinarily be tenable at the National Hospital for Diseases of the Nervous System, Queen Square, London, and for a period of one year in the first instance. The stipend will be at the rate of £300 per annum, with up to £50 per annum for research expenses. Applications, stating age, qualifications and research experience, together with the names of two referees, should be lodged with the Secretary, Medical Research Council, 38, Old Queen Street, Westminster, S.W.1, before March 31st, 1938.

BARBADOS

The Secretary of State for the Colonies has been requested by the Governor of Barbados to assist the Board of Directors of the **BARBADOS GENERAL HOSPITAL** in the selection of a **MEDICAL SUPERINTENDENT** for the Hospital.

Candidates must be British subjects of European parentage, hold medical qualifications registrable in the United Kingdom, and have had practical experience of hospital administration. The selected candidate will be responsible to the Hospital Board for the general administration, discipline, and working of the Hospital, which has 243 beds.

SALARY. £700 a year rising by annual increments of £20 to £800 a year.

QUARTERS. Free furnished quarters will be provided with free water and an allowance for lighting.

PASSAGES. Free first class transport will be provided.

The appointment will be for a period of five years.

Further particulars and forms of application may be obtained from the Director of Recruitment (Colonial Service), 8, Buckingham Gate, London, S.W.1. Completed applications must be received not later than March 31st.

APPLICATIONS FOR MEDICAL PRACTITIONER.

Applications are invited by the **DISTRICT COUNCIL OF KAROONDA, SOUTH AUSTRALIA**, from duly qualified medical practitioners, who are members of the British Medical Association, for private practice in Karoonda and surrounding district, under a guarantee by the Council of £800 per annum.

Applications, stating age and qualifications, and accompanied by copies of credentials, should be in the hands of the Agent General and Trade Commissioner for South Australia, British Industries House, Marble Arch, London, W.1 (from whom further particulars can be obtained), by March 29th, 1938.

By Order of the Council,
Karoonda, E. R. MIELL, District Clerk
South Australia.
January, 1938.

CITY OF BIRMINGHAM. SELLY OAK HOSPITAL. (520 Beds.)**RESIDENT PHYSICIAN.**

Applications are invited for the above whole-time appointment from fully qualified registered medical practitioners who have had good medical experience, and who should hold the degree of Doctor of Medicine of one of the Universities of the United Kingdom, or who should be members of the Royal College of Physicians of London.

Furnished quarters, rations, laundry and attendance will be provided, or alternatively a cash allowance will be paid if the officer appointed should be non-resident.

Salary will be £650, rising by annual increments of £50 to a maximum of £900 per annum, together with the emoluments stated above.

The appointment will be dependent on the candidate passing a medical examination, and be subject to the Birmingham Corporation's Superannuation Scheme and the Birmingham Municipal Officers' Widows' and Orphans' Pensions Scheme (if applicable). The appointment will be terminable by one month's notice on either side.

Further particulars of the appointment may be obtained from the Medical Superintendent of the Hospital.

Applications, stating age, experience and qualifications, accompanied by copies of recent testimonials, and endorsed "Physician," should be sent to the Medical Superintendent not later than Wednesday, March 23rd, 1938.

The Council House, F. H. C. WILTSHIRE, Birmingham. Town Clerk.

WARWICKSHIRE COUNTY COUNCIL.**DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.**

Applications are invited from registered medical practitioners not over 45 years of age holding the Diploma of Public Health for the post of **DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER**. Previous administrative experience will be considered an advantage.

The salary is at the rate of £750 per annum, rising by annual increments of £50 to a maximum of £850 per annum, and is subject to a deduction of 5 per cent. in respect of contributions under the Local Government and Other Officers' Superannuation Act, 1922.

The person appointed will be required to use his own motor car in the service of the Council and will be paid in respect of such use a mileage allowance in accordance with the Council's scale from time to time in force. Subsistence allowances according to scale will also be paid.

The appointment is subject to the production of a medical certificate in a form satisfactory to the County Medical Officer of Health. Forms of application and statement of the duties and terms of appointment can be obtained from the County Medical Officer of Health, Shire Hall, Warwick, to whom applications, with copies of not more than three recent testimonials should be sent not later than Monday, March 28th, 1938.

Canvassing, directly or indirectly, will be a disqualification.

L. EDGAR STEPHENS,
Shire Hall, Warwick. Clerk of the Council.
February 28th 1938.

NORFOLK COUNTY COUNCIL.**ASSISTANT COUNTY MEDICAL OFFICER.**

Applications are invited from medical practitioners holding a diploma in public health or similar qualification.

The salary will be £600 per annum rising, on satisfactory service, by yearly increments of £25 to £700, with travelling expenses in accordance with the Council's scale. The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the salary will be subject to the statutory deduction for this purpose. The successful applicant will be required to pass a medical examination.

The Officer appointed will act under the County Medical Officer as Medical Officer to the County Isolation Hospital (non-resident), as Assistant School Medical Officer for a small area, Medical Officer to Infant Welfare Centres, and will be required to perform such other duties as may be assigned to him. He will be required to reside at East Dereham.

The appointment will be subject to three months' notice by either side.

Applications must be made on the prescribed form, which can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they should be returned, accompanied by copies of three recent testimonials, not later than March 19th, 1938.

H. C. DAVIES,
County Offices, Clerk of the County Council.
Thorpe Road, Norwich.

NORFOLK COUNTY COUNCIL.**APPOINTMENT OF TEMPORARY MEDICAL OFFICER.**

Applications are invited from medical practitioners with special experience of mental deficiency in children.

The salary will be at the rate of £600 per annum, with travelling expenses in accordance with the Council's scale, and the appointment is expected to last for about twelve months.

The Officer will be required to act under the County Medical Officer. The duties will be the examination of all dull and backward children in the county, and the completion of the Board of Education Report Form for those who are mentally defective.

The appointment will be subject to one month's notice by either side.

Applications must be made on the prescribed form which can be obtained from the County Medical Officer, Public Health Department, 29, Thorpe Road, Norwich, to whom they must be returned, accompanied by copies of not more than three recent testimonials, not later than March 19th, 1938.

H. C. DAVIES,
County Offices, Clerk of the County Council.
Thorpe Road, Norwich.

CITY OF BRADFORD.**SANATORIUM—GRASSINGTON.****ASSISTANT MEDICAL OFFICER required.**

Appointment tenable for one year at a salary of £175 per annum, plus board and lodgings.

Forms of application may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned not later than March 23rd, 1938.

Town Hall, Bradford. N. L. FLEMING.
February 26th, 1938.

COUNTY BOROUGH OF WALSALL.**MANOR HOSPITAL.****ASSISTANT MEDICAL OFFICER.**

Applications are invited from duly qualified persons for the appointment of Assistant Medical Officer (resident) at a commencing salary of £340 per annum, rising by £25 per annum to £425 per annum together with emoluments valued at £125 per annum.

The person appointed should have had special experience in obstetrics and will be responsible, under the direction of the Medical Superintendent, for the Obstetric and Children's Wards and Antenatal Sessions. The Department is supported by a Consultant.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, stating age, professional qualifications and experience, accompanied by not more than three copies of testimonials, should be sent to the Medical Officer of Health, Health Department, Council House, Walsall, not later than March 26th, 1938.

March 3rd, 1938.

COUNTY BOROUGH OF WALSALL.**MANOR HOSPITAL.****JUNIOR ASSISTANT MEDICAL OFFICER.**

Applications are invited from duly qualified persons for the appointment of Junior Assistant Medical Officer (resident). The appointment will be for a period of 12 months and the salary is at the rate of £150 per annum, together with the usual emoluments.

The person appointed will be required to act under the general direction of the Medical Superintendent, and carry out the duties of Casualty Officer and Resident Anaesthetist.

Applications, stating age, professional qualifications and experience, accompanied by not more than three copies of recent testimonials, should be sent to the Medical Officer of Health, Health Department, Council House, Walsall, not later than March 26th, 1938.

March 3rd, 1938.

COUNTY BOROUGH OF WALSALL.**MANOR HOSPITAL.****CONSULTING OBSTETRICIAN AND GYNAECOLOGIST.**

Applications are invited for the above appointment from gentlemen of recognized Consultant rank. The gentleman appointed will be required to conduct a consultative antenatal and gynaecological clinic once monthly at the Manor Hospital, for which a fee of £3 3s. per session will be paid.

The gentleman appointed will also be required to act as Consultant Obstetrician at the Hospital, a fee of £5 5s. being paid for each emergency visit.

Applications to be sent to the Medical Officer of Health, Council House, Walsall, not later than March 26th, 1938.

COUNTY OF KENT.**VENEREAL DISEASES CLINIC, CANTERBURY.**

Applications are invited from registered medical practitioners (male), who are duly qualified in accordance with the regulations of the Ministry of Health, for the **PART-TIME** appointment of **MEDICAL OFFICER** of the above mentioned clinic, which is at the Kent and Canterbury Hospital.

One half-day session will be held each week, and the remuneration will be at the rate of three guineas a session, with an allowance for travelling.

The appointment will be terminable at any time by one month's written notice on either side.

Applications, stating age, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should reach the County Medical Officer of Health, Sessions House, Maidstone, not later than March 17th, 1938.

W. L. PLATTIS,
Sessions House, Clerk of the County Council.
Maidstone.
February 26th, 1938.

CITY OF NORWICH**ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.**

Applications are invited for the post of Assistant Medical Officer of Health and Assistant School Medical Officer, to include the duties of Medical Officer with residence at the Isolation Hospital. Salary £160 per annum (including emoluments) valued at £150 per annum, rising by annual increments of £25 to £170 per annum. Board and lodging at the rate of £20 per annum granted when absent from hospital on leave. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922. For particulars apply to the Medical Officer of Health, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 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807, 809, 811, 813, 815, 817, 819, 821, 823, 825, 827, 829, 831, 833, 835, 837, 839, 841, 843, 845, 847, 849, 851, 853, 855, 857, 859, 861, 863, 865, 867, 869, 871, 873, 875, 877, 879, 881, 883, 885, 887, 889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959, 961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999, 1001, 1003, 1005, 1007, 1009, 1011, 1013, 1015, 1017, 1019, 1021, 1023, 1025, 1027, 1029, 1031, 1033, 1035, 1037, 1039, 1041, 1043, 1045, 1047, 1049, 1051, 1053, 1055, 1057, 1059, 1061, 1063, 1065, 1067, 1069, 1071, 1073, 1075, 1077, 1079, 1081, 1083, 1085, 1087, 1089, 1091, 1093, 1095, 1097, 1099, 1101, 1103, 1105, 1107, 1109, 1111, 1113, 1115, 1117, 1119, 1121, 1123, 1125, 1127, 1129, 1131, 1133, 1135, 1137, 1139, 1141, 1143, 1145, 1147, 1149, 1151, 1153, 1155, 1157, 1159, 1161, 1163, 1165, 1167, 1169, 1171, 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1505, 1507, 1509, 1511, 1513, 1515, 1517, 1519, 1521, 1523, 1525, 1527, 1529, 1531, 1533, 1535, 1537, 1539, 1541, 1543, 1545, 1547, 1549, 1551, 1553, 1555, 1557, 1559, 1561, 1563, 1565, 1567, 1569, 1571, 1573, 1575, 1577, 1579, 1581, 1583, 1585, 1587, 1589, 1591, 1593, 1595, 1597, 1599, 1601, 1603, 1605, 1607, 1609, 1611, 1613, 1615, 1617, 1619, 1621, 1623, 1625, 1627, 1629, 1631, 1633, 1635, 1637, 1639, 1641, 1643, 1645, 1647, 1649, 1651, 1653, 1655, 1657, 1659, 1661, 1663, 1665, 1667, 1669, 1671, 1673, 1675, 1677, 1679, 1681, 1683, 1685, 1687, 1689, 1691, 1693, 1695, 1697, 1699, 1701, 1703, 1705, 1707, 1709, 1711, 1713, 1715, 1717, 1719, 1721, 1723, 1725, 1727, 1729, 1731, 1733, 1735, 1737, 1739, 1741, 1743, 1745, 1747, 1749, 1751, 1753, 1755, 1757, 1759, 1761, 1763, 1765, 1767, 1769, 1771, 1773, 1775, 1777, 1779, 1781, 1783, 1785, 1787, 1789, 1791, 1793, 1795, 1797, 1799, 1801, 1803, 1805, 1807, 1809, 1811, 1813, 1815, 1817, 1819, 1821, 1823, 1825, 1827, 1829, 1831, 1833, 1835, 1837, 1839, 1841, 1843, 1845, 1847, 1849, 1851, 1853, 1855, 1857, 1859, 1861, 1863, 1865, 1867, 1869, 1871, 1873, 1875, 1877, 1879, 1881, 1883, 1885, 1887, 1889, 1891, 1893, 1895, 1897, 1899, 1901, 1903, 1905, 1907, 1909, 1911, 1913, 1915, 1917, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, 1935, 1937, 1939, 1941, 1943, 1945, 1947, 1949, 1951, 1953, 1955, 1957, 1959, 1961, 1963, 1965, 1967, 1969, 1971, 1973, 1975, 1977, 1979, 1981, 1983, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033, 2035, 2037, 2039, 2041, 2043, 2045, 2047, 2049, 2051, 2053, 2055, 2057, 2059, 2061, 2063, 2065, 2067, 2069, 2071, 2073, 2075, 2077, 2079, 2081, 2083, 2085, 2087, 2089, 2091, 2093, 2095, 2097, 2099, 2101, 2103, 2105, 2107, 2109, 2111, 2113, 2115, 2117, 2119, 2121, 2123, 2125, 2127, 2129, 2131, 2133, 2135, 2137, 2139, 2141, 2143, 2145, 2147, 2149, 2151, 2153, 2155, 2157, 2159, 2161, 2163, 2165, 2167, 2169, 2171, 2173, 2175, 2177, 2179, 2181, 2183, 2185, 2187, 2189, 2191, 2193, 2195, 2197, 2199, 2201, 2203, 2205, 2207, 2209, 2211, 2213, 2215, 2217, 2219, 2221, 2223, 2225, 2227, 2229, 2231, 2233, 2235, 2237, 2239, 2241, 2243, 2245, 2247, 2249, 2251, 2253, 2255, 2257, 2259, 2261, 2263, 2265, 2267, 2269, 2271, 2273, 2275, 2277, 2279, 2281, 2283, 2285, 2287, 2289, 2291, 2293, 2295, 2297, 2299, 2301, 2303, 2305, 2307, 2309, 2311, 2313, 2315, 2317, 2319, 2321, 2323, 2325, 23

ADMINISTRATIVE COUNTY OF LEXX APPOINTMENT OF ASSISTANT SPECIALIST OPHTHALMIC SURGEON.

The County Council of the Administrative County of Lexx invite applications for the above appointment from registered Medical Practitioners, not over 45 years of age, with special experience in all branches of ophthalmology and preferably holding the Diploma in Ophthalmic Medicine, to act under the County Medical Officer of Health.

The salary will be at the rate of £1,700 per annum, and will rise, subject to satisfactory service, by annual increments of £150, to £2,200 per annum.

The person appointed will, at the discretion of the Council, either be provided with a car or will be paid a travelling allowance in accordance with the County Scale for the time being in force.

The person appointed will be required to devote his whole time to the service of the Council, and to perform such duties and to furnish such advice and assistance as may be required, and to reside in such district of the County as the Council may decide. The appointment will be held by the successful candidate during the pleasure of the Council, and will be determinable by the Officer by three months' notice in writing.

The person appointed will be required to pass a medical examination and to contribute 5 per cent. of his salary to the fund established by the County Council under the Local Government and Other Officers' Superannuation Act, 1922.

The appointment will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded to the successful candidate.

Applications on the prescribed form, obtainable from the undersigned, and accompanied by copies of not more than three testimonials, which will not be returned, should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Friday, March 25th, 1938.

E. S. HOLCROFT,
Clerk of the County Council.
County Hall, Chelmsford.
March 7th, 1938.

BOROUGH OF GRAVELAND, KENT. ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications for this appointment are invited from registered medical practitioners of not more than 40 years of age; commencing salary £150 per annum, rising by two annual increments of £50, to a maximum salary of £350 per annum.

Candidates must have had at least three years' professional experience and special experience in Ante-Natal and Maternity and Child Welfare work, and the work of the School Medical Service including Refractions. The possession of a Diploma in Public Health is necessary.

The person appointed will be required to devote full time to the duties, and not to engage in private practice. Duties to be performed under the direction of the Medical Officer of Health, and to include work in connection with Air Raid Precautions.

The post will be designated as established for the purposes of the Local Government and Other Officers' Superannuation Act, 1922, and the usual deduction of 5 per cent. will be made from salary. The successful candidate will be required to pass a medical examination by the Medical Officer of Health or an Independent Medical Referee appointed by the Council.

Applications must be made on forms obtainable from the undersigned to whom three recent testimonials (not later than the first post on Wednesday, March 30th, 1938, in envelope endorsed "Assistant Medical Officer.")

Canvassing, directly or indirectly, will disqualify.
H. H. BROWN,
Town Clerk.
4, Woodville Terrace, Gravesend, Kent.
March 7th, 1938.

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE. APPOINTMENT OF ASSISTANT COUNTY MEDICAL OFFICER.

The County Council of the West Riding of Yorkshire invite applications from registered medical practitioners for the appointment of Assistant County Medical Officer, the duties of which will be to act as Venereal Diseases Officer and to assist the Medical Officer in General Public Health Administration.

The salary is £960 per annum. Candidates must be duly registered in Medicine and Surgery, and possess the Diploma in Public Health. The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Form of application and further particulars may be obtained from the undersigned, to whom all applications, together with copies of not more than three recent testimonials, should be addressed so as to be received not later than March 21st, 1938.

County Hall, J. C. RILEY-MCGRATH,
Wakefield. Clerk of the County Council.
March, 1938.

COUNTY BOROUGH OF BLACKBURN. LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of Assistant Medical Officer of Health and Assistant School Medical Officer to act under the direction and supervision of the Medical Officer of Health, who is also School Medical Officer.

The maximum salary will be £700 per annum. The commencing salary will not be less than £400 per annum, and will be fixed according to the qualifications and experience of the successful applicant, and will rise by annual increments of £25 to the maximum of £700.

The person appointed must have had at least three years' postgraduate experience in the practice of her profession and special experience of midwifery and ante-natal work. Special postgraduate experience in the treatment of venereal diseases and of diseases of children, and the possession of a reasonable degree of diploma in Public Health will be deemed additional qualifications.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than Wednesday, March 23rd, 1938, endorsed "Assistant Medical Officer of Health."

Canvassing, directly or indirectly, will be a disqualification.
T. H. HALL,
Blackburn.
March 7th, 1938.

COUNTY BOROUGH OF SMETHWICK. St. Chad's Hospital, Birmingham. HOUSE SURGEON

Applications are invited from registered Medical Practitioners for the appointment of House Surgeon at the Council's Municipal Hospital. The appointment will be for a period of six months from April 6th, 1938, with salary at the rate of £150 per annum with the usual emoluments. If the successful candidate be reappointed for a further period of six months, the salary will be at the rate of £210 per annum. St. Chad's Hospital contains 145 beds, and the cases treated include general medical, acute surgical and maternity patients. It is staffed by the Honorary Consultants of the Birmingham teaching hospitals.

Form of application may be obtained from the Medical Superintendent, St. Chad's Hospital, Hagley Road, Birmingham, 16, to whom application, endorsed "House Surgeon" and accompanied by copies of three recent testimonials, must be delivered not later than March 17th, 1938.

Canvassing, directly or indirectly, will disqualify.
Council House, FRANK CHAPMAN,
Birmingham. Town Clerk.
February 26th, 1938.

CITY OF STOKE-ON-TRENT. STANFORD SANATORIUM. RESIDENT MEDICAL OFFICER.

Applications are invited for the post of Resident Medical Officer (Male) at Stanford Sanatorium. Candidates must be single. Previous institutional experience in Tuberculosis will be an advantage.

Salary at the rate of £350 per annum, rising by annual increments of £25 to £450 per annum, together with board and lodgings. The selected candidate will act under the immediate direction of the Tuberculosis Officer.

Applications, endorsed "Resident Medical Officer," together with copies of three recent testimonials, to be sent to the undersigned not later than Monday, March 21st, 1938.

Town Hall, E. B. SHARPLEY,
Stoke-on-Trent. Town Clerk.
March 4th, 1938.

THE QUEEN'S UNIVERSITY OF BELFAST.

Applications are invited for the post of TUTOR in OBSTETRICS in the UNIVERSITY. The person appointed will also hold the post of Senior Resident Medical Officer in the Royal Maternity Hospital. Candidates must be graduates of at least two years' standing, and have held previous resident appointments in a teaching hospital. Preference will be given to candidates holding or wishing to obtain higher degrees in Surgery, Obstetrics and Gynaecology, and must be members of a recognized Medical Defence Union.

The appointment in the first instance is for one year, but the Tutor may be reappointed for a further term. Salary £300 per annum. Special facilities are offered to a holder who desires to qualify himself for M.C.D.G. The successful candidate will be expected to take up office on April 1st, 1938.

Further particulars may be obtained from the undersigned to whom applications should be sent on or before Monday, March 21st, 1938.

Queen's University, THE SECRETARY,
Belfast.

MONTGOMERY COUNTY COUNCIL. COUNTY MEDICAL OFFICER AND SCHOOL MEDICAL OFFICER.

Applications are invited from qualified medical men for the above appointment. Candidates must possess a Diploma of Public Health.

The duties will include all statutory duties as County Medical Officer and School Medical Officer, all work required by the Mental Deficiency Committee, the inspection of Midwives and the supervision of the work of the County Dentist and County Health Visitor, control of, and attendance at, Maternity and Child Welfare Centres, refraction work, and prescribing of glasses, with general supervision and control of the various Clinics for School Children and General Supervision of the Medical work under the Public Assistance Committee.

Salary £240 per annum rising, by annual increments of £25 per annum, to £310 per annum, together with travelling allowances on the County Scale.

The appointment will be subject to the approval of the Government Departments concerned and terminable by three months' notice on either side.

The person appointed will be required to devote his whole time to the services of the Council and will not be allowed to engage in private practice, and must reside within easy reach of the Public Health Office at Stratford-on-Avon.

A knowledge of Welsh is desirable. Applications, stating age, qualifications, training and experience of candidates, together with three recent testimonials, must reach the undersigned not later than April 1th, 1938.

Canvassing in any form, oral or written, direct or indirect, will be considered a disqualification.
GEORGE R. D. HARRISON,
Clerk of the County Council.
County Office, Weobool.
March 7th, 1938.

ESSEX COUNTY COUNCIL. APPOINTMENT OF PART-TIME OPHTHALMIC SURGEON

The County Council of the Administrative County of Essex invite applications for the above appointment from registered medical practitioners not over 45 years of age, with special experience in ophthalmology, to act under the County Medical Officer of Health.

Preference will be given to candidates holding an Ophthalmic Hospital appointment and the possession of the Diploma in Ophthalmic Medicine will be considered an additional qualification.

The salary will be at the rate of £200 per annum for the service of a week, together with a travelling allowance in accordance with the County Scale for the time being in force.

The appointment will be held by the successful candidate during the pleasure of the Council, and will be determinable by the Officer by three months' notice in writing.

Applications on the prescribed form, obtainable from the undersigned, accompanied by copies of not more than three testimonials (which will not be returned) should be addressed to me and delivered at the County Hall, Chelmsford, not later than Monday, March 21st, 1938.

County Hall, CHOLCROFT,
Chelmsford. Clerk of the County Council.
March 1st, 1938.

BATH CITY COUNCIL. ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Assistant Medical Officer (Male) at the Bath Sanatorium. Candidates must be single, and should hold the Diploma in Public Health. The officer will be required to work under the direction and supervision of the Medical Officer of Health and to devote whole-time service to the Council.

Salary £600, rising, subject to approval of service, by annual increments of £50 to £700. The post is designated one for superannuation purposes, and the candidate's age must not exceed 45 years.

Application forms and full particulars of the appointment may be obtained from the undersigned, and the form must be received by him not later than March 21st, 1938.

Guildhall, Bath, J. BASIL OGDEN,
March 3rd, 1938. Town Clerk.

CITY OF LINCOLN. RESIDENT MEDICAL OFFICER.

Applications are invited for the appointment of Resident Medical Officer (Male), to be based at the City Hospital and Sanatorium, for a period of 12 months, from registered medical practitioners.

Salary £350 per annum, with board, lodging and laundry. Applications must be made on the prescribed forms not later than March 21st, 1938.

Forms of application and further particulars of the appointment may be obtained from the undersigned.

City Health Department, M. L. BERRY,
Baumgartner Place, Medical Officer of Health,
Lincoln.

EGYPTIAN GOVERNMENT. EGYPTIAN UNIVERSITY. FACULTY OF MEDICINE.

Applications are invited for the post of **PROFESSOR OF DENTAL SURGERY and PATHOLOGY and SUPERINTENDENT of STUDIES in the DENTAL SCHOOL of the EGYPTIAN UNIVERSITY, CAIRO.**

Applicants must possess an English Dental qualification, and have had experience in teaching and administration in a Dental School. Preference will be given to applicants with double qualifications.

The appointment will be on contract for five years, not renewable.

The net salary offered is LE1,200 (approximately £ sterling 1,230) a year, subject to a deduction of Government Stamp Duty, which amounts at present to £ sterling 37. If an official of the Egyptian Government is appointed to the post he will not receive the advertised salary unless it is sanctioned by the Financial Authorities.

A transfer allowance equal to one month's salary will be paid to the successful candidate for travelling expenses at the beginning and again at the end of the contract.

Private practice will not be allowed.

Applications, with details of qualifications, experience and testimonials, should be sent to H.E. the Dean of the Faculty of Medicine, Cairo, so as to be received not later than April 30th, 1938.

COUNTY BOROUGH OF WEST HAM. PUBLIC HEALTH DEPARTMENT.

Applications are invited by the Public Assistance Committee for the post of **ASSISTANT RESIDENT MEDICAL OFFICER (male)**, at Forest Gate Hospital, Forest Lane, E.7, at a salary of £350 per annum, rising by annual increments of £25 per annum to a maximum of £450 per annum, with apartments, rations and laundry, valued for superannuation purposes at £150 per annum, subject to the Council's Regulations as to sick pay, holidays, etc. The salary is inclusive, and any fees received must be paid to the Council.

Candidates must be qualified registered medical practitioners, preference being given to candidates who have had, in addition to a general hospital appointment, an appointment in a hospital with charge of maternity beds.

The number of beds at the hospital is approximately 750, and comprises chronic sick, epileptics and mental defectives, with two maternity blocks.

The successful candidate may be required to serve in any of the Council's other institutions.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, or the Poor Law Officers' Superannuation Act, 1896.

Forms upon which application must be made can be obtained from the Medical Officer of Health, Public Health Department, 88, Romford Road, Stratford, E.15, on the receipt of a stamped addressed foolscap envelope, and should be returned to the undersigned not later than April 2nd, 1938.

Canvassing members of the Council, either directly or indirectly, is prohibited, and will disqualify.

CHARLES E. CRANFIELD,
Public Assistance Officer, Town Clerk.
Union Road, Leytonstone, E.11.
March 4th, 1938.

COUNTY COUNCIL OF SUTHERLAND. PARISHES OF KILDONAN AND LOTH

Applications are invited from registered Medical Practitioners for the appointment of **LOCAL MEDICAL OFFICER of the Parishes of Kildonan and Loth, in the County of Sutherland.**

Salary from the County Council in respect of services, income from other sources, Highlands and Islands Medical Service Fund, and the panel practice approximately £533 per annum, with house and private practice in addition.

Applications, with statement of qualifications and experience, accompanied by twenty-two copies of three recent testimonials and of the application, to be lodged with the undersigned on or before March 31st, 1938.

County Clerk's Office, **ARCHD. ARGO,**
Golspie, County Clerk.
March 5th, 1938.

COUNTY BOROUGH OF PRESTON. Sharoe Green Hospital. (250 Beds.)

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (FEMALE).

Applications are invited from fully qualified and registered Practitioners for the above appointment. Salary at the rate of £100 per annum, with full board and residence. The appointment will be for a period of six months and can be renewed for a period not exceeding six months.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should reach the Medical Superintendent not later than first post on March 26th, 1938.

COUNTY COUNCIL OF DURHAM. ASSISTANT WELFARE MEDICAL OFFICER.

The County Health Committee invite applications for an Assistant Welfare Medical Officer (woman) at a commencing salary of £500 per annum, rising by annual increments of £25 to £700 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side, and to the following conditions:

(1) The Officer appointed must be a registered medical practitioner between the ages of 25 and 55 years, must devote the whole of her time to the duties of the office, and must not engage in private practice.

(2) She should either have had a previous appointment as Medical Officer of an ante-natal clinic, with the approval of the Minister of Health, or have had at least three years' experience in the practice of her profession and special experience of practical midwifery and ante-natal work. The holding of a diploma in Public Health will be deemed an additional qualification for the post.

(3) She will be subject to the directions of the County Medical Officer of Health.

(4) She will be required to reside in Durham City, or such other place as required by the Council.

(5) She must be prepared, if called upon, to act as locum tenens to other members of the medical staff of the County Medical Officer of Health.

(6) The appointment will terminate on marriage.

(7) The candidate appointed will be required to pass the County Council's medical examination, and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "Assistant Welfare Medical Officer," with copies of not more than three recent testimonials, must be addressed to the County Medical Officer of Health, Shire Hall, Durham, and must be received by him not later than Monday, March 28th, 1938.

Shire Hall, Durham, **J. K. HOPE,**
March 5th, 1938. Clerk of the County Council.

COUNTY COUNCIL OF DURHAM. APPOINTMENT OF TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Temporary Assistant Medical Officer of Health (male), at a commencing salary of £600 per annum. The appointment is subject to one month's notice on either side, and will terminate at the end of two years. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

Applicants must be registered medical practitioners under the age of 55 years, and should if possible possess a qualification in Public Health and have held a post in an Infectious Diseases Hospital. Experience in the examination and certification of mentally defective children and adults will be an additional recommendation.

The officer appointed will be required to devote the whole of his time to the duties of the office, and will not be allowed to engage in private practice. He will also be required to undertake such other Public Health duties as may be allotted to him by the County Medical Officer of Health, under whose direction he will work.

Applications, stating age, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should be forwarded to the County Medical Officer of Health, Shire Hall, Durham, not later than first post on Monday, March 28th, 1938.

Shire Hall, Durham, **J. K. HOPE,**
March 5th, 1938. Clerk of the County Council.

BOROUGH OF ACCRINGTON. DEPUTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications for the above post are invited from registered medical practitioners of either sex. Candidates should have had sound post-graduate experience in general clinical work, including the diseases of children, and preference will be given to a person possessing a Diploma in Public Health or an equivalent registrable qualification.

The officer appointed will be required to carry out duties in all branches of the Public Health and School Medical Services, including both clinical and administrative work. He, or she, will work under the direction of the Medical Officer of Health and will act as that officer's Deputy.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum. The post will be designated for superannuation purposes.

Forms of application and particulars of the appointment and its terms and conditions may be obtained from the undersigned, to whom the completed form must be returned not later than Monday, March 28th, 1938.

Town Hall, Accrington, **W. H. WARHURST,**
March 9th, 1938. Town Clerk.

SURREY COUNTY COUNCIL. BOTLEYS PARK COLONY (CERTIFIED INSTITUTION FOR MENTAL DEFECTIVES). Near Chertsey, Surrey.

APPOINTMENT OF DEPUTY MEDICAL SUPERINTENDENT.

Applications are invited from registered medical practitioners (male) for the whole-time appointment of Resident Deputy Medical Superintendent at the above-mentioned Certified Institution. The first section of the Colony, which is now in course of erection, will provide accommodation for 1,200 patients and the necessary resident staff, and will eventually provide 1,500 patient beds. In addition, there is accommodation for another 300 patients in an immediately adjacent institution, which is under the same administration as the main colony.

Commencing salary £720, rising by annual increments of £25 to a maximum of £820 per annum, with emoluments valued for superannuation purposes at £30 per annum.

Applicants, who must be in possession of the Diploma of Psychological Medicine, should have had practical experience in a large Mental Institution, preferably for Mental Defectives. Age not to exceed 40 years.

The appointment will be subject to the provision of the Asylums and Certified Institutions (Officers' Pensions) Act, 1915, and to the Council's Staffing Regulations. The person appointed will be required to undergo a medical examination, and to commence his duties on June 1st, 1938.

Applications, stating age and whether married or single, accompanied by copies of three recent testimonials, must reach the undersigned not later than Monday, April 4th, 1938. The envelope should be marked "Botleys Park Deputy Medical Superintendent."

DUDLEY AUKLAND,
Clerk of the Council
Mental Hospitals Department,
County Hall, Kingston-upon-Thames.
March 8th, 1938.

SURREY COUNTY COUNCIL. ASSISTANT MEDICAL OFFICER.

Applications are invited for the appointment of an Assistant Medical Officer (male). Applicants must possess a qualification in Public Health, and should have had experience in the Medical Inspection of School Children and in Maternity and Child Welfare work.

The officer appointed will be required to undertake such other Public Health duties as may be allocated to him. He will be on the staff of the County Medical Officer of Health, must reside in the County of Surrey, and devote his whole time to the work.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum. Travelling expenses in accordance with the Council's scale will be allowed.

The appointment will be subject to the approval of the Ministry of Health and of the Board of Education, to the successful candidate passing a medical examination, to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the Staffing Regulations of the Council, which provide, *inter alia*, that appointments may be determined at any time by three months' notice.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be made on the prescribed form and sent to the County Medical Officer of Health, County Hall, Kingston-upon-Thames, from whom copies of the application form may be obtained, and to whom any enquiries relating to the appointment should be addressed.

Last day for receipt of applications, Wednesday, March 16th, 1938.

Canvassing, directly or indirectly, will disqualify.

DUDLEY AUKLAND,
Clerk of the County Council
County Hall, Kingston-upon-Thames.
March 9th, 1938.

COUNTY BOROUGH OF GRIMSBY. Corporation Hospital and Sanatorium. RESIDENT MEDICAL OFFICER.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER (male)** at the above Hospital, which has 93 beds for pulmonary and surgical tuberculosis and 72 for infectious diseases.

Candidates must be unmarried and have previous resident hospital experience. Salary £700 per annum, rising by annual increments of £25 to £750 per annum, plus board, residence and laundry. The appointment is to be for one year in the first instance. The post is a designated one under the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application may be obtained from the Medical Officer of Health, 104, Victoria Street, Grimsby, and should be returned to the undersigned "Resident Medical Officer," not later than Thursday, March 31st, 1938.

JOHN W. JACKSON,
Town Clerk
Municipal Buildings,
170 Victoria Street, Grimsby.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH.

60, Grove End Road, N.W.5.

Applications are invited for the post of **ASSISTANT PHYSICIAN** at the above Hospital. Candidates must be Members of the Royal College of Physicians (London). Duties include charge of beds. There is no Out-Patient Department. Candidates will be required to call on members of the Medical Committee. Three applications, together with copies of three recent testimonials, should be submitted on or before Tuesday, March 22nd, 1938, to the undersigned, from whom further particulars may be obtained.

F. DUDLEY HOBBS, B.A.
Secretary

HOSPITAL FOR EPILEPSY AND PARALYSIS

Maida Vale, W.

RESIDENT MEDICAL OFFICER required, May 1st.

HOUSE PHYSICIAN required, May 1st. Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the term of office is for 12 months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by March 31st.

The accommodation at the Hospital does not permit of women graduates holding these appointments.

H. W. BURLEIGH,
Secretary and General Superintendent

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN.

St. Quintin Avenue, W.10. (75 Beds)

HOUSE SURGEON (male) required for six months from April 1st, 1938. Salary at the rate of £120 p.a. for the first three months and £150 p.a. for the second three months, with board, residence and laundry.

Applications, with copies of three recent testimonials, must be submitted on a form to be obtained from the undersigned, and must reach him not later than Saturday, March 19th, 1938.

H. J. ELEVY, Secretary

LONDON LEWISHAM HOSPITAL.

Stepney Green, E.1. General Hospital. (100 Beds)

Applications are invited for the post of **Ear, Nose and Throat REGISTRAR**. Honorarium at the rate of Twenty Guineas per annum.

Particulars can be obtained from the Secretary, to whom candidates must send their applications and copies of three recent testimonials not later than Friday, March 18th, 1938.

QUEEN VICTORIA AND WAR MEMORIAL HOSPITAL.

Green Lane, Hanwell, W.7

Applications invited for post of **HONORARY RADIOLOGIST**.

Replies, with copies of recent testimonials, not later than March 20th, to HENRY P. NASH, Honorary Secretary.

ACTION HOSPITAL. W.3

CASUALTY OFFICER (male, unmarried) required to commence duties April 1st, 1938, for a three-monthly appointment, with promotion to Resident Medical Officer for a similar period if approved. Salary £150 per annum, with board, residence and laundry.

Candidates must be fully qualified and registered. Applications, stating age, nationality and qualifications, should be sent with copies of three testimonials to the Secretary and should arrive not later than 1st post Monday, March 21st, 1938.

DONALD C. D. SWORD,

Action Hospital, Secretary,
Gowerbury Lane, Action, W.3

HAMSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL

Hamstead Hill, N.W.5.

APPOINTMENT OF CASUALTY MEDICAL OFFICER

Applications are invited from registered medical women for the post of Casualty Medical Officer for six months, vacant April 1st next at the Out-Patient Department, Bayswater Street, Camden Town. Salary £100 per annum.

Application to be made on the prescribed form, together with copies of not more than three testimonials, should be returned to the Secretary by March 19th next.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL.

Marjorie Road, London, N.W.1.

Applications are invited from registered medical practitioners for the following appointments: **RESIDENT ANAESTHETIST**, three months.

Salary £100 per annum with board, residence and laundry allowance (six weekly). Appointment to commence on April 1st, 1938.

Age salary, £100 p.a. and with copies of three testimonials should be sent to the Secretary by March 24th, 1938.

H. B. STOKES, Secretary-Superintendent

ST JOHN'S HOSPITAL, LEWISHAM, S.E.13

Applications are invited for the appointment of **HONORARY PHYSICIAN** to the Children's Department of the Hospital. The successful applicant who must be a Member of the Royal College of Physicians, London, will take charge of ten beds and will be required to take one out-patient clinic weekly. Applications, together with copies of testimonials, should reach the undersigned not later than March 14th.

J. C. GILBERT,

Secretary-Superintendent.

ROYAL EYE HOSPITAL

St. George's Circus, Southwark, S.E.1

RESEARCH UNIT

Applications are invited for the newly created post of **RESEARCH ASSISTANTS** (unpaid). Further particulars can be obtained from the Dean. Applications should be sent to the Dean not later than March 14th.

A. SORSBY,

Dean.

ST GEORGE'S HOSPITAL, S.W.1.

Applications are invited for the appointment of **ASSISTANT PHYSICIAN** at the above Hospital. He must be a Graduate in Medicine and Surgery of a British University and a Fellow or Member of the Royal College of Physicians, London, and registered according to the Medical Act, 1935. In addition to his general medical duties, he will be in charge of a Clinic for Diseases of the Chest, in which branch of medicine he should have had special experience.

Applications, accompanied by testimonials of recent date, should be sent to the Secretary on or before March 31st, 1938.

JAMES M. CHURCHFIELD,

Secretary

March 2nd, 1938.

ST GEORGE'S HOSPITAL, S.W.1.

Applications are invited for the appointment of **PHYSICIAN** to take charge of the Children's Department at the above Hospital. He must be a Graduate in Medicine and Surgery of a British University and a Fellow or Member of the Royal College of Physicians, London, and registered according to the Medical Act, 1935.

Applications, accompanied by testimonials of recent date, should be sent to the Secretary on or before March 31st, 1938.

JAMES M. CHURCHFIELD,

Secretary.

March 2nd, 1938.

ST MARY'S HOSPITAL, W.2.

MEDICAL REGISTRAR.

Applications are invited for the above post. Candidates for the appointment must be registered Medical Practitioners and Fellow Members or Licentiates of the Royal College of Physicians, or Graduates in Medicine of a University in the British Empire. The successful candidate will be expected to take up his duties on May 1st. The salary is £200 per annum, with lunch and tea provided.

Copies of the regulations for the Medical Registrar may be obtained on application at the Secretary's office.

Applications, with copies of testimonials, should reach the undersigned on or before Monday, March 20th.

W. PARKES,

House Physician

THE QUEEN'S HOSPITAL FOR CHILDREN.

Hackney Road, E.2. (24 Beds)

The Committee invite applications for the post of **ASSISTANT PHYSICIAN**, with charge of Beds. Candidates must be Fellows or Members of the Royal College of Physicians of London.

Attendance in the Out-patient Department required at present on Saturday morning, but possibly also on another day, to be arranged later.

An honorarium to cover travel expenses will be paid.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom further particulars may be obtained.

CHARLES H. BESSELL,

February 21st, 1938. Secretary

THE HOSPITAL FOR SICK CHILDREN, GT. ORMOND ST., LONDON, W.C.1

APPOINTMENTS

TO BE MADE PREPARATORY TO THE OCCUPATION OF THE

NEW HOSPITAL

A RESIDENT MEDICAL SUPERINTENDENT

who is to be the Senior Resident Officer, is required on the 1st May, 1938. Salary £200 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

The duties will include the medical administration of the Hospital and medical supervision of the Nursing and Domestic Staffs.

Candidates must be unmarried, possess a legal qualification to practice and have held a responsible resident appointment at a General Hospital. Special experience in infectious diseases is desirable.

Candidates for the above appointments must attend at the Hospital to appear before the Joint Committee at 4.45 p.m. on Wednesday, 6th April, 1938.

Further particulars and forms of application, which must be completed and returned by noon on Monday, 4th April, 1938, are obtainable from the undersigned.

March, 1938.

Two HOUSE PHYSICIANS and

Two HOUSE SURGEONS

are required on the 15th April, 1938.

These appointments are tenable for six months. Salaries at the rate of £50 per annum.

Candidates must be unmarried, possess a legal qualification to practice and have held a responsible resident appointment at a General Hospital.

AN OUT-PATIENT AURAL REGISTRAR

(part-time)

is required on the 1st May, 1938. Salary £175 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

Candidates must possess a legal qualification to practice and have held a responsible resident appointment at a General Hospital.

Candidates for the above appointments must attend at the Hospital to appear before the Joint Committee at 4.45 p.m. on Wednesday, 6th April, 1938.

HERBERT F. RUTHERFORD, Secretary.

CITY OF LIVERPOOL.

RESIDENT ASSISTANT MEDICAL OFFICER (MALE) FOR ORTHOPAEDIC WARDS, ALDER HEY CHILDREN'S HOSPITAL.

Applications are invited for the above appointment at the Alder Hey Children's Hospital (956 beds), Liverpool, to take up duty immediately, for six months, with the option of renewal after this period, at a salary of £200 per annum, together with the usual residential allowances.

180 beds are set aside for Orthopaedic Diseases of Children, and these include open-air wards for surgical tuberculosis. Also there is a large amount of fracture and other orthopaedic work of an acute nature. There are three Visiting Orthopaedic Surgeons, the senior being Mr. T. P. McMurray, M.Ch., F.R.C.S. In addition to the Orthopaedic work, routine duties in the Hospital will have to be carried out under the direction of the Medical Superintendent. Previous experience in Orthopaedic work is desirable, and the Hospital affords ample opportunity for gaining special experience in this work. Canvassing will be deemed a disqualification.

Applications to be made upon forms obtainable from the Medical Officer of Health, Municipal Annex, to be endorsed "Resident Assistant Medical Officer (Orthopaedic)," and returned to the undersigned so as to be received not later than Wednesday, March 23rd, 1938.

Municipal Buildings, W. H. BAINES,
Liverpool, 2. Town Clerk.
March, 1938.

COUNTY OF DORSET.

APPOINTMENT OF COUNTY PATHOLOGIST.

The Dorset County Council invite applications from registered medical practitioners for the appointment of a County Pathologist, at a commencing salary of £750 per annum, rising to £950 by biennial increments of £50.

Applicants must have specialized in Pathology and Biochemistry, and have had considerable experience in a Pathological Department.

The Officer appointed will be required to devote his whole time to the duties of his office, and will be in charge of the work of the County Laboratory, Dorchester, acting under the administrative control of the County Medical Officer.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass the necessary medical examination.

Applications, on a prescribed form, which may be obtained from me on receipt of a stamped addressed foolscap envelope, must be forwarded so as to be received not later than Monday, April 4th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.

County Offices, C. P. BRUTTON,
Dorchester. Clerk of the County Council.
March 4th, 1938.

CITY MENTAL HOSPITAL,

Humberstone, Leicester.

ASSISTANT MEDICAL OFFICER (Male).

Residential General Hospital experience is desirable. Salary £350, rising by £50 per annum to £450 per annum, together with board, lodging, washing and attendance, valued for purposes of superannuation at £150 per annum. If the applicant be married he will be permitted to live out, and the salary will commence at £500, rising by £50 per annum to £600. An additional £50 per annum will be paid for possession of a D.P.M.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

There is a good laboratory and two active Psychiatric Clinics, one attached to the Leicester Royal Infirmary.

Duties will include attendance at a mental deficiency colony.

Applications, giving particulars of experience, etc., together with names of three references (one of which should be non-professional) and marked "A.M.O." to be sent to the Medical Superintendent before March 31st.

CORPORATION OF GREENOCK.

RANKIN MEMORIAL HOSPITALS,

GREENOCK.

(28 Maternity Beds and 28 Children's Beds.)

Applications are invited for the position of **RESIDENT MEDICAL OFFICER** in the above Hospital.

Candidates must have recent hospital experience in midwifery work and special experience of children's diseases will be considered an additional qualification.

Salary will be at the rate of £400-£450 by annual increments of £25 with board, residence and laundry, subject to a 5 per cent. deduction under the Corporation's Superannuation Scheme. Medical examination is obligatory.

Applications, stating age and experience, along with copies of three recent testimonials, should be lodged with the Medical Officer of Health, 4, Greenock, on or before March 29th.

LONDON COUNTY COUNCIL.

CONSULTANT AND SPECIALIST SERVICES.

Applications invited for appointment to undermentioned positions in hospitals service:

(1) **FULL-TIME RADIOLOGIST** (one position) at undermentioned group of hospitals:

Fulham Hospital, W.6.

St. Luke's Hospital, S.W.3.

St. Mary Abbots Hospital, W.8.

St. Stephen's Hospital, S.W.10.

Salary, £900-£50-£1,100. Hours of duty, 35 a week.

(2) **PART-TIME OBSTETRICIAN AND GYNAECOLOGIST** (one position) for Fulham and St. Mary Abbots Hospitals. Salary, £800. Officer responsible, subject to the general administrative supervision and control of the medical superintendents, for whole of obstetric and gynaecological work at these hospitals, will be required to live within a reasonable distance of hospitals, to visit them daily and as required.

(3) **PART-TIME ANAESTHETISTS** for duty at Council's general hospitals for sessions varying from one to six a week. Salary £125 for one routine session a week and £75 a year for each session a week in addition. Additional remuneration at rate of £2 12s. 6d. a visit for emergency visits made in excess of number of routine sessions. Candidates will be invited to apply for appointment to a panel for attendance as required at outlying tuberculosis hospitals. Rates of remuneration, £4 4s. for a visit of less than 3 hours, £5 5s. for a visit of more than 3 but less than 4 hours, £6 6s. for a visit of 4 hours or more.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 6), County Hall, Westminster Bridge, S.E.1, returnable by March 25th. Women eligible. Canvassing disqualifies.

COUNTY BOROUGH OF BRIGHTON.

BRIGHTON MUNICIPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment. Candidates must be single men, who have held resident appointments in a General Hospital. The officer appointed will work under the direction of the Medical Superintendent, and will devote his whole time to official duties, which are primarily for obstetrical work.

The appointment is a whole-time one, and is for one year only.

Salary £300 per annum, together with residential allowances, valued for the purposes of superannuation at £150 per annum.

The post is designated under the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application, conditions of appointment and list of duties may be obtained from the undersigned, which forms, duly completed, and accompanied by copies of testimonials, must be returned to the Medical Superintendent not later than Wednesday, March 30th.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for appointment.

Brighton Municipal Hospital, S. J. FIRTH,
Elm Grove, Medical Superintendent.
Brighton, 7.
March, 1938.

COUNTY BOROUGH OF OXFORD.

ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER (Male).

Applications are invited for the above post at a salary of £500 per annum, rising by increments of £25 to £700 per annum, plus a motor car allowance in accordance with the scale adopted by the City Council.

Candidates must have had at least three years professional experience and special experience in ante-natal and Maternity and Child Welfare work, and in the work of the School Medical Service.

The person appointed will be required to devote his full time to the duties and not to engage in private practice.

The duties to be performed will be under the direction of the Medical Officer of Health.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to undergo a medical examination.

Forms of application can be obtained from the Medical Officer of Health, Greyfriars, Paradise Street, Oxford, to whom they must be returned completed on or before March 26th, 1938.

A. HOLT, Town Clerk.

RADIUM BEAM THERAPY RESEARCH,

at the Radium Institute.

1, Riding House Street, London, W.1.

ASSISTANT MEDICAL OFFICER, resident. Salary £150 per annum. Six months' appointment. Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be sent to the Secretary, Radium Beam Therapy Research.

The selected candidate will assist with the working of two five-gramme radium units, and will have the opportunity of combining postgraduate studies with this appointment.

BURGH OF PAISLEY.

DEPUTY MEDICAL OFFICER OF HEALTH.

Applications are invited for the post of Deputy Medical Officer of Health.

Candidates must possess a qualification in Public Health and have had special practical experience in Tuberculosis, Venereal Diseases, and Infectious Diseases.

Salary £600 per annum, rising by annual increments of £20 to £700 per annum, together with £40 per annum as deputy physician to the police force.

Applications, giving age, full details of experience, etc., together with copies of three recent testimonials, should be lodged, not later than Thursday, March 24th, 1938, with the Medical Officer of Health, 14, Gilmour Street, Paisley, from whom copies of the conditions of the appointment may be obtained.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, High Holborn, London, W.C.1.

Applications are invited for the appointment of **THIRD HOUSE SURGEON** (male) required for May 1st, 1938, for six months. Salary at the rate of £100 per annum, with board, residence and laundry.

At the end of this period of six months, the appointed candidate will be promoted to the next higher grade, then for a further six months as First House Surgeon and R.M.O. to the Staff, if recommended by the Medical Committee.

Note.—Candidates must be duly qualified Medical Practitioners, registered in this country, and must have had experience in Ophthalmology. Intending Candidates should call upon the members of the Honorary Staff at the Hospital.

Applications, accompanied by copies of testimonials, are to be sent to the Secretary (from whom further particulars can be obtained) on or before March 31st, 1938.

QUEEN MARY'S HOSPITAL FOR THE EAST END, E.15.

Applications are invited for the post of **CLINICAL ASSISTANT** to the Skin Department of the above Hospital.

Applications, accompanied by copies of recent testimonials indicating experience, from candidates who must be duly Registered Practitioners, should be lodged with the undersigned not later than Wednesday, March 16th, 1938.

Attendance will be required weekly, namely, on Wednesday mornings at 9 p.m.

RAPHAEL JACKSON (M.D.), Secretary.

SOUTH EASTERN HOSPITAL FOR CHILDREN.

Sydenham, S.E.26. (100 Beds.)

Recognized by the Examining Board for Post-

graduate Study for the Diploma of Child Health.

Applications are invited for the post of **RESIDENT MEDICAL OFFICER**. The appointment will be for six months, commencing April 1st. Honorarium £100 per annum, with board, residence and laundry.

Application by letter only, stating age, qualifications and experience, with copies of three testimonials, should be received by the Hon. Medical Secretary at the Hospital by March 21st.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.

Applications are invited for the post of **HOUSE SURGEON** (male), for six months from April 12th (first two months in the Casualty and Out-patient Department). Salary at the rate of £120 per annum, with full board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained, not later than first post on Tuesday, March 22nd.

W. H. SIDNELL, House Governor.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH,

60, Grove End Road, N.W.3.

Applications are invited for the post of **RESIDENT HOUSE SURGEON** (male). The post is recognized for the degree of M.S. Lond. University. The appointment will be for six months from May 1st, 1938. Salary at the rate of £75 per annum, with full board, and together with copies of three testimonials, should be lodged with the undersigned on or before Friday, April 1st.

F. DUDLEY HOBBS, B.A., Secretary.

LONDON HOSPITAL.

Applications are invited for the post of **ANAESTHETIST** to the DEPARTMENT OF NEUROSURGERY. Salary £250 per annum, with board, residence and laundry.

Applications, with copies of testimonials, should be lodged with the undersigned on or before Friday, April 2nd, to the House Governor, 14, Gilmour Street, Paisley.

A. G. HUTTON, House Governor.

APPOINTMENTS—Important Notice.

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumheugh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District	Town or District
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSWG MEDICAL AID SOCIETY (Medical Officer)	MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer)	OAKDALE, MON. (Medical Officer for Medical Aid Association)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme)	NEATH AND DISTRICT (Medical Aid Association)	PUBLIC HEALTH
LLEWYNFIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme)	OGMORE VALLEY, GLAMORGAN (Wyndham Colliery Medical Aid Society) (Workmen's Medical Scheme)	SALOP MENTAL HOSPITAL SHREWSBURY (Assistant Medical Officer Male)

(b) Overseas

Medical practitioners are requested **not to apply** for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES (All Friendly Societies' Appointments)	The Medical Secretary, New South Wales Branch, 135, Macquarie St., Sydney.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria.	WESTERN AUSTRALIA (Contract Practitioner)	Hon. Sec., Western Australian Branch, British Medical Association, 205 St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Friendly Societies Institute)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

March 9, 1938.

By order of the Council.

G. C. ANDERSON, Secretary.

BARROWMORE TUBERCULOSIS SANATORIUM AND SETTLEMENT. Gt. Barrow, nr. Chester

HOUSE PHYSICIAN (male) required at beginning of April. The appointment is for six months and is renewable. Salary £150 per annum, with board, residence and laundry.

The Institution deals with all stages of Pulmonary Tuberculosis, and comprises Hospital and Sanatorium, accommodation, extensive workshops for graduated work, and a settlement.

Special treatment, Sanocrysin and Artificial Pneumothorax given.

Applications, marked "House Physician," with copies of three testimonials, should be sent to the Medical Director at the above address not later than March 17th, 1938.

JERSEY GENERAL HOSPITAL AND POOR LAW INFIRMARY.

Applications are invited for the following posts (vacant April 1st, 1938).

(a) HOUSE SURGEON (male).
(b) CASUALTY OFFICER AND HOUSE PHYSICIAN (male).

The appointments are for six months, subject to reappointment.

Salaries £175 per annum. Board, residence and laundry are provided.

Applications, stating age, nationality and qualifications, with recent testimonials, to be addressed to the undersigned, on or before Saturday, March 19th.

H. S. PLYMEN,
Secretary-Accountant.

General Hospital, Jersey, C.I.

COSSHAM MEMORIAL HOSPITAL. Kingswood, Bristol.

A vacancy will occur at the end of March for a JUNIOR RESIDENT MEDICAL OFFICER. Salary £100 per annum, with board and laundry; to remain for six months in the first instance. Applicants (male) should be of British nationality, fully qualified and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

DEVON MENTAL HOSPITAL.

Required JUNIOR ASSISTANT MEDICAL OFFICER (male) unmarried, who must be legally qualified and registered. Preference will be given to candidates who either have or are anxious to obtain a Diploma in Psychological Medicine, and who have held resident hospital appointments. The Hospital is fully equipped with operating theatre, bacteriological laboratory, etc.

Salary £350 per annum, rising by £25 per annum to £450, with £50 in addition to those who possess the D.P.M., and board, apartments, laundry and attendance, valued at £100.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Form of application to be obtained from the Clerk of the Devon Mental Hospital, Exminster, which must be completed and returned on or before March 24th, 1938.

KING GEORGE'S SANATORIUM FOR SAILORS. Lipkirk, Hants.

(Seamen's Hospital Society)
For the Treatment of Pulmonary and Non-Pulmonary Tuberculosis

ASSISTANT MEDICAL OFFICER (single, male or female) required as from April 15th for six months. Salary at the rate of £200 per annum in the first instance.

Applications, with copies of not less than three testimonials, to be sent in on or before March 22nd, to the undersigned.

Seamen's Hospital Society. F. A. LYON,
Greenwich, S.E.10. Secretary

LEEDS PUBLIC DISPENSARY & HOSPITAL.

Wanted at once, HOUSE PHYSICIAN (male). Appointment for six months. Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, with copies of three recent testimonials, to be sent to the undersigned, Public Dispensary and Hospital, North Street, Leeds, 2.

CHARLES F. J. MAURY,
Secretary and Superintendent.

MINEHEAD AND WEST SOMERSET HOSPITAL. Minehead, Somerset

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital. Duty to commence on April 1st, 1938. Appointment for a period of six months. Salary £150 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience and qualifications accompanied by copies of three recent testimonials, to be sent to the undersigned not later than March 24th, 1938.

W. H. P. RODDA,
Secretary

DONCASTER ROYAL INFIRMARY. (155 Beds.)

Applications are invited for the post of FRACTURE HOUSE SURGEON, who will be required to carry out his duties under the direction of an Honorary Orthopaedic Surgeon. The resident Medical Staff of the Hospital numbers six, and this appointment will be considered the senior. Minimum salary £200 p.a. or according to experience.

Applications, accompanied by copies of three recent testimonials to be forwarded to the undersigned.

R. LANCASTER,
Secretary-Superintendent.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES. (54 Beds. 14,500 Out-patients per annum.)

HOUSE SURGEON

Applications are invited for the post of House Surgeon. Must be registered. The appointment is for six months. Salary at the rate of £150 per annum, with board and residence.

Applications, with copies of three testimonials, to be sent to the undersigned, Quay Street, Manchester, not later than March 15th.

JOHN NALL, Secretary
(Appointments continued on p. 65)

KENT AND SUSSEX HOSPITAL.
Tunbridge Wells. (210 Beds.)

Applications are invited for the post of **RESIDENT SURGICAL OFFICER**. Salary £250 per annum, with board, residence and laundry in the Hospital.

The Hospital includes the following departments: Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Orthopaedic, Gynaecological, Radium, X-ray and Electro-therapeutic, Massage, Pathological, Venereal Disease, etc. There are three other House Surgeons and one House Physician on the resident Staff.

Applications, stating qualifications, together with certificate of registration, and copies of not more than three recent testimonials, should be sent to the undersigned as soon as possible. The appointment becomes vacant on May 1st next, and will be for twelve months.

TOM B. HARRISON,
Superintendent-Secretary.

KNOWLE MENTAL HOSPITAL, FAREHAM, HANTS.

Applications are invited for the post of **DEPUTY MEDICAL SUPERINTENDENT (male)**. Salary £700, rising to £850 per annum, with an additional £100 per annum so long as the Medical Superintendent holds the post of Principal Medical Adviser to the Joint Committee.

The salary is inclusive of emoluments (unfurnished house, garden, water, light and fuel), valued at £100.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applicants should not be over 40, and should have had previous Mental Hospital experience and possess the Diploma in Psychological Medicine.

Applications, with copies of three recent testimonials, to be sent to the Medical Superintendent not later than March 19th.

THE GENERAL INFIRMARY AT LEEDS.
(673 Beds.)

Applications are invited for the post of **RESIDENT OPHTHALMIC OFFICER**. Salary £149 p.a., with board, residence and laundry. The appointment is for twelve months, subject to renewal. Candidates must be legally qualified and registered, and have held a Resident Surgical post and had special experience in Ophthalmic work.

Applications, with copies of testimonials, should be received by the undersigned as soon as possible.
S. CLAYTON FRYERS,
House Governor and Secretary.

HERFORD COUNTY HOSPITAL.
(169 Beds 3 Residents.)

Applications are invited for the post of **HOUSE PHYSICIAN (male)**. Salary £150 per annum, with board, residence and laundry. Duties to include Casualty. The appointment is for six months in the first instance.

Applications, together with copies of three recent testimonials, should be forwarded to the undersigned not later than March 15th, 1938.

PERCY G. BROOKS,
Secretary.

KENT AND CANTERBURY HOSPITAL,
Canterbury.

HOUSE SURGEON required, Male, unmarried. Six months' appointment, commencing end of March, 1938. Salary £125 per annum, with board, residence and laundry.

The Hospital is recognized under F.R.C.S. regulations.

Applications, together with copies of testimonials, should be sent immediately to the undersigned.

J. F. KENT,
Superintendent and Secretary.

MONTROSE MATERNITY HOSPITAL,
Govan, Glasgow.

RESIDENT (FEMALE) MEDICAL OFFICER required. 40 Beds. Practical experience in obstetrics essential. Salary up to £100 per annum, with board, etc.

Apply, stating age, qualifications and experience, with recent testimonials, to the Secretary, 113, St. Vincent Street, Glasgow.

FREE EYE HOSPITAL, SOUTHAMPTON.

The Committee require the services of a duly qualified **HOUSE SURGEON** to enter on duties on April 1st, 1938. Salary £150 per annum, with board, residence and laundry. Post-graduate experience in Ophthalmology is desirable. Applications, with three recent testimonials, to reach the Secretary by March 19th, 1938.

HONORARY ASSISTANT PHYSICIAN wanted for the **ROYAL ABERDEEN HOSPITAL FOR SICK CHILDREN**. Applications, with testimonials, to be lodged with the Honorary Secretary Mr. A. S. R. BATTLE, Advocate, 12, Dee Street, Aberdeen, by March 19th, 1938.

MANCHESTER ROYAL INFIRMARY.**TEMPORARY APPOINTMENT OF A SECOND RESIDENT CLINICAL PATHOLOGIST (Male).**

The Board of Management of the Manchester Royal Infirmary invite applications for the above post for the period of one year. Applicants must hold a medical and surgical qualification and be registered.

The duties are whole-time, working under the Director of the Clinical Laboratory. Salary £150 per annum with board, residence, and allowance for laundry.

Applications, stating age, to be sent to the **CHAIRMAN OF THE MEDICAL BOARD** not later than March 19th, 1938.

By Order,
A. L. M. YOUNG,
Assistant Secretary.

March 5th, 1938.

PRINCE OF WALES'S HOSPITAL,
Devonport.
(Formerly the Royal Albert Hospital, Devonport.)
64 Beds.

Applications are invited for the post of **JUNIOR HOUSE SURGEON**. Salary £120 per annum, with board, residence and laundry.

Duties to commence April 1st, 1938. Appointment is for six months and is subject to renewal, or promotion to the senior position when this post becomes vacant. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than March 24th.

ARTHUR R. CASH,

General Supt. and Secretary.
Prince of Wales's Hospital,
Greenbank Road, Plymouth.

PRINCE OF WALES'S HOSPITAL,
Greenbank Road, Plymouth.
(Formerly St. Devon and East Cornwall Hospital.)
264 Beds.

Applications are invited for the post of non-resident **WHOLE-TIME ASSISTANT PATHOLOGIST**. Duties to commence, if possible, on April 11th.

Commencing salary £500 per annum. Candidates must be duly qualified medical practitioners.

Applications, stating age, nationality, qualifications and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before March 25th.

ARTHUR R. CASH,

General Superintendent.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

Applications are invited for the post of **HOUSE SURGEON**, with duties in the Casualty Department and charge of the beds of the Assistant Surgeons, vacant April 1st, 1938. Six months' appointment. Total Resident Staff, eight.

Salary at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience, together with copies of recent testimonials, to be forwarded to the undersigned as soon as possible.

JOHN GIBSON,
Superintendent and Secretary.

PRESTON AND COUNTY OF LANCASTER ROYAL INFIRMARY.

Applications are invited for the post of **HOUSE SURGEON** to the Eye, Ear, Nose and Throat Wards and Clinics, vacant April 1st, 1938. Six months' appointment.

Salary at the rate of £150 per annum, with board, residence and laundry. Total Resident Staff of the General Hospital, eight.

Applications, stating age, qualifications and experience, together with copies of recent testimonials, to be forwarded to the undersigned as soon as possible.

JOHN GIBSON,
Superintendent and Secretary.

NORTH ORMESBY HOSPITAL,
Middlesbrough. (192 Beds.)

HOUSE SURGEON (male and unmarried) required. Salary £120 per annum, with board, residence and laundry.

Applications, stating age, qualifications and experience (if any), with copies of three recent testimonials, should be sent to the undersigned.

GEORGE WATTS,

Secretary-Superintendent.

ROTHERHAM HOSPITAL.

Wanted, **HOUSE PHYSICIAN** (male), qualified. Salary £150, with board, residence and laundry. 130 beds. Excellent experience to be gained.

Applications, with copies of recent testimonials, to be sent to the Secretary, **G. W. ROBERTS**, 3, Mowgate Street, Rotherham.

ROYAL HALIFAX INFIRMARY.

Hospital recognized by the Royal College of Surgeons (England).

Applications are invited for the following appointments:

RESIDENT SURGICAL OFFICER. Salary £250 per annum;

FIRST HOUSE SURGEON. Salary £200 per annum;

SECOND HOUSE SURGEON. Salary £175 per annum;

THIRD HOUSE SURGEON. Salary £150 per annum;

with residence, board and laundry. The salaries include all services required in connection with the Paying Patients' Block.

The appointment of Resident Surgical Officer will be for one year, commencing May 1st, 1938. The other appointments will be for six months, from May 1st, 1938.

The Hospital contains Maternity and Paying Patients' Blocks. Also a Pathological Department, a large Eye, Ear, Nose and Throat Department, Radiological Department, and Radium Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age and nationality, together with testimonials, should be sent on or before March 21st, 1938.

A. MIDGLEY,

March 7th, 1938. Secretary.

ROYAL VICTORIA INFIRMARY,
Newcastle-upon-Tyne.
(785 Beds.)**WHOLE-TIME JUNIOR GYNAECOLOGICAL AND OBSTETRICAL REGISTRAR**
(Open Appointment.)

Applications are invited for the above post. Candidates must be registered medical practitioners, duly qualified in Medicine and in Surgery, and must have held the post of resident in a recognized Maternity Hospital for six months and a further six months in a Hospital devoted to women's diseases, or in the Gynaecological Department of a recognized Hospital.

The appointment is for one year, and is renewable annually for a period not exceeding three years. The salary is at the rate of £300 per annum.

Full information can be obtained by application to the undersigned, by whom applications, stating age, qualifications and experience, and accompanied by not more than three recent testimonials, must be received not later than Thursday, March 11st, 1938.

S. DUNSTAN,
March 7th, 1938. House Governor and Secretary.

THE STOCKPORT INFIRMARY.
(140 Beds.)

Applications are invited for the post of **HOUSE SURGEON**. Applicants must be male and unmarried. Salary £150 per annum, with board, residence and laundry. Duties should commence April 1st, 1938.

The Resident Staff consists of a Resident Surgical Officer, two House Surgeons and a House Physician.

Applications, together with copies of three recent testimonials, stating age, nationality and qualifications, to be sent to the undersigned not later than March 15th, 1938.

H. G. PRICE,
Secretary-Superintendent.

THE CHESTER ROYAL INFIRMARY.
(225 Beds.)

Applications are invited for the post of **HOUSE SURGEON** (male) to the Ear, Nose and Throat and Gynaecological Departments. Salary £150 per annum, with board, lodging and laundry. To take up duty on April 1st next. The appointment is approved in connexion with the M.S. (London University) and F.R.C.S. (Eng.) Examination.

Application list closes March 19th, 1938.

Application forms may be obtained from **W. H. GRACE, M.D., M.R.C.P., Hon. Sec.** Medical Committee.

February 20th, 1938.

ST. MARY'S HOSPITALS, MANCHESTER.

TWO HOUSE SURGEONS for the Whitworth St. West Hospital (Maternity); and one for the Whitworth Park Hospital (Gynaecological Dept.), each for a period of six months from May 1st next. Salaries at the rate of £50 per annum, with board and residence.

Applications, with copies of three recent testimonials, to be sent to the undersigned on or before March 17th.

R. RATCLIFFE, Secretary.

TAUNTON AND SOMERSET HOSPITAL
Taunton.

HOUSE SURGEON (male) required. Salary £125, with board, residence and laundry, and the retention of certain fees.

Applications, with copies of recent testimonials, to be sent to the Secretary, **E. J. STONE**, 11, St. Andrew's Street, Taunton.

CAREER FOR DAUGHTERS OF MEDICAL MEN DISPENSING. Full training for **APOTHECARIES HALL CERTIFICATE**. New Session commences November. The Principal, **CENTRAL SCHOOL OF PHARMACY FOR LADIES**, Dispensaries, 28, Merton Street, London, S.W.1.

DOCTORS REQUIRING QUALIFIED DISPENSERS. Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers are invited to write, wire, or phone Temple Bar 585. The Dispensary Bureau, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

INDIA—ASSISTANT MEDICAL OFFICER required for **GOLD MINING SETTLEMENT**. Salary £600 p.a. free quarters. Good climate and social amenities. Applicants should have a knowledge of X-rays and if possible hold the D.M.R.E.—Apply, **BRITISH MEDICAL BUREAU**, Tavistock House South, Tavistock Square, W.C.1.

LABORATORY TECHNICIAN DESIRES POST. Bacteriology, Biochemical Analysis of Specimens. Expert in Haematology, Photomicrography. Qualified X-ray operator. Can bring full laboratory equipment if necessary.—No. 3512, B.M.A. House, Tavistock Square, W.C.1.

LADY DISPENSER, BOOK-KEEPER (HALL) Centenary desires POST. 10 years' experience. Free room.—Address, No. 4234, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL MAN, MARRIED, ONE SON, IS in urgent need. Will any medical man employ him TEMPORARILY OR PERMANENTLY? References.—Address, No. 4223, B.M.A. House, Tavistock Square, W.C.1.

NATIONAL ORGANIZATION (NOT COMMERCIAL) requires an **OUTSIDE REPRESENTATIVE** to make contact with members of the medical profession. Salary 15 per week plus expenses.—Address, No. 4312, B.M.A. House, Tavistock Square, W.C.1.

PART-TIME NON-RESIDENTIAL WORK in London desired by B.M.O. now routine for membership. Ex-H.S. with wide experience. Own car.—Address, No. 4229, B.M.A. House, Tavistock Square, W.C.1.

PSYCHOTHERAPY—MEDICAL MAN specializing in psychotherapy desires **PART-TIME WORK** in good-class practice in or near London. Non-resident partnership considered. Capital available.—Address, No. 4015, B.M.A. House, Tavistock Square, W.C.1.

POST AS SECRETARY TO NURSING HOME or Doctor required by young man with three years' experience. London or Home Counties. Excellent medical references.—Address, No. 4314, B.M.A. House, Tavistock Square, W.C.1.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental and Orderlies Porters, Caterers, etc., without charge to prospective employers.

PARTNERSHIPS

WANTED, PARTNER FOR LARGE MIXED country practice in the West. Ex-hospital resident with experience of general practice. Scotch graduate preferred but not essential. Excellent prospects for suitable man. One-third share now proposed. No increase to 10 years' purchase. Suite full particulars, references.—Address, No. 4311, B.M.A. House, Tavistock Square, W.C.1.

D.M.R.E. DESIRES PARTNERSHIP in X-ray practice. Replies will be treated in strict confidence.—Address, No. 3526, B.M.A. House, Tavistock Square, W.C.1.

EAR, NOSE AND THROAT PARTNERSHIP available. F.R.C.S. essential. Write Box 557, c/o Aldridge, 34, Paternoster Row, E.C.4.

FOR SALE, IN PLEASANT PROVINCIAL town in Northern Ireland near Belfast, **HALF SHARE** in old-established practice, worth £1,000 at 2 years' purchase. Suitable house to buy or to rent. Applicant must be a sound physician and a good anaesthetist. Capital necessary.—Address, No. 4202, B.M.A. House, Tavistock Square, W.C.1.

M.B. (LOND.), 29, GOOD HOSPITAL and **SHARE** in general practice experience, desires **SHARE** in working-class practice conducted essentially on Christian lines.—Address, No. 4206, B.M.A. House, Tavistock Square, W.C.1.

NEAR HARLESDEY, N.W.—HALF-SHARE well-established practice. Receipts average £1,000 a panel 2,300. Increasing. Nice house available. Premium £1,000.—Apply, **PEACOCK AND HADLEY, LTD.**, 67-68, Chandos Street, Strand, W.C.2.

ONE-HALF SHARE IN GOOD-CLASS MIXED practice in South of England. Two years' purchase at £3,000. Panel 1,200. Good hospital. House to rent or purchase, immediate entry, full introduction.—Address, No. 3569, B.M.A. House, Tavistock Square, W.C.1.

M.R.C.P. (LOND.), M.B. B.S. (LOND.), with hospital and general practice experience, requires **PARTNERSHIP** after preliminary assistantship. Preferably North of England, with possible hospital appointment.—Address, No. 4320, B.M.A. House, Tavistock Square, W.C.1.

OXFORD GRADUATE, MARRIED, AGED 35, with wide experience, desires **PARTNERSHIP** in better-class practice. London or Home Counties. Preferably in October. Genuine applicant with capital.—Address, No. 4228, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED BY F.R.C.S. ED. Large, expanding, mixed, general practice. Natal Coast, South Africa. Wonderful climate. Well equipped hospital. Several appointments. Soon to be increased. Average gross income £3,500 per annum. Must be experienced, with knowledge of S. Africa a recommendation. Premium 15 years' purchase, half- or third-share. Full investigation welcomed.—Address, No. 4218, B.M.A. House, Tavistock Square, W.C.1.

REQUIRED IMMEDIATELY, PARTNERSHIP or **PRACTICE** in Home Counties by M.B. B.S. (Lond.) Age 30. English. Well connected. Considerable hospital experience. Income £1,000 upwards.—Address, No. 4326, B.M.A. House, Tavistock Square, W.C.1.

SUSSEX, COAST TOWN—PARTNERSHIP. mixed practice, approx £3,000 p.a. Panel over 2,000. Good Hospital. Semi-detached house, good garden, for sale or rent. Scope for surgery. Premium half-share two years' purchase.—Address, No. 3557, B.M.A. House, Tavistock Square, W.C.1.

WELL-QUALIFIED YOUNG MAN required as **FOURTH PARTNER** (after short preliminary assistantship) for old-established firm in Scotland, in S.W. with scope for extension. Initial share producing about £1,000 gross at 2 years' purchase. Larger share later. Applicant should have hospital experience.—Address, No. 4220, B.M.A. House, Tavistock Square, W.C.1.

LOCUMS

DR. MARTIN WHILE THANKING SOUTH Coast Practitioners for their continued patronage, begs to say he still does much **LOCUM WORK**. Venereal, venereal, venereal diseases only taken. Terms vary according to requirements.—Craneck, Cornwall.

LOCUMS, TEMPORARY ASSISTANTSHIP OR ASSISTANTSHIP (urgent) required by male medical practitioner, Age 27, single. Four years' experience, ex-H.S. H.P. Temperate. Own car. Free next.—Address, No. 4324, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL MAN, SCOT IS PREPARED to act as **LOCUM TENENS**. Experienced G.P. and Panel. Excellent references. Phone Bayswater 5154, extension 14, or reply.—Address, No. 4321, B.M.A. House, Tavistock Square, W.C.1.

PRACTICES

WANTED, PRACTICE, AVERAGING £1,500 to £2,000 with nearly full panel. House, 4-5 bedrooms garden, garage. Capital available. Partnership. Introduction three months suitable to vendor considered.—Address, No. 4213, B.M.A. House, Tavistock Square, W.C.1.

WANTED, IN MAIDA VALE OR NEAR district, **NUCLEUS** of Panel **PRACTICE**. Write quoting lowest terms for quick sale.—Address, No. 4203, B.M.A. House, Tavistock Square, W.C.1.

WANTED, PRACTICE IN SOUTH OF England. Income £300 to £500. Low premium only. House to rent. Exact details in strict confidence to.—Address, No. 4222, B.M.A. House, Tavistock Square, W.C.1.

WANTED IN HANTS, DORSET OR S. Devon. **PRACTICE** of £1,000 to £1,200 in country town or large village, preferably near sea. House with 4-5 bed, etc.; rent up to £100. Ample capital ready.—Address, 3943, BELVAL TUNER, LTD., 4, Adam Street, London, W.C.2.

WANTED—A GENERAL PRACTICE with a Panel of 600 to 1,000, in Lancashire or Cheshire, preferably in mid-Cheshire area. Experienced practitioner, has held good hospital appointments.—Address, No. 4233, B.M.A. House, Tavistock Square, W.C.1.

A COUNTRY PRACTICE—ATTRACTIVE Wiltshire village, unopposed. Average receipts £800. Premium £1,500. Exceptionally nice house, large garden, for sale. Suit elderly or semi-retired practitioner.—Address, No. 4025, B.M.A. House, Tavistock Square, W.C.1.

AN OPPORTUNITY OCCURS TO PURCHASE in old-established MENTAL HOME with its own Farm and Gardens. The property is held on lease and a reasonable figure is asked for the goodwill, furniture, fixtures, produce and effects. Full particulars will be given on request to.—Address, No. 4230, B.M.A. House, Tavistock Square, W.C.1.

WANTED—MINED PRACTICE, INCOME £1,200-£1,500; scope. Must be good house, etc., large garden, in or near country. Easy reach University town.—Address, No. 445, B.M.A. House, Tavistock Square, W.C.1.

A NUMBER OF SMALL PRACTICES AT LOW premiums. Excellent opportunities for practitioners wishing to get a practice with scope.—Apply, **PEACOCK AND HADLEY, LTD.**, 67-68, Chandos Street, Strand, W.C.2.

CHESHIRE—SUBURBAN PRACTICE FOR sale. Income £1,500. Panel 1,475. Good house, garden and garage to be rented £65 per annum. Premium for goodwill 15 years' purchase.—Address, No. 4315, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED GENERAL PRACTITIONER requires mixed-class **PRACTICE** London, or within thirty miles. Panel 1,200 to 1,500. Capital available.—Address, No. 4309, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, OLD-ESTABLISHED COUNTRY **PRACTICE** in delightful district of Yorkshire. Receipts over £1,050. Panel £330. appointments £20. Unusual opportunity for scope. Excellent house, separate surgery entrance, garage, large garden. Freehold. 2nd year Premium practice £1,700.—Address, No. 4210, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, NORTH LONDON WORKING- class cash **PRACTICE** took up established 15 months, taking 1500. Panel 500, doubled to 500. Panel not yet started, immense scope. Price £550, or part deferred.—Address, No. 4209, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, S.W. OLD-ESTABLISHED private and panel **PRACTICE**. Receipts last 120 years average £550. Panel 500, doubled to 500. 10 years' Great scope. Self-contained, including professional premises. Rent £75. Premium, 2 years' purchase.—Address, No. 4323, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE—OLD-ESTABLISHED PRACTICE in prosperous Lancashire town. Panel 2,900, increasing. Cash receipts £1,000. Suitable for two partners. Two years' purchase.—Address, No. 4322, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, EAST MIDLANDS—MINED **PRACTICE**. Panel 1,070 income £1,000 increasing. Two years' purchase. Freehold house, large garage and surgery.—Address, No. 4303, B.M.A. House, Tavistock Square, W.C.1.

GOOD WORKING-CLASS PRACTICE FOR disposal in large Midland city. Gross receipts 1936 37 over £1,500. Panel exceeds 2,000. Scope for considerable increase. Good house, freehold, well equipped, modern, splendid surroundings, including rooms and dispensary.—For further particulars and purchase price of house and premises, apply, **J. S. STRAETS AND CO.** Chartered Accountants, 44, Silver Street, Lincoln.

LONDON, NORTH-EAST—OLD-ESTABLISHED PRACTICE £500 per year, recently started approximately 400. House, two garage and one acre garden on main road, and branch surgery, net rent £34 on lease. Premium, two years' purchase.—Address, No. 4319, B.M.A. House, Tavistock Square, W.C.1.

LONDON—SOUTH SUBURBAN RAPIDLY growing middle-class **PRACTICE**. Receipts £900. Panel 900. Modern home, garden, garage, in good locality, for sale with practice.—Address, No. 4225, B.M.A. House, Tavistock Square, W.C.1.

NEAR PUTNEY, S.W.—WELL-ESTABLISHED **PRACTICE**. Receipts last year over £500, good panel. Nice house, £100 p.a. inclusive. Reasonable offers.—Apply, **PEACOCK AND HADLEY, LTD.**, 67-68, Chandos Street, Strand, W.C.2.

NEAR HARROW—WELL-ESTABLISHED **PRACTICE**. Developing district. Receipts over £300 p.a., fair panel. House and garden, rental. Premium £500. Scope.—Apply, **PEACOCK AND HADLEY, LTD.**, 67-68, Chandos Street, Strand, W.C.2.

MANCHESTER—WELL-ESTABLISHED **PRACTICE**. Panel 1,100, increasing. Receipts £1,200, including appointment £140. Shop, fronted surgery and house, 3 bedrooms, good professional rooms and garage. Rental £70. Premium £1,350.—Address, No. 4204, B.M.A. House, Tavistock Square, W.C.1.

SOUTH CORNISH COAST—OLD-ESTABLISHED PRACTICE, about £900, non-competitive. Panel over 300, increasing. Delightful district, fishing, game, health. Well-built pre-war house overlooking sea, £2,000; or might let or mortgage. Immediate application advisable.—Dr. J. C. WILKIN, Morvah, Cornwall. Tel. 16.

SALE IN APRIL, MAY—CASH AND PANEL **PRACTICE**. £1,500 cash receipts (adjusted). Panel 1,300. Within 30 miles of London. Working-class district. Exceptionally low price for size and quality of practice.—Address, No. 4331, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT MEDICAL OFFICER REQUIRED
A Medical Woman, with Mental Hygiene ex-
perience. Salary \$200 per month, with in-
crements—Apply, Medical Superintendent, Los Angeles
County Jail.

MISCELLANEOUS SALES, etc.

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ADVERTISER OFFERS 8 VOLS MEDICAL ANNUAL, good condition, in exchange for 12-bore Hammerless Gun (London make).—Write, "T.C." c/o Bookstall, Burgess Hill, Sussex.

EXAMINATION COUCHES FROM TWO GUINEAS. Write for Illustrated List free—PISCO AND FRANKS, 33, Charlotte Street, London, E.C.2.

HANOVIA SUN LAMP, 240 V. A.C. ALPINE Model with full equipment, perfect condition, only slightly used. Exceptional bargain. 10 lamps at 10/- each offer—Write, Box 25, 173, c/o DEacons, 5, St. Mary Lane, E.C.3.

APPOINTMENTS.—Contd.

PETERBOROUGH AND DISTRICT MEMORIAL HOSPITAL
(154 Beds)

APPOINTMENT OF RESIDENT HOUSE PHYSICIAN.

Applications are invited from fully qualified male practitioners for the above post. Experience in anaesthetics preferred. Duties to commence early April.

Salary £135 per annum, with board, residence and laundry.
Applications, stating age, nationality and experience, with copies of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

FRANK A. C. TAYLOR,
Secretary-Superintendent

THE BOLTON ROYAL INFIRMARY.
(315 Beds, including two Auxiliary Hospitals)

Applications are invited from gentlemen for the post of ASSISTANT RESIDENT SURGICAL OFFICER.

The duties of the Assistant RSO comprise responsibility for the whole of the Casualty and Orthopaedic Departments and to deputise for the R.S.O. in his absence.

The post is recognised by the Royal College of Surgeons of England for the Final Fellowship Examination.

Salary £200 per annum with board, residence and laundry.

Applications, stating age, nationality and previous experience, together with copies of testimonials, should be forwarded to the undersigned not later than Friday, March 25th, 1938.

H. CORLESS,
Secretary

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.
Gray's Inn Road, W.C.1.

REGISTRAR AND CLINICAL TUTOR.

Applications are invited for the post of Registrar and Clinical Tutor who will be required to give the whole of his time to the office. The successful candidate should hold one of the higher qualifications in Surgery.

Salary at the rate of £300 per annum payable jointly by the Hospital and Post-graduation School.

Further particulars of the appointment may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, should be sent on or before April 15th next.

JOHN H. YOUNG,
Secretary-Superintendent.

THE ROYAL SEA-BATHING HOSPITAL, MARGATE.
(320 Beds—for Surgical Tuberculosis.)

Applications are invited from legally qualified and registered candidates for the post of ASSISTANT MEDICAL SUPERINTENDENT (male) at the above hospital, at a salary of £500 per annum, with full board and laundry. The appointment will commence on May 1st next and will be tenable for two years.

Candidates, who must be single, should have held a resident surgical appointment in a General Hospital and have had some experience of Pathology and Orthopaedic Surgery.

Applications, with copies of three recent testimonials, should be sent to the Secretary, R.S.B.H. Offices, 15, York Buildings, Adelphi, London, W.C.2, on or before March 21st, 1938.

VICTORIA HOSPITAL, BURNLEY.
(150 Beds.)

HOUSE PHYSICIAN (Male)

Applications are invited for the above post, which will become vacant on March 25th. The duties include the giving of a certain number of anaesthetics. The appointment is for six months in the first instance, at a salary of £150 per annum, together with board, residence and laundry. At the end of this period reappointment may be applied for, and, if granted, the salary for the second six months will be at the rate of £200 per annum. Applications, giving full details of qualifications and experience, stating nationality, together with copies of recent testimonials, should be addressed to the undersigned forthwith.

J. E. WHEATCROFT,

Secretary.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL.
(129 Beds)

Two RESIDENT HOUSE SURGEONS required by the above Hospital (male or female), to commence duty on April 1st, 1938. Appointment is for six months. Salary £150 per annum, with board and laundry.

Applications, stating age, nationality, experience and qualifications, to be sent, together with copies of three recent testimonials, to the undersigned immediately.

LESLIE SPENCER, Secretary

March 1st, 1938

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL
(129 Beds)

RESIDENT HOUSE SURGEON (Male) required for Special Departments (Aural, Ophthalmic and Casualty, etc.), to commence duty immediately.

Appointment is for six months. Salary £150 per annum, with board and laundry.

Applications, stating age, nationality, experience and qualifications, to be sent to the undersigned, together with copies of three recent testimonials.

LESLIE SPENCER,

March 7th, 1938.

THE CONSUMPTION SANATORIA.

ORPHAN HOMES OF SCOTLAND AND SANATORIUM, BRIDGE OF WEIR.

FEMALE ASSISTANT MEDICAL OFFICER wanted to commence duty on May 1st. 1200 children in Homes. 100 female beds in Sanatorium.

Salary at £200 per annum, during first six months, with room, board and laundry. Renewable at £250 per annum thereafter by mutual consent.

Apply to Medical Superintendent, enclosing testimonials, and stating age and previous experience.

MANCHESTER ROYAL EYE HOSPITAL.

HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc.

Applications (with copies of testimonials), endorsed "House Surgeon," to be addressed to the Chairman of the Board of Management.

H. R. NORTH,

Gen. Supt. and Secretary.

THE CHILDREN'S HOSPITAL, SHEFFIELD.
(140 Beds.)

Applications are invited for the post of HOUSE SURGEON, vacant on April 1st, 1938.

The appointment is for six months. Salary £100 per annum, with board, residence and laundry.

Candidates (male and unmarried), who must possess registered qualifications, should forward applications, stating age, nationality, etc., together with copies of three recent testimonials, to the undersigned.

T. H. G. GARTLAND,

Superintendent and Secretary.

VICTORIA HOSPITAL, WORKSOP.
(92 Beds.)

A JUNIOR RESIDENT (male) is required, to take up duty on April 1st. Salary at the rate of £125 per annum with board, residence and laundry.

Applications, with copies of three recent testimonials, and stating age, qualifications and nationality, to be sent to the undersigned. The appointment is for six months, renewable.

JAMES BOOTHROYD,

Secretary-Superintendent.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE.
Ranelagh Road, S.W.1.

Applications are invited for the post of HONORARY CLINICAL ASSISTANT in the Orthopaedic Department. Preference will be given to a candidate with higher surgical qualifications and with aptitude for research. Applications, with testimonials, should be sent to the Secretary at the Clinic.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL.
Sectory H.I.I. London, S.E.15

General Hospital—112 Beds.

**(a) RESIDENT MEDICAL OFFICER.
(b) HOUSE SURGEON.**

The Board of Management invites applications from suitably qualified male candidates for the following posts—

(a) Resident Medical Officer. This appointment, which will be the second senior of five residents, will be for one year with effect from April 1st, 1938, and renewable for a further twelve months, if approved by the Board of Management. The salary will be £150 per annum, plus board, residence and laundry, and the duties will include (i) Medical Registrar and (ii) Resident Pathologist.

(b) House Surgeon for six months from May 1st, 1938. Remuneration at the rate of £100 per annum, plus board, residence and laundry. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of 3 beds.

Short-listed candidates selected for interview will be required to meet the Appointments Committee (at the Hospital) on Thursday, March 14th, 1938, at 4.45 p.m. The closing date for receipt of applications (to be submitted on the prescribed form obtainable from the Secretary) is Monday, March 21st, 1938.

R. S. G. HUTCHINGS,
Secretary.

WORCESTER COUNTY AND CITY MENTAL HOSPITAL.
Fosse, Near Worcester.

Applications are invited for the post of ASSISTANT MEDICAL OFFICER. Applicants must be male, single, under 35 years of age and fully qualified in medicine and surgery. Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartment, board, laundry, and attendance. A full certificate of the Board of the Hospital is required.

If the selected candidate holds or obtains a Diploma in Psychological Medicine, Experience in Anaesthetics will be a recommendation. The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1920. Applications, stating age and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Saturday, March 26th, 1938.

WESTMINSTER HOSPITAL, S.W.1

A vacancy has been declared the day in the office of ASSISTANT PHYSICIAN to this Hospital. Gentlemen desirous of becoming candidates must be Fellows or Members of the Royal College of Physicians of London. Each candidate will be required to transmit a certificate of his age, and to submit three copies of his application, with testimonials, to the undersigned not later than Friday, April 1st, 1938, and to attend the meeting of the House Committee at 4.15 p.m. on Tuesday, April 5th, 1938. The appointment is an open one.

By Order of the House Committee.
CHARLES M. POWER,
Secretary.

March 8th, 1938.

THE WILLESDEN GENERAL HOSPITAL.
Harlesden Road, N.W.10.

Applications are invited from fully-qualified and registered candidates (unmarried) for the appointment of a Resident Officer, to hold the appointment of CASUALTY OFFICER for a period of three months, from April 1st, 1938, followed by a six months' appointment as HOUSE PHYSICIAN (total nine months).

Salary at the rate of £100 per annum. Applications to be received by the Secretary not later than first post on Friday, March 18th, 1938.

February 25th, 1938

CITY OF LONDON MATERNITY HOSPITAL.
City Road, E.C.1.

Applications are invited for the post of ASSISTANT RESIDENT MEDICAL OFFICER, for three months from 1st April. Salary at the rate of £80 per annum. At the end of the period the candidate will, if satisfactory, be appointed Senior for three months at £100 per annum. Forms of application, returnable not later than March 16th, may be obtained from the undersigned.

RALPH B. CANNINGS,
Secretary.

WINGFIELD-MORRIS ORTHOPAEDIC HOSPITAL.
Hedgehog, Oxford.

HOUSE SURGEON (male) required for six months from May 1st. Salary at the rate of £100 per annum, with board, lodging and laundry.

Applications (with testimonials) to be sent on or before April 1st to Professor Girdlestone.

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Applications are invited for the post of **SECOND RESIDENT MEDICAL OFFICER**. Candidates must be unmarried and fully qualified, and should preferably hold the Diploma of F.R.C.S.(Eng.). The successful candidate will be required to take up duty on May 1st. The appointment is for six months, with eligibility for re-election. Commencing salary £250 to £300 yearly, according to qualifications and experience. Board and lodging will be provided.

Applications, stating age and giving full particulars of qualifications and previous surgical experience, with copies of two testimonials, should be sent not later than March 21st to the undersigned at the London Offices, 107, Southampton Row, London, W.C.1, from whom further particulars of the duties and conditions of the appointment can be obtained.

STANLEY SMITH,
Secretary.

March 11th, 1938.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the following posts:
(a) **HOUSE PHYSICIAN**, vacant on May 1st.
(b) **HOUSE SURGEON** to the Special Departments, with care of beds for ear, nose and throat, eye, gynaecological and maternity cases, vacant on May 1st.

Each appointment is tenable for a period of six months, but is terminable at an earlier date by one month's written notice on either side. The salary of each officer will be at the rate of £130 per annum, with board, residence and laundry.

Candidates (male), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned, on or before Wednesday, March 23rd, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of **RESIDENT ANAESTHETIST AND EMERGENCY OFFICER** (male). The appointment will be for three months from April 1st, 1938. Salary at the rate of £130 per annum, with board, residence and laundry. Candidates, who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned on or before Wednesday, March 23rd, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

BRISTOL HOMOEOPATHIC HOSPITAL
(Bruce Melville Wills Memorial),
Bristol, 6.

The Board of Management invite applications for the appointment of **RESIDENT MEDICAL OFFICER** to commence duty on April 1st next, at a salary of £120 to £150 per annum, according to experience, with board, laundry and accommodation.

The Hospital is a modern one with the latest equipment, and a most comfortable suite of rooms is provided in the institution.

Opportunity for good Surgical and General experience.

Applications should be forwarded with copies of three recent testimonials, not later than March 26th, addressed to the undersigned.

H. HUNTER, Lt.-Colonel,
Secretary.

BIRMINGHAM & MIDLAND EYE HOSPITAL.
(114 Beds.)

Applications are invited from duly qualified medical practitioners for the post of **HOUSE SURGEON** at the above Hospital.

Salary £130 per annum (rising to £150 at the end of six months' satisfactory service), and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, must be received not later than Thursday, March 24th, 1938.

Church Street, J. W. PEARCE,
Birmingham, 3. General Superintendent.

BIRKENHEAD GENERAL HOSPITAL.
(156 Beds.)

Applications are invited for the following Resident (male) posts, for the six months commencing April 1st, 1938.

HOUSE PHYSICIAN. Salary £100 per annum.
CASUALTY OFFICER. Salary £100 per annum.

Both with board, residence and laundry.
Applications, stating age, nationality and qualifications, together with three recent testimonials, to reach the undersigned as soon as possible.

W. H. DANIELS, F.C.I.S.,
Secretary-Superintendent.

DEVONSHIRE ROYAL HOSPITAL,
Buxton, Derbyshire, (300 Beds.)
(A National Hospital for Rheumatism and Allied Diseases.)

RESIDENT MEDICAL OFFICER (male), salary £200 per annum, or **HOUSE PHYSICIAN** (male), salary £150, rising to £175 after three months' service (and prospects of promotion to Resident Medical Officer), with board-residence and laundry. Candidates must be fully qualified and registered. The appointments are for a minimum period of six months, and may be extended for a further period of six months.

Applications, endorsed "Medical Appointments," stating age, experience and qualifications, and whether application is made for one or either post, together with copies of three recent testimonials, must be forwarded without delay to the undersigned, from whom any further particulars may be obtained.

Considerable orthopaedic experience is available, and the appointments offer special facilities for gentlemen preparing a thesis or wishing to undertake special work, as the Hospital contains all the necessary laboratory and other facilities for research. Canvassing will disqualify.

By Order of the Committee of Management,
A. PRESTON TURNER,
General Superintendent and Secretary.

BRIGHTON COUNTY BOROUGH MENTAL HOSPITAL,
Haywards Heath, Sussex.**APPOINTMENT OF THIRD ASSISTANT MEDICAL OFFICER.**

The Visiting Committee are prepared to receive applications from medical men for the above post. No married quarters are provided. The salary will be £350 per annum, rising by annual increments of £25 to £450 per annum, with a further £50 per annum if in possession of the D.P.M. The age of the candidate should not exceed 35. Earned apartments will be provided, with board and laundry, valued for superannuation purposes at £100 per annum.

Candidates must be registered under the Medical Act, and preference will be given to those who have held the post of House Surgeon or House Physician at a General Hospital. The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1902.

Applications, on a form which will be supplied, with copies of three recent testimonials, to be sent to the Medical Superintendent and to be received by March 24th, 1938.

NORTH STAFFORDSHIRE ROYAL INFIRMARY,
Stoke-on-Trent, (390 Beds.)**RESIDENT ANAESTHETIST.**

The Committee invite applications for the above post. Salary at the rate of £150 per annum, with board, residence and laundry. This appointment, which is recognized by the Royal College of Surgeons for the Diploma in Anaesthetics, will be made for six months, renewable. Previous hospital Anaesthetic experience essential.

Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
March 8th, 1938. Secretary and House Governor.

GRANTHAM HOSPITAL.
(100 Beds.)

Applications are invited from fully qualified medical practitioners (male) for the post of **RESIDENT MEDICAL OFFICER**. The appointment is for six months as from April 1st, 1938, and may be renewable. Salary at rate of £250 p.a., with board, residence and laundry. Preference given to applicants who have already held a residentship.

Applications, stating age, nationality, qualifications and experience, with copies of three recent testimonials, should be sent to the undersigned.

JOHN E. RAY, Secretary-Superintendent.

BEDFORD COUNTY HOSPITAL.

Wanted, **FIRST HOUSE SURGEON** to take over his duties on April 8th for a term of not less than six months. He must be fully qualified, male, unmarried. Salary £155 per annum, together with board, lodging and laundry. Applications, stating age, nationality and qualifications, together with three recent testimonials, to be sent to the Secretary, Hon. Medical Staff Committee.

BURTON-ON-TRENT GENERAL INFIRMARY.

Applications are invited for the post of **SENIOR HOUSE SURGEON** (male). Salary at the rate of £200 per annum, with board, residence and laundry.

Applications, stating age, qualifications, experience and nationality, together with copies of testimonials, to be sent to:

The General Infirmary, E. W. THORNEY,
Burton-on-Trent. Secretary.

ROYAL SOUTH HAMPS & SOUTHAMPTON HOSPITAL.
(230 Beds.)

Applications are invited for the appointment of **HOUSE SURGEON** to General Surgical and Ear, Nose and Throat Wards for the six months commencing April 1st, 1938, at a salary of £150 per annum with board, lodging, laundry. Candidates must be male and applications, accompanied by not more than three testimonials, should be sent to the undersigned not later than Monday, March 21st, 1938.

S. W. BARNES,
House Governor and Secretary.

ROYAL SUSSEX COUNTY HOSPITAL,
Brighton.
(272 Beds. Six R.M.O.s.)

CASUALTY HOUSE SURGEON (male) required May 1st, 1938. Salary £120 p.a., with board, residence and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under thirty years of age.

Applications, with copies of recent testimonials, to be forwarded to the undersigned.

L. L. W. LANCASTER-GAYE,
Secretary-Superintendent.

ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY,
Wigan, (210 Beds.)

Recognized under F.R.C.S. Regulations. **HOUSE SURGEON** (male) required April 1st, 1938, for a period of six months. Salary £150 per annum, with board, apartments and washing. Staff consists of R.S.O. and three House Surgeons.

Applications, stating age and qualifications, with copies of three recent testimonials, should be addressed to the undersigned as soon as possible.

A. STANLEY BRUNT,
March 8th, 1938. General Supt. and Secretary.

STROUD GENERAL HOSPITAL,
Stroud, Glos.

RESIDENT MEDICAL OFFICER required. Candidates must be fully qualified and registered. Six months' appointment from April 1st. Salary £160 per annum, with board and laundry.

Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

C. FORD SPENCER, Secretary.

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Practices and Partnerships for Disposal (continued).

28 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant outlying residential district. Visits 3/6 to £1 ls. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.

29 S. OF ENGLAND.—Experienced SURGEON required for purely EAR, NOSE and THROAT WORK in good-class Practice. Must hold Fellowship and have good experience. Further details on application.

30 N. MIDLANDS.—PARTNERSHIP in steadily increasing middle-class Practice, averaging £5,500 p.a., in county town. Panel 4,900. House with 5 bedrooms, garage and good garden, to rent. One-fifth or one-fourth share at two years' purchase.

31 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £1,000 p.a., in rapidly developing district. Panel about 517. Modern two-storied house with ample accommodation, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.

32 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £2,000, in very pleasant agricultural district. Moderate panel. Pleasantly situated house. Rent £160 p.a. on lease. Extra grass land available. Good scope for increase by young energetic man. Premium one-half share two years' purchase.

33 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10s., medicine extra. House (5 bedrooms), electric light and gas, garage and garden. Welsh not necessary, but an asset. Premium one-half share, to include remainder of lease, £2,500.

34 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-room), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.

35 MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,800. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

36 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.

37 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 0d. Good house, containing 14 rooms with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.

38 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £5,000 p.a., in county town. Panel over 5,000.

Main surgery premises (4 bedrooms, etc.), garage and garden, to rent. Premium one-fifth share two years' purchase. Further share in seven years. Short Assistantship.

39 LONDON, S.E.—Old-established PRACTICE in growing suburban district. Receipts average over £1,500 p.a. (appointments worth about £100 and panel over 1,050). Visits 3/6 to 6/-. Semi-detached corner house (3 bedrooms), with separate surgery accommodation, garage and small garden, for sale. Premium two years' purchase.

40 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-. Majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.

41 S. COAST.—Old-established middle-class PRACTICE, averaging £1,200 p.a., in first-rate residential town and health resort. Small panel. Visits 5/- to 15/-. House (7 bedrooms), to rent at £120 p.a. Scope. Premium two years' purchase.

42 S.W. OF ENGLAND.—FOURTH PARTNER required in mixed country town Practice of nearly £6,500 p.a. Panel 4,600. Share worth about £1,100 p.a. at two years' purchase. Partner must be young and have made special study of medicine. Preliminary Assistantship.

43 S.E. COAST.—PARTNERSHIP in non-dispensing Practice, about £4,500 p.a. Panel 1,400. Suitable house would be available. One-fifth share at first at two years' purchase. Preliminary Assistantship. Scotsman preferred.

44 LONDON, W.2, and W.6.—Non-dispensing and non-panel PRACTICES run by two men in partnership. Receipts about £1,150 each practice. Premium two years' purchase and £1,000 respectively.

45 LONDON, N.W.—Steadily increasing PRACTICE in growing residential district within 14 miles of London. Receipts last year just over £700. Panel 6070. Very attractive detached house (4 bedrooms), with good garden and garage, for sale or rent at £120 p.a. Branch close by to rent. Premium £1,250, or near offer.

46 LONDON, E.C.—City PRACTICE doing about £300 p.a. No visiting, panel or midwifery. Premises to rent at £135 p.a. Premium £500.

47 MIDLANDS, Cathedral City.—Old-established non-dispensing PRACTICE, averaging £1,550 p.a. Small panel. Visits 6/- to 10/6. Convenient house (about 6 bedrooms), in best residential part to rent at £65 p.a. Excellent prospects for one experienced in clinical pathology. Premium one and a-half years' purchase.

48 BRITISH WEST INDIES.—SURGICAL PRACTICE in favourite town. Cash receipts, 1937, £1,682. Fine opportunity for experienced surgeon. Well-equipped nursing homes, X-ray and laboratory facilities. Rent of consulting rooms £5 monthly, and house £12 monthly. All kinds of sport. Premium £800.

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full particulars and qualifications and when available, are invited.

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Practices and Partnerships for Disposal.

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- 1 **W. OF ENGLAND.**—Old-established middle-class PRACTICE in good town. Receipts, 1937, £1,450. Panel 300. Visits 5/- to £1 ls., plus medicine. Very convenient detached non-basement house (7 bedrooms, etc.); to rent. Premium one and a-half years' purchase, or near offer.
- 2 **PRIVATE MENTAL HOME** for both Sexes.—Cash receipts average £3,900 p.a. (net profits about £200 p.a.). Premium for licence and goodwill, freehold property and furniture, £7,000.
- 3 **S. MIDLANDS.**—PARTNERSHIP in Practice, nearly £2,400 p.a., in county town. Panel about 2,000. House could be obtained. Premium two-fifths share one and three-quarter years' purchase, or near offer. (Short Assistantship.)
- 4 **SURREY.**—PRACTICE doing about £900 in growing neighbourhood. Panel 650, increasing. Detached house (3 bedrooms), nice garden and room for garage. Rent 35/- weekly. Net rent of branch, 12/6. Premium £1,500, or offer.
- 5 **LONDON, S.E.**—Suburban PRACTICE. Receipts 1937, £780. Panel 350. Detached house (7 bedrooms, etc.), small garden, no garage. Price leasehold £700. Scope. Premium one and a-half years' purchase.
- 6 **MIDDLESEX.**—Increasing PRACTICE doing at rate of £400 in Harrow. Panel 150. Small modern detached house. Rent £90 p.a. Premium £400.
- 7 **LONDON, S.E.**—PRACTICE doing at rate of £770 p.a. in thickly populated district. Panel 670. Small house (3 bedrooms). Rent £80 p.a. Branch surgery, £40 p.a. Premium £1,150, to include drugs, etc.
- 8 **N. WALES.**—Country PRACTICE near coast. Receipts £2,000 p.a. (appointments and panel worth nearly £900 p.a.). Exceptionally convenient house (6 bedrooms), electric light, etc. Price £1,500. Premium, Practice £3,200.
- 9 **MIDDLESEX.**—PRACTICE doing at rate of about £500 on council estate. Appointment worth £20 p.a. Panel 500. Small house (3 bedrooms). Rent 24/- weekly. Scope. Premium £750.
- 10 **S. OF ENGLAND.**—Progressive town.—PRACTICE about £1,000. Exclusively physio-therapy. Scope for X-ray work. Prospect of appointment on hospital staff. Premium to include certain equipment, £1,125.
- 11 **SCOTLAND.**—PRACTICE in small town in Fifeshire. Receipts last year, £760. Good house for sale.
- 12 **W. MIDLANDS.**—PARTNERSHIP in old-established PRACTICE, £3,288 p.a., in beautifully situated country town. Good appointments and panel 1,750. Suitable house could be obtained. Scope. Premium one-half share one and a-half years' purchase.
- 13 **SUSSEX COAST.**—PARTNERSHIP in steadily increasing Practice, doing about £1,500, in beautiful country district. Panel £380 p.a. Attractive modern house in own grounds with 5 bed and dressing-rooms and surgery accommodation, garage and large garden, for sale. Excellent sailing, etc. Scope. Premium one-half share, £1,200.
- 14 **N.E. COAST.**—Old-established and easily worked middle and better working-class PRACTICE, over £1,150 p.a., in seaport town. No panel. Private residence for sale. Good scope. Premium £800, to include furnishings and fittings of consulting rooms, etc.
- 15 **LONDON, W.9.**—PRACTICE doing about £1,600. Panel 1,700 and P.M.S. 40. Semi-detached corner house (4 bedrooms, etc.), no garage or garden, to rent. Premium £3,250.
- 16 **N. WALES.**—Good-class PRACTICE, averaging £470 p.a., in favourite watering place. Fees range from 5/-. Small panel. Exceedingly nice house (4 bedrooms, etc.), with garage and nice garden, for sale or rent. Good hospital. Premium one year's purchase.
- 17 **BRISTOL.**—Old-established middle-class PRACTICE. Receipts, 1937, £342. Panel 200. House (6 bedrooms), in best residential part, with garage and garden. Decided scope for increase. Premium for freehold house and practice, £1,500, or best offer.
- 18 **LONDON, S.W.18.**—Increasing PRACTICE in populous district. Income last year about £825. Panel 450/500. Club worth about £200 p.a. Shop-fronted house to rent on lease. Excellent scope. Reasonable offer for quick sale.
- 19 **S. OF ENGLAND.**—First-rate Residential Town.—Good-class non-dispensing PRACTICE about £1,200 p.a. Consultations and visits 10/6, sometimes 7/-. No midwifery. Good house (6 bedrooms), in best part. Price £1,500. Good scope. Premium two years' purchase. Suitable to a physician.
- 20 **SURREY.**—PARTNERSHIP in well-established and rapidly growing middle-class Practice, doing about £3,750, in developing residential neighbourhood. Panel 750. Visits 5/- to 10/6. House (4 bedrooms), garage and small garden. Price £1,250. One-fourth share at first at two years' purchase.
- 21 **DEVON AND CORNWALL BORDER.**—Very old-established, unopposed and steadily increasing country PRACTICE, £1,325 p.a. Panel 413. Visits 5/- to 15/6, medicine extra. Very nice detached house (6 bedrooms, 2 dressing-rooms, etc.), garages and garden, about one acre, with fine orchard, for sale. Ample scope for increase. Ill-health cause of sale. Reasonable premium accepted for quick sale.
- 22 **S.E. COAST.**—PARTNERSHIP in old-established middle and working-class Practice in growing resort. Receipts, 1937, £4,350. Panel about 3,000. House (5 bedrooms), garage, etc., to rent at £120 p.a. Premium one-third share two years' purchase.
- 23 **S. OF ENGLAND.**—Steadily increasing middle and working-class PRACTICE in seaport town. Receipts past year, £800 (appointment worth £45, panel 660 and P.M.S. 295). Detached house with garage and garden. Rent £85 p.a. Premium £1,220, to include drugs and fittings.
- 24 **SEASIDE TOWN WITHIN HOUR OF LONDON.**—Very old-established PRACTICE, about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), large garden and garden, for sale or rent. Good scope. Premium £1,400.
- 25 **W. OF ENGLAND.**—PARTNERSHIP in non-dispensing PRACTICE of £1,800 in first-rate residential town. Panel 2,000. Suitable flat available. Premium four-ninth share two years' purchase.
- 26 **S. OF ENGLAND.**—Well-established SANATORIUM for the Open-Air Treatment. Receipts past year, £2,240. Premium £1,000, to include furniture, etc. Full details on application.
- 27 **EAST ANGLIA.**—Upper and middle-class PRACTICE in progressive town. Receipts last three years average nearly £1,100 p.a. No appointments or panel. Visits 5/- to £1 11s. 6d. Semi-detached house (7 bedrooms, etc.) with good garden, for sale. Scope. Premium one and a-half years' purchase.

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21. **LONDON.—WESTERN**—Gross cash receipts last year £1,450 to 1,500. House in good position by vendor 12 years. Premium £1,500. (4) **LONDON, SE**—Indoor, £500 p.a. preferred. (5) **LONDON, SE**—Indoor, £500 p.a. and outdoor vacancies available.

22. **SOUTH DEVON.—COAST TOWN**—Well-established. PRACTICE producing last year over £1,000 (this year at rate of about £1,200 p.a.). Freehold house with 2 reception, 6 bedrooms, etc., for sale or might rent. Premium 1½ years' purchase.

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LANCS TOWN.—PARTNERSHIP in old-established mixed-class PRACTICE in large town 6 miles from Manchester. Average gross cash receipts nearly £4,000 p.a. Panel 3,600. Good house, 2 reception, 4 bedrooms, garage and small garden. To rent. Premium—2½ share (about £1,600 gross)—2 years' purchase, or near offer.—No. 1073.

CENTRAL WALES.—Very old-established unopposed Country PRACTICE; in present hands 13 years. Average cash receipts over £2,000 p.a. Panel returns about £620 p.a. and appointments £285 p.a. Exc. house, 2 reception, 6 bedrooms, 3 Professional rooms, electric light, garage for 2 cars and beautiful garden. Price £1,500. Premium—Practice—£3,200.—No. 1068.

LANCS TOWN.—Sound old-established middle and better working-class PRACTICE. Cash receipts last year £2,620. Panel over 1,700. Good house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance); garage and small garden. Rent £70 p.a. Premium—1½ years' purchase.—No. 1090.

YORKSHIRE (W.R.).—PARTNERSHIP in very old-established mixed Panel and Private Practice. Cash receipts £2,800 p.a. Panel 2,490. Scope. Good house, 2 reception, 3 bedrooms, Professional rooms; garage and small garden. Rent £57 10s. p.a. Premium—½ share—2 years' purchase.—No. 1088.

DERBYSHIRE.—PARTNERSHIP (after short preliminary Assistantship) in old-established mixed-class PRACTICE in pleasant district near large town. Scope for great increase owing to building developments. Cash receipts last year £4,138. Panel 3,700. Suitable accommodation available. Premium—2½ share—2 years' purchase.—No. 1089.

SOUTH COAST.—PARTNERSHIP in rapidly increasing Practice. Cash receipts last year £4,600. Preliminary Assistantship essential. Premium—½ share—2 years' purchase.—No. 1026.

SHROPSHIRE.—Old-established Unopposed Country PRACTICE. Cash receipts last year £688. Panel 450. Modern house, 2 reception, 5 bedrooms, 3 Professional rooms; garage and large garden. Electric light. Rent £80 p.a. Premium—best offer.—No. 1086.

MANCHESTER.—Sound old-established mixed Panel and Private PRACTICE in industrial district. Cash receipts last year £1,900. Panel 2,230. Good house, reception room, 4 bedrooms, 2 Professional rooms, small garden. Rent £50 p.a. Premium—best offer.—No. 1084.

NORTH WALES.—Good-class long-established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with two small gardens, to rent or purchase, freehold. Socially very pleasant. Premium—£1,800.—Vendor retiring.—No. 929.

MANCHESTER.—Well-established mixed-class PRACTICE. Cash receipts £1,600 p.a. Panel 1,600. Good surgery premises to rent at £52 p.a. Purchaser can choose own residence. Premium—1½ years' purchase. Vendor retiring.—No. 1079.

NORTH-EAST COAST.—Middle-class (non-panel) PRACTICE. Cash receipts £1,100 p.a. Rent of surgery premises £26 p.a. Premium—£800.—No. 1028.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a. Panel 970 and transferable appointments £200 p.a. Scope. Nice detached house, 2 reception, 6/7 bedrooms, garage and large garden. Freehold. Premium—1½ years' purchase.—No. 991.

EAST COAST.—PARTNERSHIP (after preliminary Assistantship) in middle- and better working-class Practice in large seaport town. Cash receipts £3,800 p.a. Panel 2,600. Choice of suitable houses. Premium—1¼ or 1½ share—2 years' purchase.—No. 1076.

NEAR MANCHESTER.—PARTNERSHIP in very old-established middle-class (non-panel and non-dispensing) PRACTICE in pleasant residential district. Cash receipts about £6,000 p.a. Fees 5s. upwards. Unlimited scope. Expenses low. Suitable house available for incoming partner. Premium—½ share—2 years' purchase.—No. 1062.

MIDLAND HEALTH RESORT.—PARTNERSHIP (after preliminary Assistantship) in very old-established mixed-class Practice. Cash receipts last year £3,774. Panel 1,300. Fees 3/6 to 10/6. Incoming partner should be Protestant, and may choose own residence. Possibility of Hospital appointment. Premium—1 share—2 years' purchase. Further share in three years.—No. 1069.

SHEFFIELD.—MEDICAL WOMAN'S PRACTICE. Well-established, offering scope. Cash receipts £350 p.a. Panel 200. Commodious house. Rent £52 p.a. Premium—£400.—No. 1071.

MANCHESTER.—MEDICAL WOMAN'S PRACTICE; in present hands 9 years. Cash receipts last year £1,021. Panel 370. Good detached house, 2 reception, 3 bedrooms, garage and garden. Price £1,050. Premium—1½ years' purchase.—No. 1072.

MIDLAND CITY.—PARTNERSHIP in very old-established mixed Panel and Private Practice. Cash receipts last year £2,498. Panel 2,688. Scope for great increase. Nice modern house available, 2 reception, 3 bedrooms, garage and garden. Premium—½ share—2 years' purchase.—No. 1077.

AUSTRALIA.—Unopposed Country PRACTICE in North West Victoria. Income £1,450 p.a. Suitable house to rent. Premium—25% of gross cash takings for two years. Furniture (household) £125 cash.—No. 1091.

MANCHESTER.—Old-established mixed-class PRACTICE. Cash receipts last year £1,222. Panel 800. Scope. Good house, 2 reception, 5 bedrooms. Premium—1½ years' purchase.—No. 1009.

DERBYSHIRE.—Increasing Private and Panel PRACTICE in well-known Spa. Cash receipts approximately £700. Panel 200. Good ground floor flat. Rent £50 p.a. Premium—best offer.—No. 1057.

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PRINCIPAL CONTENTS

"Gonococcal Antitoxin" in Treatment of Gonorrhoea ..	p. 605	Leading Articles	p. 627
A Human Infection with Actinomyces Caprae ..	612	Correspondence	642
Familial Clubbing of Digits ..	614	Medical Research Council Annual Report	625
Intermittent Venous Occlusion for Obliterative Disease ..	616	Surgery in General Practice: Foreign Bodies in the Tissues	633
Food Poisoning	618	Safeguarding Water Supplies ..	636
Lectures on Diabetes, No. 3 ..	635	Reviews	622

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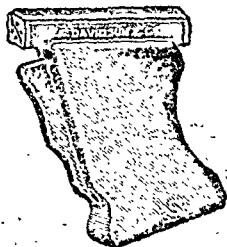
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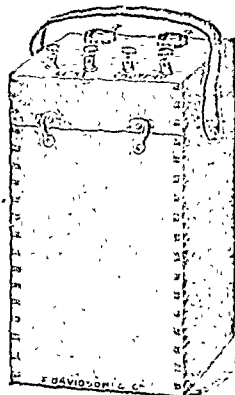
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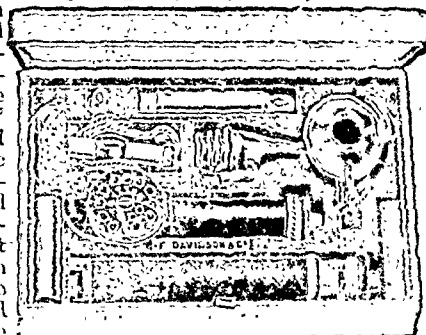
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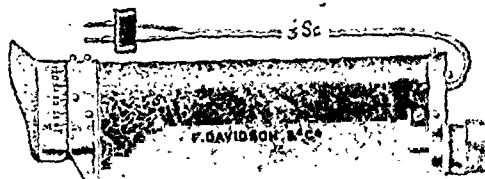
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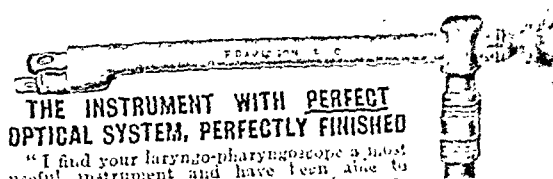
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TABLE OF CONTENTS

ADDRESSES AND PAPERS

"Gonococcal Antitoxin" in Treatment of Gonorrhoea. E. T. BURKE, M.B., J. GABE, M.B., F.R.C.S., A. H. HARKNESS, M.R.C.S., and A. J. KING, M.B., F.R.C.S. 605

A Human Infection with Actinomyces Caprae. A. G. GIBSON, M.D., F.R.C.P., R. H. ROSE-INNES, M.B., F.R.C.S., and JOAN GIBSON, B.S. 612

Familial Clubbing of Fingers and Toes. D. R. SEATON, M.B. 614

Treatment of Obliterative Vascular Disease by Intermittent Venous Occlusion. J. J. MASON BROWN, M.B., F.R.C.S.E.D., and W. MELVILLE ARNOTT, M.D., F.R.C.P.E.D. 616

Food Poisoning. J. BURNFORD, M.B., F.R.C.P. 618

SURGICAL SERIES

Foreign Bodies in the Tissues. II. DODD, M.Ch., F.R.C.S. 633

CLINICAL MEMORANDA

Weil's Disease following Accident. REUBEN NAFTALIN, L.R.C.P. 621

REVIEWS

Practical Radiotherapy 622
Biology and the Body Politic 622
Surgery 623
Drug Book for Quick Reference 623
Skeletal Maturation 624
Notes on Books 624

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE: The Value of Zinc-Protamine-Insulin 637
ROYAL ACADEMY OF MEDICINE IN IRELAND: Tomography 638
WEST LONDON MEDICO-CHIRURGICAL SOCIETY: Industrial Diseases 638

GENERAL ARTICLES AND NEWS

Medical Research Council Annual Report. First Notice 625
New Insulins. Lettsomian Lecture 635
Safeguarding Water Supplies 636
FRANCIS AMORY PRIZE 635
MEDICAL NOTES IN PARLIAMENT 655
PREPARATIONS AND APPLIANCES 624
UNIVERSITIES AND COLLEGES 657
MEDICAL NEWS 659

LEADING ARTICLES

Medical Research in Britain 627
Internship and Medical Education 623

ANNOTATIONS

Serum Treatment in Gonorrhoea. 629
Encephalitozotic Encephalomyelitis 629
Physicians of the Mayo Clinic 630
Problems of Vitamin B Deficiency 630
The Hospitals of Cornwall 631
The Cash Basis 631
Medical Work in the Sudan 632

SUPPLEMENT

Threshold of General Practice
SIR KAYE LE FLEMING

Report on Health Services

INSURANCE MEDICAL SERVICE
FEES FOR CERTIFICATES
H.S.A. NEW PROPOSALS
CORRESPONDENCE
POSTGRADUATE NEWS
DIARY OF SOCIETIES
MEETINGS OF BRANCHES
Association Notices: Vacancies and Appointments: Diary

LOCAL NEWS

ENGLAND AND WALES—
Blood Sedimentation Rate Test 639
Moorfields Eye Hospital Dinner 639
West Riding Maternity Scheme 639
Anti-gas Training 639
IRELAND—
Queen's University, Belfast 639
Ulster Medical Society 640
Royal Victoria Hospital 640
Medical Research Council 640
SCOTLAND—
Treatment of Mental Disorder 640
Vital Statistics of Scotland 641
Aberdeen University 641
FRANCE—
Significant Trends in Medicine 641
Professor Leroux's New Post 642
Control of Sera and Vaccines 642
Professor René Leriche 642

THE SERVICES

Honorary Surgeon to the Viceroy 657
Deaths in the Services 657
(For Naval, Military, and Air Force Appointments see SUPPLEMENT)

EPIDEMIOLOGY SECTION

TABLE OF INFECTIOUS DISEASES AND VITAL STATISTICS 658
EPIDEMIOLOGICAL NOTES 659

CORRESPONDENCE

Effects of X Rays on Hereditary Mutation. C. H. WADDINGTON, S.D. 642
After-Effects of Modern Treatment of Carcinoma. E. S. LEE, M.B.; W. GOSSE, M.D.; DOROTHY J. COLLIER, F.R.C.S.; J. PHILLIPS, F.R.C.S.E.D. 643
Co-operation. J. D. KERSHAW, M.B. 644
Scapulo-humeral Periarthritis. C. B. HEALD, M.D.; A. H. DOLTHWAITE, M.D. 644
Undulant Fever in Malta. J. E. DEBONO, M.D. 645
Appendicitis in Tristan da Cunha. H. E. B. CURIEL, M.B. 646
Infantile Pyloric Stenosis. DAVID LEVI, F.R.C.S. 646
Diverticulitis of the Caecum. MICHAEL J. SMYTH, F.R.C.S. 646
Excision of the Patella. G. O. TIPPETT, F.R.C.S. 647
Cause of Chronic Gastric Ulcer. Wm McKim, L.R.C.S. 647
Acrillavine Emulsion. W. A. WOODWARD 648
Raw or Pasteurized Milk. F. R. BROWN, F.R.C.S.E.D. 648
Safe Milk and Safe Butter. EMYR JONES, M.D. 648
Pneumonitis. R. COOPE, M.D. 649
Pure English. J. WARE, M.D. 649
Correct Footwear. S. T. IRWIN, M.Ch., F.R.C.S.E.D. 649
Treatment of Plantar Warts. W. E. WALLER, M.D. 649
Early Occurrence of High Blood Pressure. A. P. THOMSON, M.D.; G. ARBOUR STEPHENS, M.D. 650
Iron for Subnutrition. T. COLVER, M.B. 650
George Buckmaster and William Wright, Secretary, Royal Australasian College of Surgeons 650
X-Ray Film Developing Box. B. WHITCHURCH HOWELL, F.R.C.S. 650

OBITUARY

Sir Raymond Crawford, M.D., F.R.C.P. (With Portrait) 651
Sir Arthur Downes, M.D. 652
R. Huxley Fish, M.D., M.R.C.P. 653
Sara E. White, M.B. 653
T. W. Francis Gann, L.R.C.P. 654
J. Paul Roughton, M.R.C.S. 654
J. Oliver Hamilton, M.B. 654
R. Liddon Meade-King, M.D. 654
J. A. Richard Lee, M.R.C.S. 654
A. William Cuff, F.R.C.S. 654
S. E. Mostyn Hoops, L.R.C.P. 655

LETTERS AND ANSWERS

Urticaria 660
Geographical Tongue 660
James Yearsley: An Inquiry 660
Disclaimers 660

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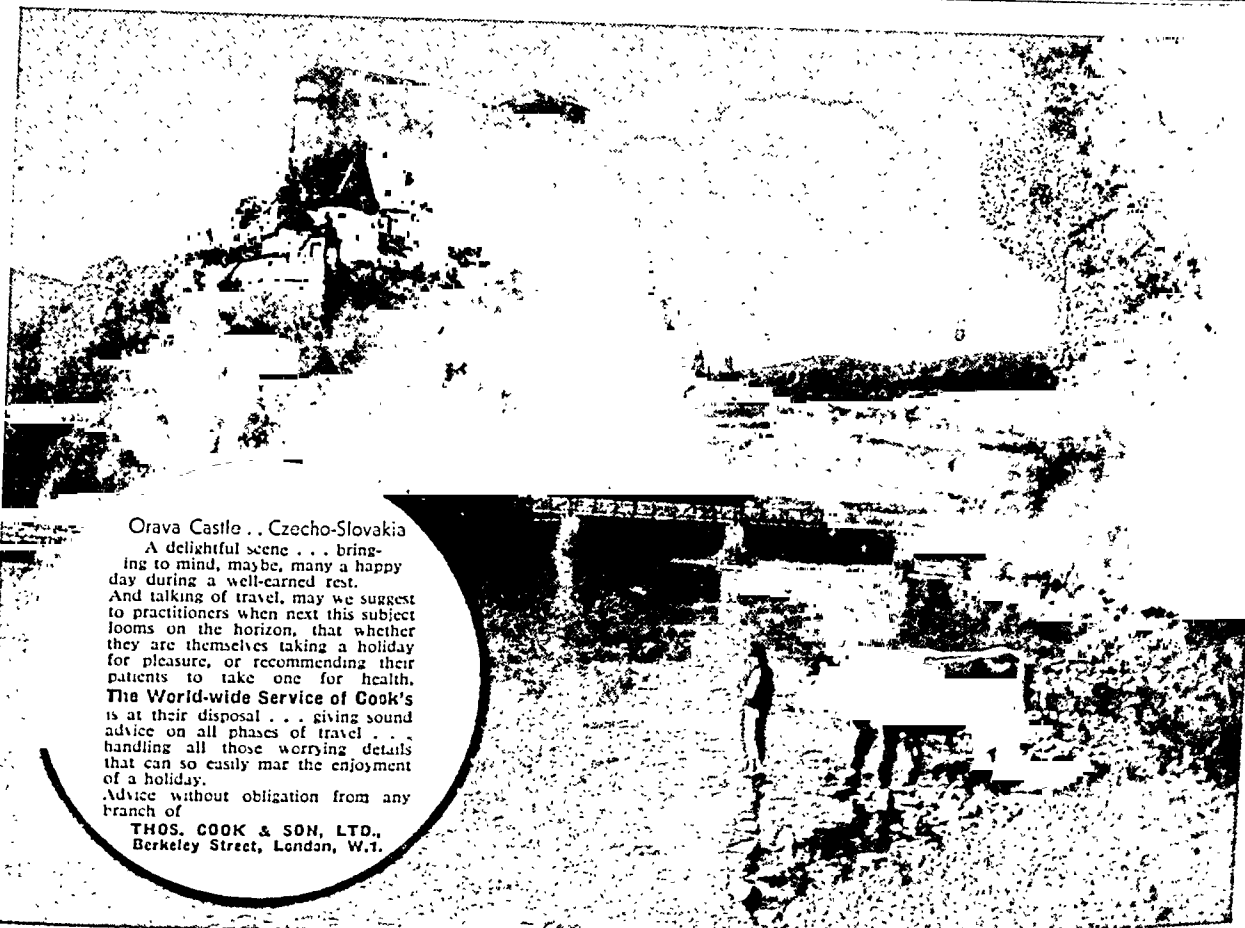
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SUMMARY OF CONTENTS

VOL. I

CARDIOVASCULAR SYSTEM. PETER KERLEY.
RESPIRATORY SYSTEM. E. W. TWINING.
URINARY AND MALE GENITAL TRACTS.
C. JENNINGS MARSHALL and S. COCHRANE SHANKS.

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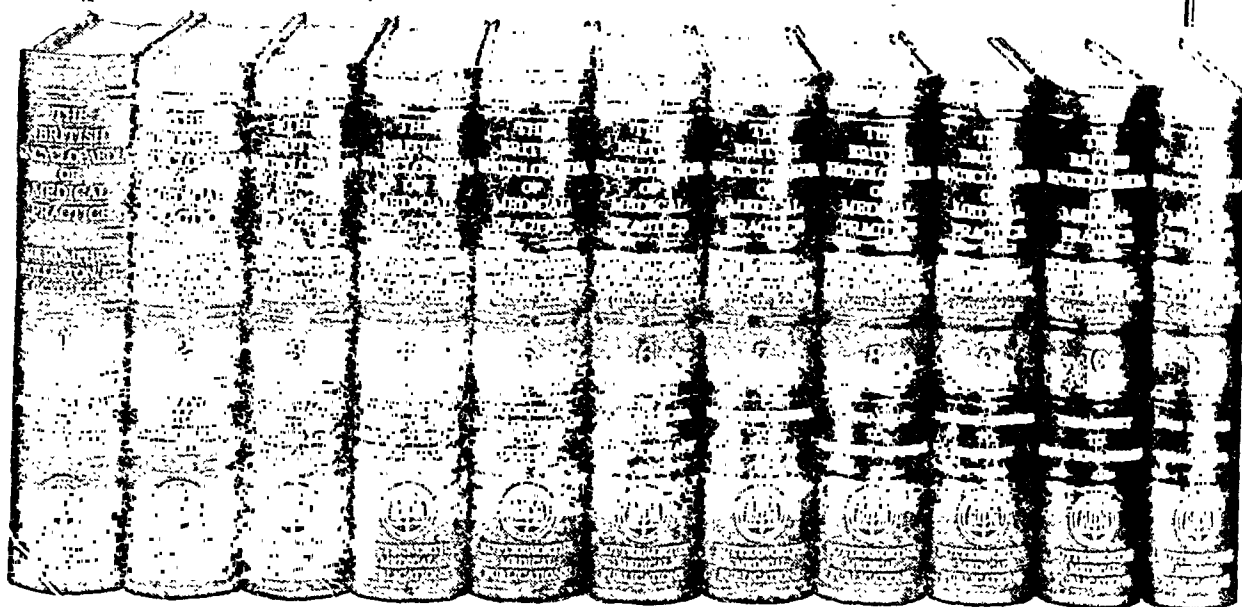
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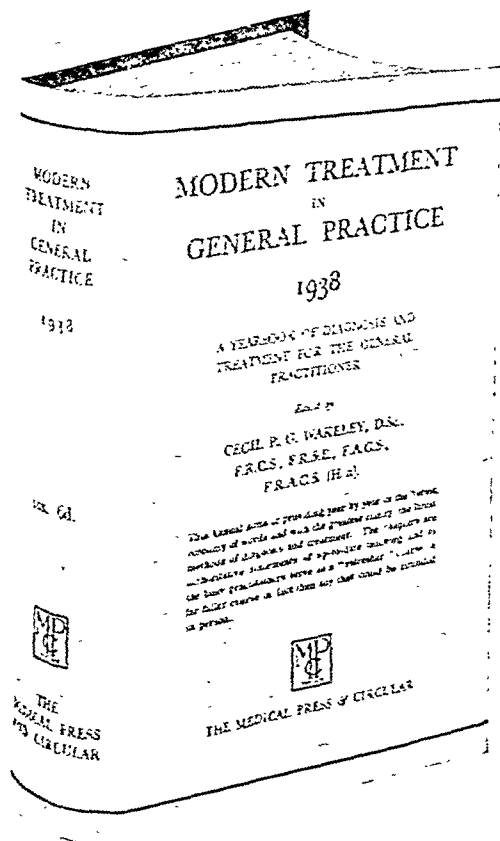
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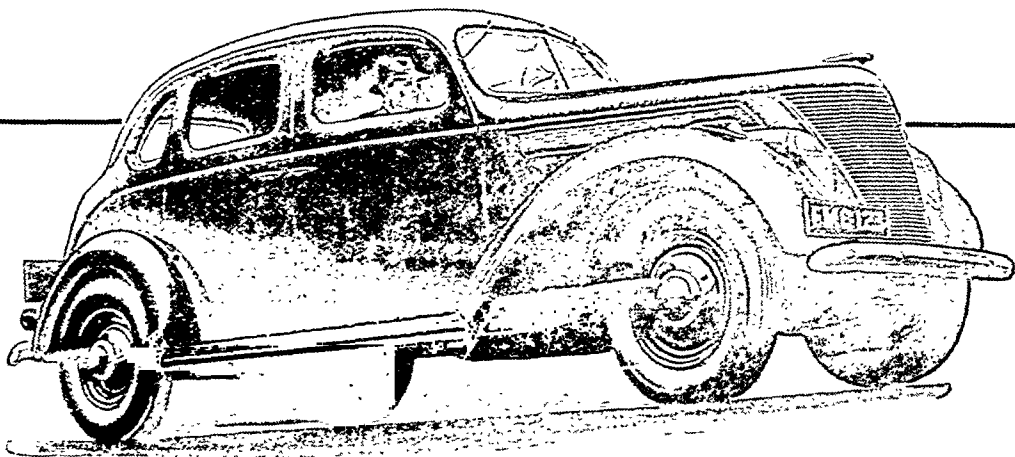
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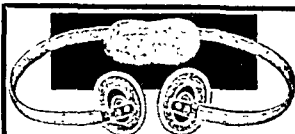
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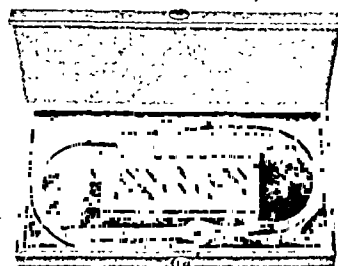
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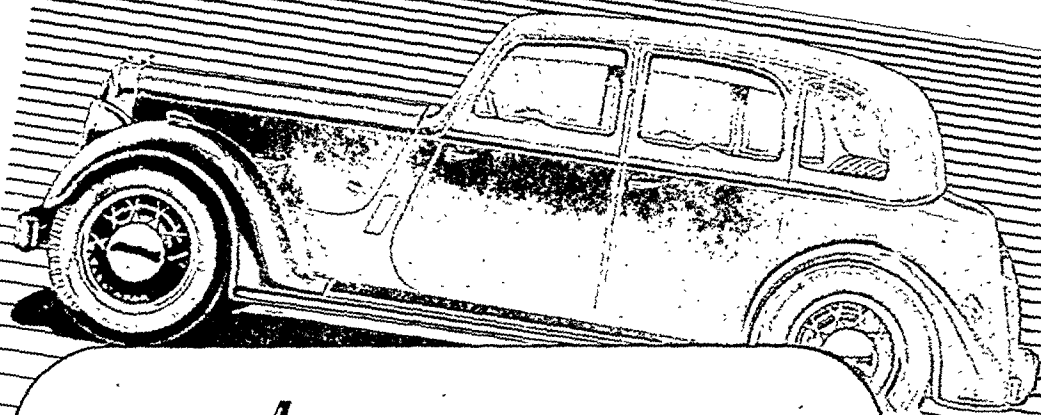
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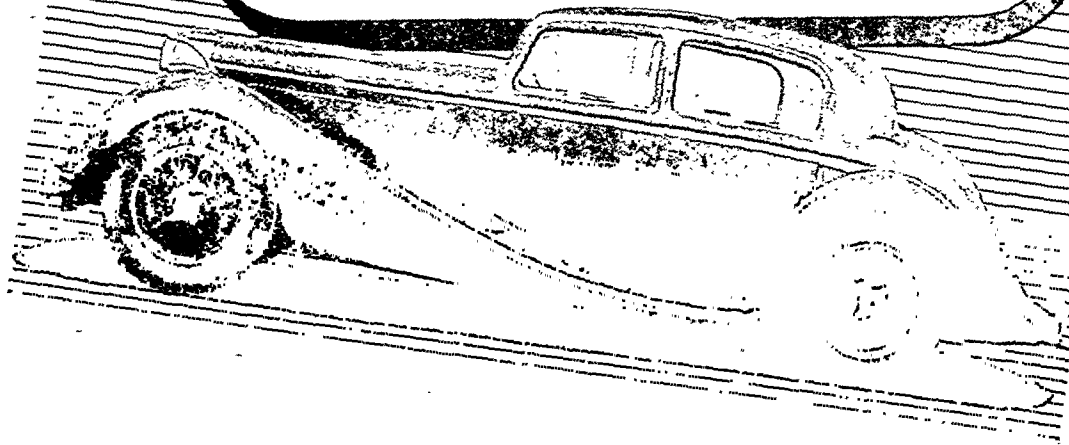
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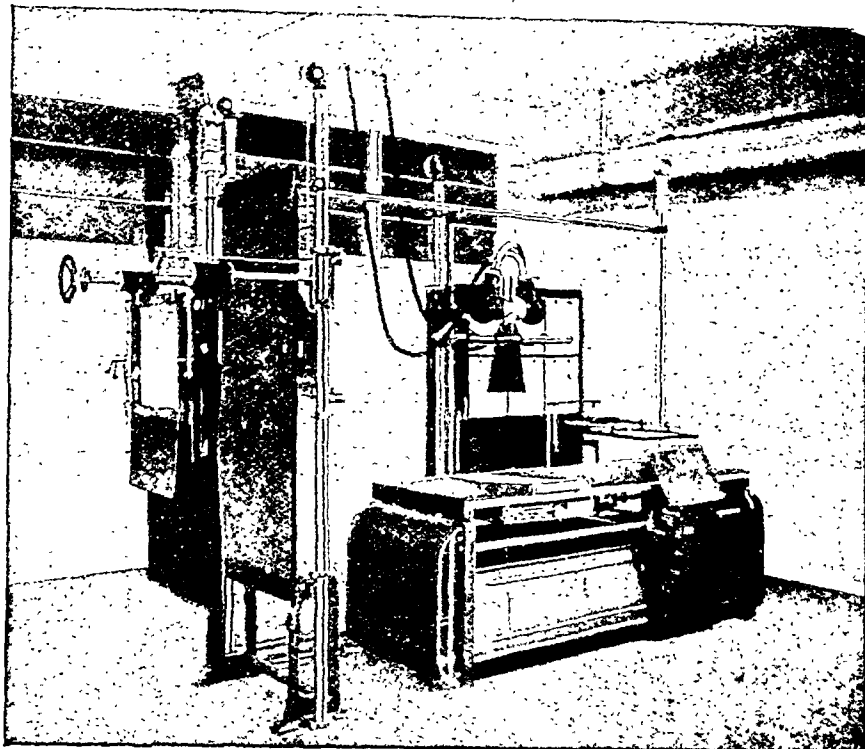
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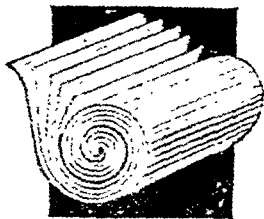
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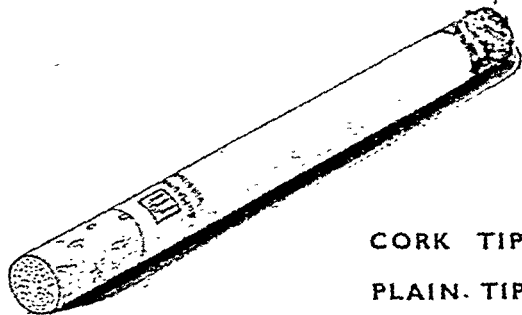
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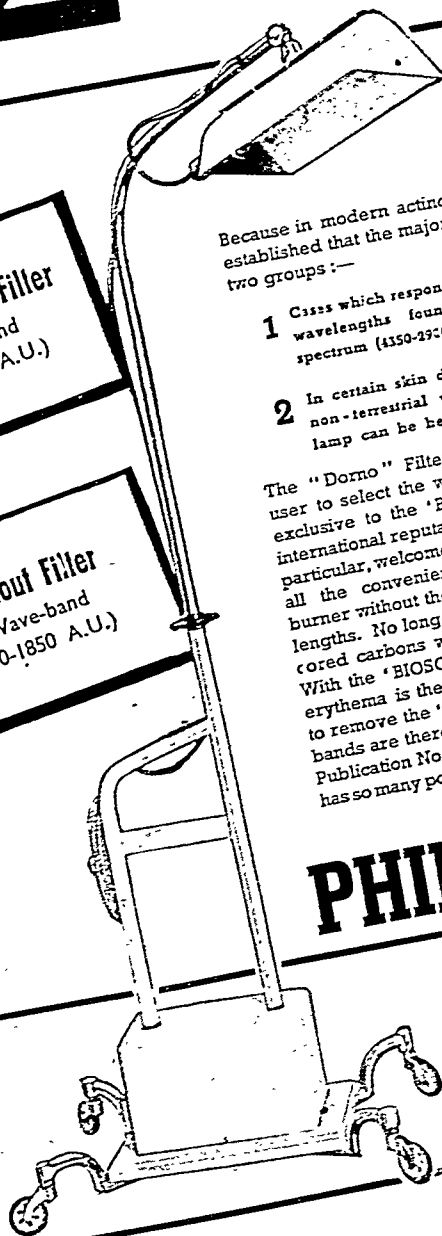
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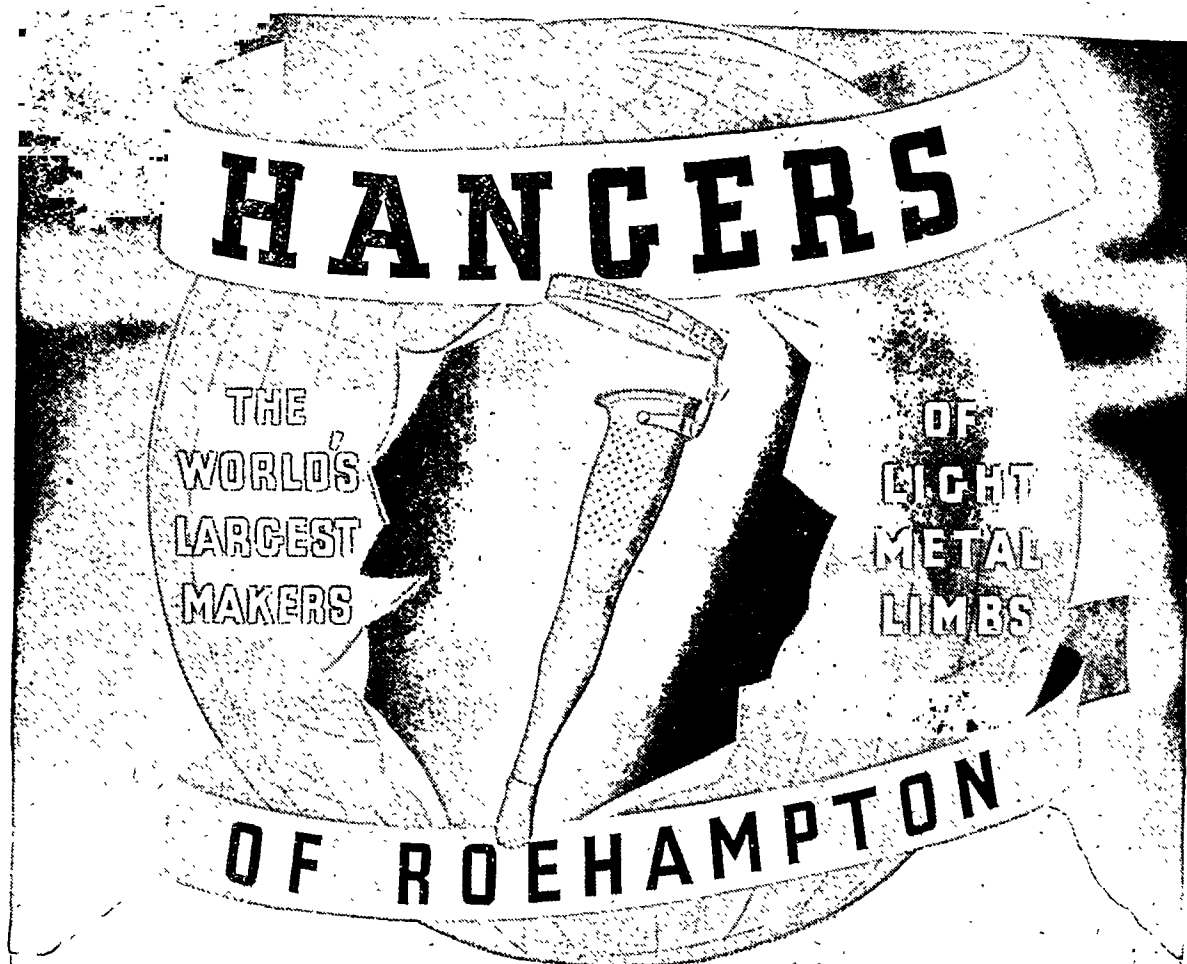
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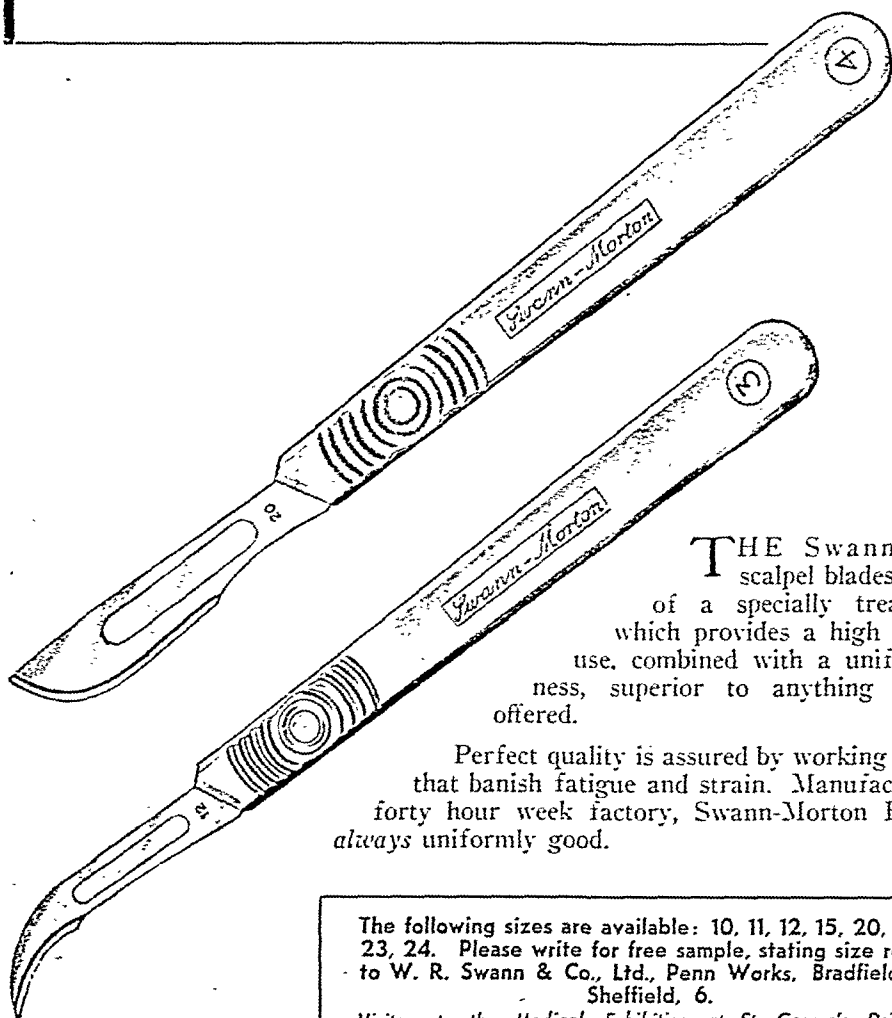
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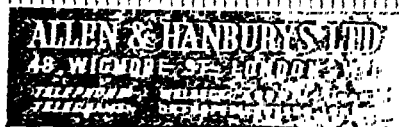
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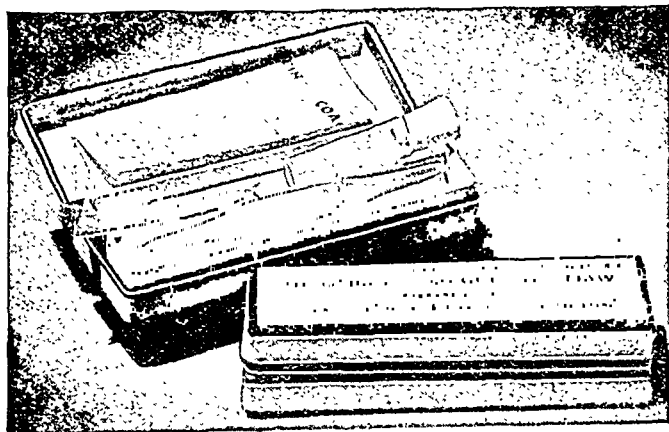
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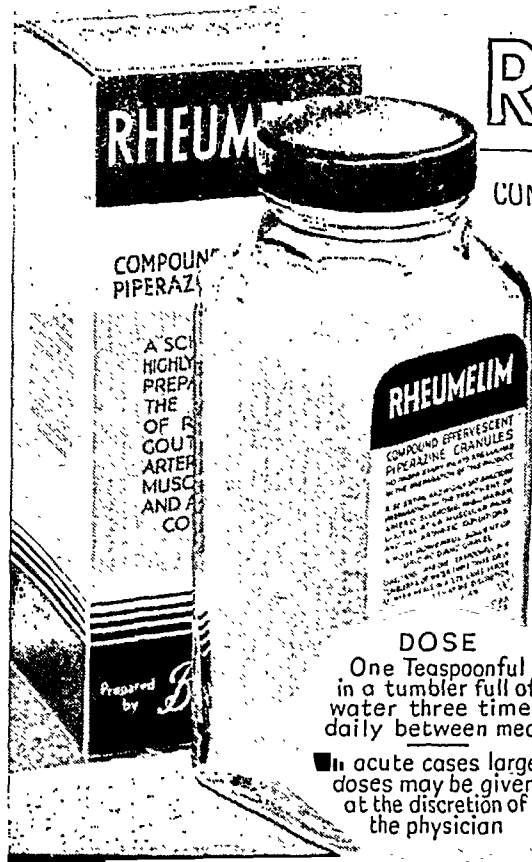
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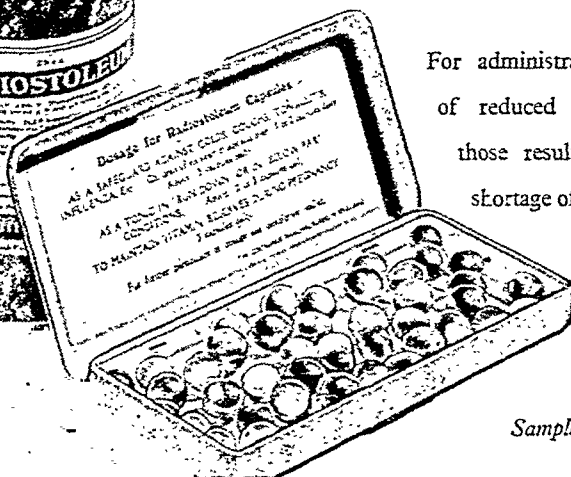
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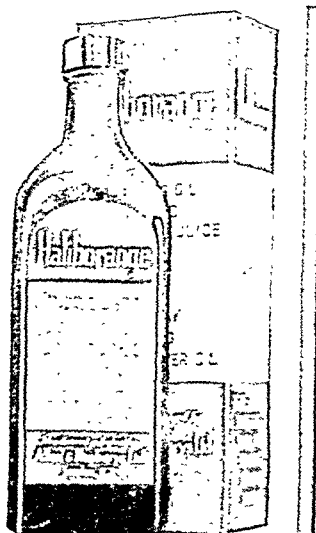
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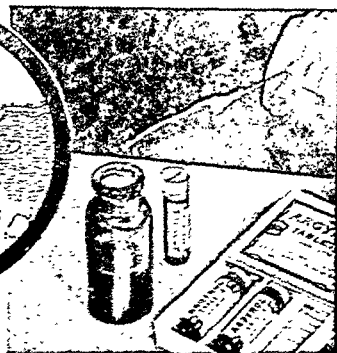
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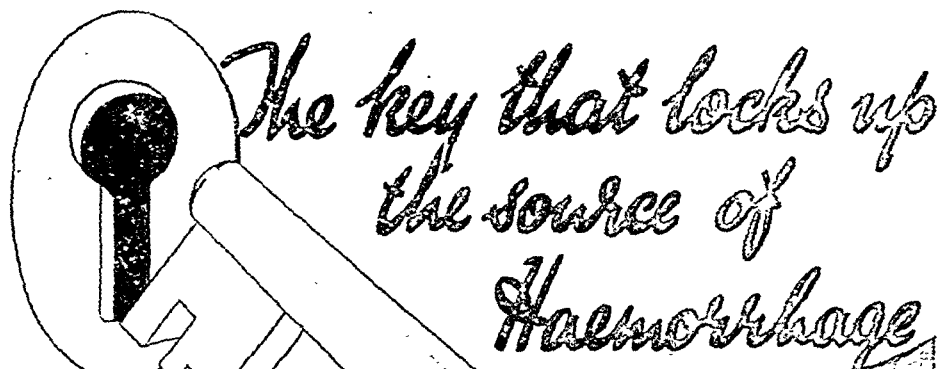
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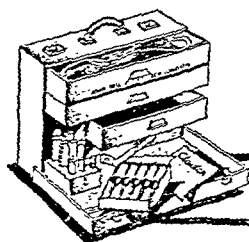
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M282

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for the effective treatment of
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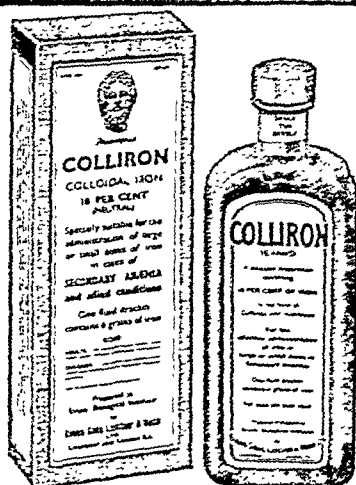
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in the Therapy of Hæmorrhagic Conditions

Snake Venom Solution (MOCCASIN)

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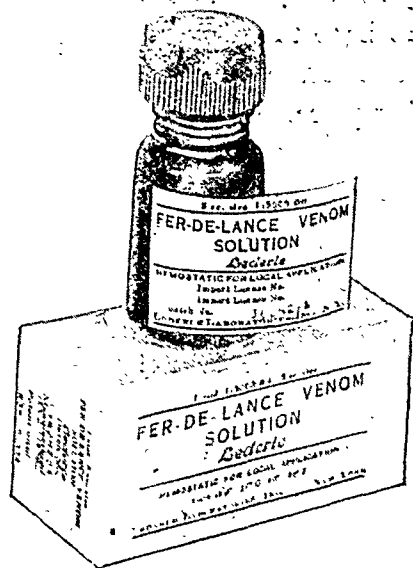
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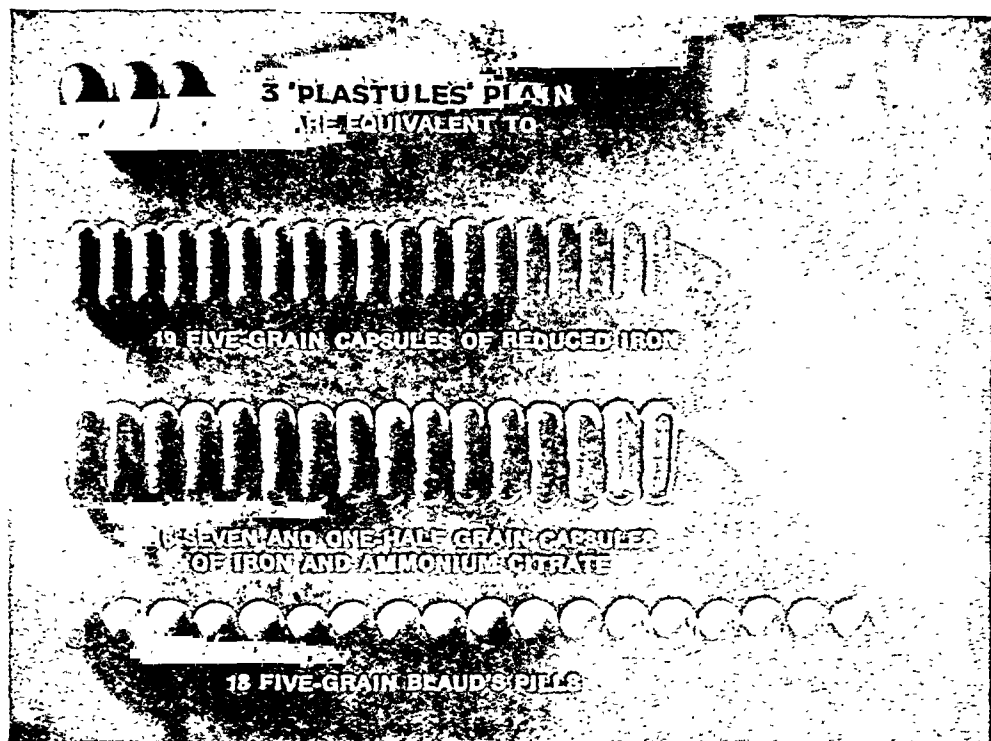
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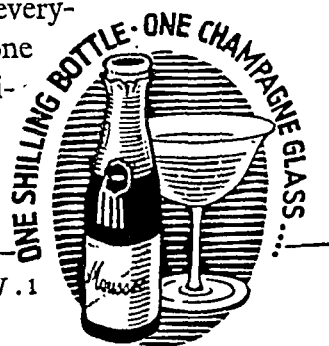
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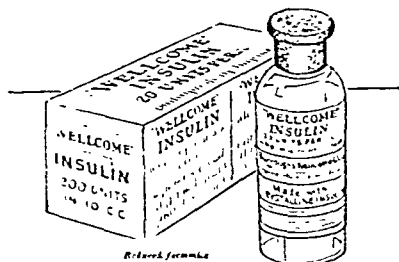
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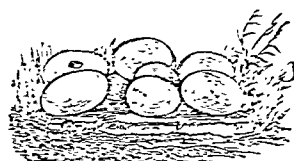
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BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 19 1938

"GONOCOCCAL ANTITOXIN" IN THE TREATMENT OF GONORRHOEA

BY

E. T. BURKE, D.S.O., M.B.

*Director of the L.C.C. (Whitechapel) Clinic; Consultant Venereologist to the Public Health Department of the L.C.C.;
Lecturer in V.D. at the London Hospital Medical College*

J. GABE, M.B., F.R.C.S.

*Deputy Medical Superintendent, St. Andrew's (L.C.C.) Hospital; Late Senior Assistant Medical Officer,
St. Peter's (L.C.C.) Hospital*

A. H. HARKNESS, M.R.C.S., L.R.C.P.

*Honorary Medical Officer in Charge of V.D. Department, St. Peter's Hospital, Covent Garden; Consultant in V.D.
to St. Charles's (L.C.C.) Hospital*

AND

AMBROSE J. KING, M.B., F.R.C.S.

Chief Assistant Medical Officer, L.C.C. (Whitechapel) Clinic

In a preliminary report Anwyl-Davies (1937) described the results he had observed in a series of 157 cases of gonorrhoea in the male, treated with a serum prepared by Parke, Davis and Co., and described as a "specific antitoxin." The series included forty-two cases of acute uncomplicated gonorrhoea and 115 with complications, eighty-four of them acute, and his conclusions were: (a) that the results were distinctly encouraging; (b) that the "antitoxin" possessed specific therapeutic properties; (c) that clinical evidence suggested that both active and passive immunity were established; and (d) that the "antitoxin" seemed to offer considerable promise in the treatment of gonorrhoea.

The evidence supporting these conclusions was rather indefinite, as was pointed out by W. Lester (1937), but the claims made for the serum were so exceptional that we decided to try it. Our results in 129 male patients treated in these clinics agreed so completely in their lack of any evidence supporting the conclusions arrived at by Anwyl-Davies that we have combined them in one paper. These combined cases are shown in Table I.

TABLE I.—Combined Cases

Type of Case	St. Peter's	Whitechapel Clinic	St. Charles's	Totals
Uncomplicated:				
Acute... ..	48	16	3	67
Chronic ..	—	—	—	—
Complicated:				
Acute... ..	27	—	13	40
Chronic ..	22	—	—	22
Total ..	97	16	16	129

In this table, and also in the others, the term "uncomplicated" means with urethritis only, and "complicated" means with gonococcal infection of the urethral adnexa or other parts of the body. "Acute" means with infec-

tions of less than three months' duration at the time the patient came under our care, and "chronic" means with infections of more than three months' duration.

The serum used in our investigations was in two forms, described respectively as "unconcentrated antitoxin" and "concentrated antitoxin." According to the makers "unconcentrated antitoxin" is the original preparation made by a method practically identical with the Ferry procedure for the production and standardization of meningococcus antitoxin. "Concentrated antitoxin" is the original preparation after concentration by the Banzhaf method. This is said to remove excess of protein and leave the "antitoxin" in the pseudo-globulin fraction. Theoretically it is five times as potent as the unconcentrated preparation. In his report Anwyl-Davies describes results obtained with the use of both these preparations.

As indicated, the cases were treated in three series and the observations were made independently: those in St. Peter's Hospital, Whitechapel, which are presented first, by J. G.; those in the Whitechapel Clinic by E. T. B. and A. J. K.; and the last series, at St. Charles's Hospital, by A. H. H. At the end of the report we present a summary of our conclusions based on a combined study of all our results. We have not presented comparative findings in a series of controls, for reasons of space and because our results with this preparation have been so bad that the necessity for comparison does not arise.

St. Peter's Hospital Series

The results obtained from the use of the serum in ninety-seven cases at this hospital are shown in Table II. The ages ranged from 16 to 61 years, with an average of approximately 29. Those without complications were treated mostly as out-patients; all the complicated cases received in-patient treatment. All injections of the serum were given intramuscularly on consecutive days.

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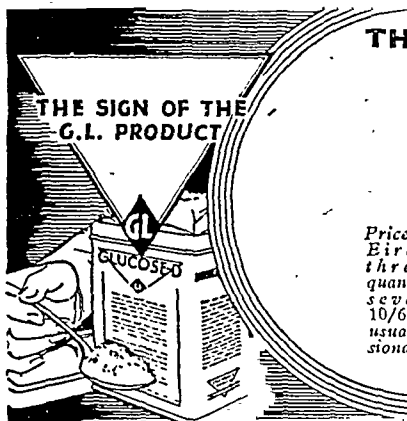
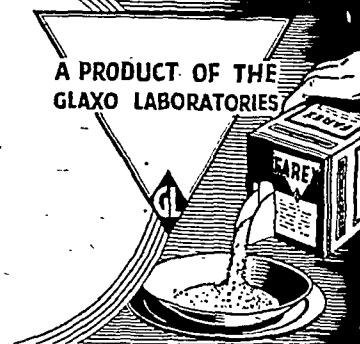
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Boxes of 4 ampoules of 1 c. cm. containing 10 mg. per c. cm. ...	22/6 per box.
Boxes of 2 ampoules of 1 c. cm. containing 25 mg. per c. cm. ...	24/- per box.

The above prices subject to the usual professional discount.

Literature and clinical reports on request.

from four months to two years—average, twenty months. In the latter group the time since the onset varied from three days to six weeks—average, four weeks. The chief complications present on admission were arthritis in ten and epididymitis in six cases. Some of these patients had other complications, such as iritis and keratoderma blennorrhagica. The dosage was 2, 3, 5, and 10 c.cm. in twelve cases; four of 10 c.cm. in one case; 10, 15, and 20 c.cm. in one case; 5, 10, 15, and 20 c.cm. in one case; 1, 2, 5, 10, 20, and 20 c.cm. in one case; 1, 10, 10, 20, 10, 10, and 10 c.cm. in one case; and ten of 10 c.cm. in one case. Two patients received a second series of injections within a few days of the end of the first course. Added complications totalled five (31.2 per cent.), and consisted of iritis in one case, arthritis in one, epididymitis in two, and fibrositis in one.

(b) *Concentrated Serum* (6 Cases).—Four patients had had previous attacks of gonorrhoea. The chief complications present on admission were: arthritis in three cases, epididymitis in two, and iritis in one. The dosage was as follows: seven of 2 c.cm. in one case; six of 2 c.cm. in four cases; and 1, 2, and 3 c.cm. in one case.

The average period of in-patient stay for patients treated with unconcentrated serum was 40.5 days; with concentrated serum it was 40 days for patients with arthritis and 25.7 days for those with other complications. Again treatment with serum had to be supplemented later by ordinary methods.

Results.—The immediate clinical results indicated that unconcentrated serum had some adverse effect in eleven instances and did not retard recovery in five. The concentrated serum affected four cases adversely and produced no effect in two (both cases of epididymitis). In no instance was a patient discharged from hospital in less than nine days. In six of the ten patients with arthritis the joints had fully recovered on discharge from hospital. In four there was some limitation of movement. The following bacteriological and serological results refer only to the period of in-patient stay. In thirteen out of sixteen patients treated with unconcentrated serum the smears remained positive in nine and became negative in four. Of six patients treated with concentrated serum two showed gonococci in smears on discharge to out-patient treatment. The complement-fixation test in sixteen patients treated with unconcentrated serum remained positive in ten and became negative in five, while in the remaining case the serum was anti-complementary. In the patients treated with concentrated serum the complement-fixation test remained positive in four, became negative in one, and in one no test was carried out. In this series of twenty-two patients sixteen were traced after discharge. Of these, seven (31.8 per cent.) remain uncured after an observation period varying from eighteen months to two years. Nine patients defaulted (41.9 per cent.): three immediately, one at the second month, one at the third, one at the fourth, one at the sixth, one at the sixteenth, and one at the seventeenth. Thus in two years no instance of cure was recorded in this group.

REACTIONS

The majority of the patients treated with injections of serum complained of a variable amount of pain and stiffness at the sites of injection. Twenty-three of the total of ninety-seven had general reactions of one kind or another—namely, fifteen of seventy-six patients treated with unconcentrated and eight of twenty-one treated with concentrated serum. Ten of these suffered from pains in the head and at the injection site, combined with shivering, high fever, pain in the lower limbs, and malaise; the thirteen others developed urticarial rashes combined with a variable degree of headache, malaise, and pyrexia. Such reactions developed within a few minutes or hours of injections in some cases, but in others they were delayed for several days. Of the total of twenty-three patients who had reactions nine were under treatment for uncomplicated urethritis, ten for acute complications of

the disease, and four for chronic complications. The injection of adrenaline solution was not effective in controlling unpleasant symptoms in patients who had previously experienced reactions.

Whitechapel Clinic Series

In order to extend our observations with this preparation supplies of "unconcentrated antitoxin" were purchased through the ordinary commercial channels. Specimens of the serum were submitted to a series of complement-fixation tests with a gonococcal antigen in order to obtain evidence of the presence of gonococcal antibodies. These tests proved to be unsatisfactory owing to the anti-complementary nature of the serum, which was possibly due to the preservatives contained in the commercial product. It is understood that such tests do not form part of the manufacturers' method of standardizing this preparation. At the time these supplies were issued the daily dosage recommended was 3 to 5 c.cm. of the serum, given intramuscularly. It was hoped that, with the aid of this treatment, in favourable cases discharges would subside and gonococci disappear within the space of fourteen days. The serum reactions which resulted from this dosage were so severe that the medical representative of the manufacturers was consulted, and it was recommended that the initial dosage should be 0.5 to 1 c.cm., and that once the first reaction had occurred adrenaline solution should be injected half an hour before serum was given. This advice was followed, and accounts for the considerable variation in the dosage which these patients received (Table III).

The treatment was applied to sixteen male patients with acute uncomplicated gonorrhoea. These were unselected cases except in so far as it was necessary to stipulate the conditions of regular attendance and accessibility for close observation. All were treated as out-patients, and the average age was 25 years; the oldest being 37 and the youngest 18. Treatment was instituted in late June and early July of 1937, and most of these patients have remained under observation or treatment up to the time of writing in early December.

Observation was maintained by daily examination of the patients under treatment. Each day a record was made of the presence or absence of urethral discharge, of microscopical findings in the discharge, of the condition of the urine, of effects of the serum treatment, and of complications of the disease. It was planned to administer serum during the first fifteen days of treatment, withholding urethral irrigations during this time but giving irrigations from the end of the fifteenth day onwards, unless the condition of the patient warranted the cessation of all treatment. In some cases it was necessary to discontinue the injections before the end of the fifteen-day period owing to severe reactions, but in spite of this irrigations were withheld until the fifteen days had elapsed in all but one case. In others injections were continued beyond the fifteen-day limit in the hope of producing a delayed effect, and in these cases irrigations were withheld until the course of injections was completed.

All sixteen patients finally required irrigation treatment and received anterior and posterior urethral irrigation with 1 in 8,000 potassium permanganate solution once or twice daily according to the ability of the individual patient to attend. All the patients received the general treatment and advice which are routine in this clinic for those suffering from gonococcal infections, but no alkalis or other medicaments were given by mouth.

TABLE II.—Summary of Results from St. Peter's Hospital

Group	No. of Cases	Untoward Effects				Assessment of Results							
		Reactions		Complications		Excellent		Good		Fair		Bad	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Uncomplicated Acute...	48	9	19	7	14	—	—	—	—	—	—	48	100
Complicated Acute ..	27	10	37	5	18	—	—	—	—	8	30	19	70
Complicated Chronic...	22	4	18	5	23	—	—	—	—	7	32	15	68
Total ..	97	23	24	17	18	—	—	—	—	15	16	82	84

The following is a detailed analysis of the cases summarized in Table II:

ACUTE UNCOMPLICATED GONORRHOEA

There were forty-eight cases in this group. Six were treated as in-patients and eight (19 per cent.) of the remainder had to be admitted to hospital later, either because of reactions which developed or because of the subsequent onset of complications (see below). The majority of cases came under observation within a few days of the appearance of the urethral discharge. Unconcentrated serum was given to forty-one patients and concentrated to the remaining seven. In forty-three cases the serum only was given at first, but in all of these it was necessary to continue with routine methods of urethral irrigations and alkalis by the mouth.

(a) *Unconcentrated Serum* (41 Cases).—This was given to forty out-patients and one in-patient. The dosage was 2, 3, 5, and 10 c.cm. on successive days in fourteen cases; and 10, 15, and 20 c.cm. in twenty-seven. In the group of fourteen patients two (14.2 per cent.) developed severe arthritis within a few days after completion of the course of injections and had to be admitted to hospital. In the group of twenty-seven patients one developed arthritis, one tenosynovitis, and two epididymitis (14.8 per cent.). The complication rate for the combined series was thus 14.6 per cent.

(b) *Concentrated Serum* (7 Cases).—This was used in the treatment of two out-patients and five in-patients. The amount given was 2, 3, and 5 c.cm. in two cases; six doses of 2 c.cm. in three cases; six of 1.5 c.cm. in one case; and 1, 1.5, 1.5, 2, 2, and 2 c.cm. in the remaining case. One patient (14.2 per cent.) developed epididymitis soon after completing the course of treatment.

Results.—The immediate favourable clinical, bacteriological, and serological results were negligible. No patient was cured in under four months. Of the forty-eight patients thirty-three subsequently attended the Whitechapel Clinic. Of these ten (21 per cent. of the total) were cured and twenty-two (46 per cent.) ceased to attend before cure. The criteria of cure were negative clinical examinations with repeated negative microscopical, cultural, and serological findings, and of the ten satisfying these requirements one did so at the fourth month, two at the fifth, three at the sixth, one at the eleventh, one at the fifteenth, one at the eighteenth, and one at the twenty-fourth. Of the twenty-two defaulters five had attended for one month, five for two months, one for three months, three for four months, two for five months, and six for from six to sixteen months. There are records of pathological tests for thirteen of these defaulters. In four cases some negative tests had been obtained at the time of default; in one case gonococci persisted in the urethral smear, and in eight the complement-fixation test was positive in the blood serum. One other patient is still attending at the Whitechapel Clinic after two years. One patient was transferred to another clinic after discharge from St. Peter's hospital.

ACUTE COMPLICATED GONORRHOEA

In this group of twenty-seven cases complications had developed within three months of the onset of the disease. The actual time interval varied from four and a half to six weeks. Nineteen were treated with unconcentrated and eight with concentrated serum. The frequency and distribution of complications at the outset were as follows: epididymitis in twenty, acute prostatitis in three, and arthritic complications (including inflammation of soft tissues) in four.

(a) *Unconcentrated Serum* (19 Cases).—This was given in four doses, of 2, 3, 5, and 10 c.cm. to fifteen patients; in three doses, of 10, 10, and 20 c.cm. to one patient; in four doses, of 5, 10, 15, and 20 c.cm. to two patients; and in six doses of 10 c.cm. to one patient. A patient who had received a total of 50 c.cm. of serum developed epididymitis in addition to his original complication. Another had 2, 3, and 10 c.cm. on consecutive days as an out-patient, and was admitted to hospital when he developed arthritis of one wrist, and tenosynovitis of the extensor tendons of the same hand. The added-complication rate was thus 10 per cent.

(b) *Concentrated Serum* (8 Cases).—With each dose a subcutaneous injection of 3 minims of 1 in 1,000 adrenaline hydrochloride was given on the supposition that it might prevent serum reactions. The dosages were: seven injections of 2 c.cm. to five patients; six of 2 c.cm. to one patient; six of 1.5 c.cm. to one patient; and six of 1 c.cm. followed by eight of 0.5 c.cm. to one patient. One patient was admitted for epididymitis occurring on the side opposite to that already treated. Another developed epididymitis and vesiculitis after six injections each of 2 c.cm. of serum. A third developed arthritis of the knees, tenosynovitis of one foot, and acute prostatitis after injections totalling 10 c.cm. of serum. The added-complication rate was thus 37.5 per cent.

Results.—The immediate clinical results indicated that the unconcentrated serum exerted an adverse effect in sixteen cases and did not impede recovery in three. The concentrated preparation appeared to have an adverse effect in four and to exert no effect in the same number. In no instance did any complication clear up more quickly after serum injections than by routine methods. In every case injections of serum had to be supplemented later by other methods of treatment.

The following bacteriological and serological results refer only to the period of stay in hospital, which averaged three weeks for this group. In seven patients treated with unconcentrated serum the smears remained positive in four and became negative in three. In six patients treated with concentrated serum the smears remained positive in three. For the remaining cases bacteriological records are not available. In the nineteen patients treated with unconcentrated serum the complement-fixation test remained positive in fourteen, became negative in three, and was unreadable in two. In all of the eight patients treated with concentrated serum the complement-fixation test remained positive. Of the twenty-seven patients in this series twenty-three have been followed up. Five of these are still attending the Whitechapel Clinic from twenty-one to twenty-four months after completing the course of serum injections. Six patients were cured (22 per cent.); two after six months, one after eight months, two after nine months, and one after eighteen months. There were twelve defaulters (44 per cent.): two within the first month, one at the second, one at the fourth, two at the sixth, two at the ninth, one at the fourteenth, one at the fifteenth, one at the eighteenth, and one at the nineteenth.

CHRONIC COMPLICATED GONORRHOEA

This group of twenty-two cases includes those patients with recent urethritis who had had one or more previous attacks of gonorrhoea and in whom relapse was suspected.

(a) *Unconcentrated Serum* (16 Cases).—Five patients were treated in the first attack and eleven in the second or later attacks. In the former group the time since the onset varied

It will be clear from this description that at any rate thirteen of these sixteen patients were really ill as the result of the treatment, and it must be regarded as a considerable credit to the resolution of this group of men that only three of them refused further injections in consequence of these symptoms. The two patients who suffered reactions of moderate severity had pyrexia, malaise, and muscle pains in less marked degree.

Injections of adrenaline did not appear to counteract or prevent reactions, but on the whole the effects were less persistent and less severe with smaller dosage of serum.

RESULTS

An attempt was made to assess the results of this treatment on the basis of the persistence of gonococci and urethral discharge, the spread of infection as judged by clinical findings, the duration of evidence of infection in specimens of urine, the effect on antibody content of the blood as measured by the complement-fixation test for gonorrhoea, the development of complications of the infection, and the application of tests for latency at the stage of clinical cure. At the beginning of treatment four patients had shown evidence that the infection had already extended to the posterior urethra. In the remaining twelve the signs suggested infection limited to the anterior urethra. All these developed signs of posterior urethritis while under treatment. Table IV summarizes the clinical and microscopical findings.

In none of these patients did the smears become negative or the discharge cease as the result of serum treatment alone. All required urethral irrigations. Six patients suffered a relapse of urethral discharge when the irrigations were discontinued after apparent clinical cure. Microscopical examination of these discharges showed gonococci in five cases. In four the symptoms and signs finally disappeared with urethral irrigations. In one patient (Case 2) it was necessary to use large doses of sulphanilamide after the gonococci had persisted for eighteen and a half weeks, a measure which resulted in disappearance of gonococci and urethral discharge within three days. The other patient (Case 3) has relapsed five times and still has gonococci after five months' treatment. In this case also it is proposed to use sulphanilamide.

As regards the effects on serum tests the most striking feature was the frequency with which specimens of sera were reported as "anti-complementary"—an unusual occurrence in the routine of clinic practice. Twenty-six such reports were received on specimens of blood from eight patients in this series, but the significance of this finding is not clear. The sera of three patients gave strongly positive ($++$ or $++$) reactions to the complement-fixation test after periods ranging from three to five weeks. Four others showed a positive (+) test in periods of from one week to four weeks. In five a weakly positive ($=$) reaction was recorded in the first few weeks. In four the tests remained negative throughout.

Complications of the Infection (5 Cases).—Four patients developed gonorrhoeal arthritis and rheumatism whilst under irrigation treatment subsequent to serum injections. One developed epididymitis on the left side, and one of the patients with arthritis had at the same time an acute inflammatory condition of Tyson's gland on the right side. Thus 31 per cent. of these patients developed acute complications of gonorrhoea.

END-RESULTS

The end-results are shown in Table IV, and may be summarized as follows. Three patients who have been under treatment from eighteen to twenty weeks have signs of persistent urethritis and so remain under treatment. One other patient proved entirely refractory to treatment

for eighteen and a half weeks until large doses of sulphanilamide were used, and has by this means reached the stage of clinical cure. Five defaulted after periods varying from four and a half to fourteen weeks; of these, four had persistent urethritis and one had reached the stage of clinical cure after fourteen weeks' treatment. One patient was admitted to hospital with gonorrhoeal arthritis and persistent urethritis after seven weeks of treatment and returned later with chronic prostatitis. The remaining five patients have reached the stage of clinical cure after treatment over a period of eight to eighteen weeks and are being submitted to tests of latency, which consist of complete clinical examination, including urethroscopy, prostatic smears, cultures of vesiculo-prostatic fluid, and complement-fixation tests of the blood serum. Up to the present undoubted evidence of latent gonococcal infection has been found in four of these. The results may be conveniently set out as in Table V:

TABLE V.—*Summary of Results in the Uncomplicated Acute Group of the Whitechapel Clinic Series*

No. of Cases	Untoward Effects				Assessment of Results							
	Reactions		Complications		Excellent		Good		Fair		Bad	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
16	15	94	5	31	—	—	—	—	—	—	16	100

St. Charles's Hospital Series

In this series injections of "unconcentrated gonococcus antitoxin" were administered to sixteen male patients, the average age of whom was 24 years, the maximum being 30 and the minimum 19. Fifteen were in-patients at St. Charles's Hospital, and were treated during the period July 6 to October 19, 1937. One, who received his injections at the Dreadnought Hospital, was subsequently transferred to St. Peter's Hospital, Covent Garden. We are indebted to Mr. P. P. Cole for details of this patient's previous treatment. None of the patients had previously had injections of serum. There were three cases of acute uncomplicated gonorrhoea, eight cases of acute gonococcal epididymitis (in one of which the symptoms of acute prostatitis were also present), and five cases of acute gonococcal arthritis. Smears of the urethral discharge were examined daily for leucocytes and organisms, and a record was kept of the condition of the first morning specimen of urine. The blood sera were tested at weekly intervals by the Wassermann and Kahn tests for syphilis and by the complement-fixation test for gonorrhoea.

The dosage of the serum is shown in Table VI. In some of the cases injections of a solution of adrenaline hydrochloride (1 in 1,000) were given with the serum; in others they were given fifteen minutes before or fifteen minutes after. The dosage of adrenaline hydrochloride corresponded in minims with the number of cubic centimetres of the serum. The time at which the adrenaline was given did not appear to influence the local or general reactions. No irrigation treatment was given during the course of injections, but the patients with acute arthritis had 5 per cent. iodine solution applied to the joints affected, and radiant heat was administered twice each day. Irrigations were withheld until at least four days had elapsed after cessation of serum treatment.

REACTIONS

Fourteen of the patients had severe local and general reactions and two developed only slight local reactions; seven had generalized urticarial eruptions. Most of these

The dosage of serum used in each case is shown in Table III, the figures in parentheses denoting the injections which were followed by reactions and the letter *a* indicating the administration of adrenaline solution. Subcutaneous injections of 1 to 5-minimis of adrenaline hydrochloride (1 in 1,000) solution were used according to the size of dose of serum; and in the large majority the doses of adrenaline were given half an hour before the serum was injected.

crippling nature, sufficient to cause interference with or cessation of the patient's work. The pain was accompanied by pronounced tenderness, and in seven cases there was widespread erythema of the skin of the affected buttock. The remaining six complained of varying degrees of stiffness and tenderness at the injection site.

General Effects.—The frequency of these is shown in Table III. Reactions which could be classed as severe occurred in thirteen patients, and in two they were moderately severe. The remaining patient had no symptoms attributable to the

TABLE III.—Dosage given in the Whitechapel Clinic Series (c.cm. of Serum).

Case	Days of Treatment																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	22	23	26	27	28	29	31					
1	3	3	3	3		(3)		(3)	1a	1a	(1)a	1a	1a																		
2	3	3	3		3	(3)		(1)a	1a	1a	1a	1a	2a	3a	3a	3a	3	3	3												
3	3	(3)	1a	1a	(2)a																										
4	3	3	3	4	(5)	1	1	1	1	(1)																					
5	3	3	3	4	4	(5)	(5)	(5)	(5)	(5)		1a	1a	1a	1a																
6	3	3	3	4	4	(3)	3	1	(1)	1a	1a		1a	1a	1a																
7	3	3	3	3	3	(3)		(1)a			(1)a	1a		1a	1a	1a	1a		1a												
8	3	3	4	4	(5)	(3)	(1)	1	1	(1)																					
9	3	3	3	3		(3)	3	(3)	(1)a	1a	1a	1a	1a	1a	1a																
10	3	3	3	4	3	(3)	1a	1a	(1)a																						
11	1	1	1	1	1	1	1	1			1	1										1a	1a	1a	1a	1a					
12	1	1	1	1	(1)	1a	1a	1a	1a	(1)a	1a																				
13	1	1	1	1	1	(1)			(1)a																						
14	1	1	1	1	1		(1)	(1)a			(1)a																				
15	1	1	1	1	1	(1)		1a	1a	(1)a	1a	(1)a	1a	1a																	
16	1	1	1	1	1	(1)	1a	(1)a		1a	1a		1a	1a	1a					1a	1a	1a									

a = Administration of adrenaline.

Figures in parentheses = Dose followed by reaction.

TABLE IV.—Whitechapel Clinic Series: Clinical and Microscopical Findings

Case	Persistence of			Subsequent History	Complications
	Urethral Discharge	Gonococci	Haziness or Pus Threads (Urine)		
1	12 weeks	11 weeks	14 weeks	Defaulted after 15 weeks, during tests for latency. Then successfully treated with sulphanilamide. Treatment for urethritis continues. Five relapses with gonococci. Treatment for urethritis continues.	Gonococcal arthritis of right knee-joint. Infection of right Tyson's gland. Multiple gonococcal arthritis and rheumatism.
2	18½ "	18½ "	18½ "		
3	5 months, and continues	5 months, and continues	5 months, and continues		
4	9 weeks	9 weeks	20 weeks, and continues		
5	18 "	18 "	18 weeks	Treatment for arthritis and chronic prostatitis continues.	Gonococcal arthritis of right knee-joint. Infection of right Tyson's gland. Multiple gonococcal arthritis and rheumatism.
6	5 months, and continues	8 "	16 "	Under treatment for chronic gonococcal prostatitis and rheumatism.	
7	8 weeks	7 "	8 "	Treatment for chronic prostatitis continues.	
8	7 "	11 days, then defaulted temporarily	7 "	Self-treatment without observation 11th to 29th day. Treatment for chronic prostatitis continues.	
9	11 "	11 weeks	11 "	Defaulted after 11 weeks. Unimproved.	Left epididymitis.
10	10 "	10 "	10 weeks and continues	Treatment for urethritis continues.	
11	4½ "	4½ weeks, then defaulted	4½ weeks	Defaulted after 4½ weeks. Unimproved.	
12	11 "	11 weeks, then defaulted	11 "	Defaulted at 11 weeks. Unimproved.	
13	9 "	4 weeks	14 "	Defaulted at stage of clinical cure. Had evidence of chronic prostatitis.	Multiple gonococcal arthritis and rheumatism.
14	4 weeks, then defaulted temporarily	3 weeks, then defaulted temporarily	4 weeks, then defaulted for 6 weeks	Treatment for chronic prostatitis continues.	
15	7 weeks	7 weeks, then to hospital	7 weeks	Admitted to hospital at 7 weeks. Later returned with chronic prostatitis.	Gonococcal arthritis, multiple.
16	8 "	8 weeks	8 "	Defaulted after 3 weeks. Unimproved.	

REACTIONS

Only one patient remained free from symptoms or signs attributable to the injections of serum; the other fifteen suffered from both local and general reactions. In most cases these occurred after the fifth to the seventh injection, and thereafter it was difficult or impossible to control them.

Local Effects.—Nine complained of pain at the site of injection in the buttock, and this pain was often of a severe and

injections. The severe effects included fever varying from 100.2° F. to 103.8° F., and this occurred in all thirteen patients. Almost all complained of severe headaches, malaise, "feverishness," and sweating. Skin eruptions appeared in eight patients, of whom three had generalized urticaria, three had a purpuric rash on the skin of the lower limbs, and two had papular erythematous rashes on the skin round the ankles and lower legs. Two had herpes of the lips. Generalized arthralgia occurred in nine cases; and in three there were joint effusions. Many of the patients complained of generalized muscle pains.

"GONOCOCCAL ANTITOXIN" IN GONORRHOEA

TABLE VII.—*St. Charles's Hospital Series: Findings during the Periods of Treatment and Observation*

Case	Period of Observation	Type of Case	Urine: Persistence of Haziness or Pus Threads	Subsequent History and Progress	Complications arising during Treatment
1	9 weeks	Acute right epididymitis	6½ weeks	Chronic urethritis. Defaulted in 9 weeks. Refused further treatment. Transferred unimproved to 3 months with epididymitis. Transferred unimproved. Finally improved with sulphamidamide and irrigations. Refused further treatment. Improved with sulphamidamide and irrigations. Improved, but relapsed, with gonococci. Improved with irrigations and sulphamidamide, then defaulted. Refused further treatment. Transferred, unimproved. Improved with sulphamidamide and irrigations. Finally improved with sulphamidamide and irrigations. Transferred unimproved. Finally cured with sulphamidamide.	Gonococcal arthritis both knees. Mono-articular arthritis became polyarticular. Further joints became involved. Further joints became involved. Further joints became involved. Acute proctitis.
2	4 "	Acute epididymitis	4 "		
3	8 "	Acute left epididymitis and prostatitis	3 "		
4	31 "	Acute left epididymitis	12 "		
5	14 "	Acute mono-articular arthritis with metastatic conjunctivitis	5 days		
6	5 days	Acute uncomplicated urethritis	4½ weeks		
7	7 weeks	Multiple acute arthritis	5 "		
8	5 "	Acute right epididymitis	6 "		
9	6½ "	Multiple acute arthritis	3 days		
10	3 days	Acute right epididymitis	18 "		
11	22 "	Acute left epididymitis	22 "		
12	6 weeks	Acute polyarticular gonococcal arthritis	3 weeks		
13	9 "	Acute polyarticular gonococcal arthritis	7½ "		
14	7½ "	Acute uncomplicated urethritis	15 "		
15	15 "	"	"		
16	"	"	"		

Two others refused to continue with this form of treatment after five and seven injections respectively. Table VII indicates the findings in this series of patients during the periods of treatment and observation.

The assessment of results has been made with due regard to the effects observed during and immediately after the administration of the serum and also to the subsequent clinical course of the disease, on which the natural powers of immunity and the irrigation treatment used in all these cases must be held to have exerted considerable effect. Seven of the patients received sulphamidamide by mouth in addition to urethral irrigations before the infective process finally subsided. The results of the sixteen cases are summarized in Table VIII.

TABLE VIII.—*Summary of Results in the St. Charles's Hospital Series*

TABLE VIII.—Summary of Hospital Series													
Group	No. of Cases	Untoward Effects				Assessment of Results*							
		Reactions		Complications		Excellent		Good		Fair		Bad	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Uncomplicated	3	3	100	1	33	—	—	—	—	—	—	2	66
Acute ..	13	13	100	5	38	—	—	—	—	1	8	11	85
Complicated	13	13	100	6	37	—	—	—	—	1	8	13	92
Acute ..	13	13	100	6	37	—	—	—	—	1	8	13	92
Total ..	16	16	100	6	37	—	—	—	—	—	—	—	—

* In respect of assessment of results are calculated upon basis of an assessment was made.

* The percentages given in respect of assessment of results are calculated upon the fourteen patients out of the sixteen in whom an assessment was made.

Summary of the Combined Series

The results obtained in the combined series of 129 cases treated with "gonococcal antitoxin" at the three clinics are set out in Table IX.

TABLE IX.—*Results in the Combined Series*

Series	No. of Cases	Untoward Effects		Assessment of Results			
		Reactions	Complications	Excellent	Good	Fair	Bad
		No.	%	No.	%	No.	%
St. Peter's ..	97	23	17	—	—	15	82
Whitechapel ..	16	15	5	—	—	—	16
St. Charles's ..	16	16	6	—	—	1	13
Total ..	129	54(41%)	23(21%)	—	—	16(13%)	111(87%)

The contrast between these combined results and those reported by Anwyl-Davies will be clear from comparison between Table IX and Table X, in which his results are summarized.

TABLE X.—*Percentages of Results Given in Preliminary Report (Anwyl-Davies, 1937)*

Excellent	Good	Fair	Bad
49.6	25.9	14.8	5.9

In a personal communication Dr. V. E. Lloyd, director of the venereal disease clinic at Guy's Hospital, states that serum was given to three male patients, but the reactions were in every case so severe that it was not considered justifiable to adopt this method of therapy with any further patients.

The main facts which emerge from our combined experience are these:

- With this "antitoxin" a disquietingly high proportion of patients developed reactions so severe as to cause interference with or absence from work.
- An abnormally high percentage of out-patients had to be admitted to hospital during and subsequent to serum treatment on account of reactions and complications.
- The serum not only does not prevent complications of the infection but it appears to render patients more prone to them.
- The administration of this serum to patients suffering from metastatic lesions appeared to encourage rather than to prevent extension to other sites.
- Favourable results were not obtained by serum alone but only after the subsequent adoption of routine methods. Even then good results were delayed beyond the usual period in which they are obtained in patients treated without serum. We take this to indicate that the serum reduces or temporarily destroys the patient's immunity. This is the probable explanation of the high complication rate.
- The cases which, after the cessation of serum therapy, responded most favourably were those treated with sulphamidamide. But here, again, that agent did not act any more rapidly than it does in patients treated without serum.
- Certain anomalous results in respect of the Wassermann and Kahn tests occurred in non-syphilitic patients during the serum therapy. This finding is of manifest importance to those who use this serum in the treatment of gonorrhoea.

occurred after the sixth injection, regardless of the dosage. One appeared after the third and another was delayed until fourteen days after the last injection. In thirteen patients there was severe pain, swelling, and tenderness in the buttocks; in three of them a local erythematous blush was observed, and in these areas there were numerous purpuric spots which took several days to disappear. One other patient showed purpuric lesions in both antecubital fossae. It seemed as if the serum

TABLE VI.—*Dosage of Serum given in the St. Charles's Hospital Series*

Case	Days when Injections were given and Dosage* of "Gonococcal Antitoxin" in c.cm.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	3	3	3	3	3	3	—	3	3	—	3	3	3	3	3
2	3	3	3	3	—	3	—	3	3	—	3	3	3	3	3
3	3	3	3	3	3	3	—	3	3	—	3	3	3	3	3
4	1	1	1	1	1	1	1	1	1	—	—	—	—	—	—
5	5	5	—	5	5	5	5	5	5	5	—	—	—	—	—
6	1	1	1	1	1	—	—	—	—	—	—	—	—	—	—
7	1	1	1	1	1	1	1	—	—	—	—	—	—	—	—
8	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—
9	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—
10	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—
11	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—
12	2	2	2	2	2	2	—	2	—	—	—	—	—	—	—
13	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—
14	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—
15	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—
16	3	3	3	3	3	3	3	3	3	3	—	—	—	—	—

* At the outset of the investigation an initial dose of 3 to 5 c.cm. was recommended by the manufacturers. Severe reactions resulted, and it was then advised that the dosage should be reduced.

contained a substance which damaged the vessel walls and increased their permeability. From one patient (Case 3) a fading purpuric lesion was excised. On microscopical examination no appreciable change in the epidermis was found. The superficial blood vessels in the corium were slightly dilated and had a lymphatic cell infiltration around them, and here and there were a few eosinophils and some extravasated corpuscles. In fact, this was a typical section of skin purpura. An itchy papular eruption on the forearms was seen in two patients; and one of them, who also had a generalized giant urticaria, subsequently developed a nummular eczema.

In many of the patients the constitutional disturbance was pronounced. The temperature rose as high as 103° F. It was surprising that the fever produced by the injections did not have the usual beneficial effect on the course of the disease, as the results obtained will show. One patient had a severe asthmatic attack on two occasions following injections of serum, and each time there was almost instantaneous relief after a subcutaneous injection of 3 minims of adrenaline hydrochloride. There was no history of previous asthmatic attacks.

Two patients (Cases 7 and 9) complained of nausea during the treatment, and one (Case 9) vomited at night after the sixth injection and each night subsequently. This continued for three nights after his last, or ninth, injection.

RESULTS

The microscopical findings in the urethral discharges gave no evidence that benefit had been derived from the injections; and at the end of the period of treatment with serum gonococci were found in smears of the urethral discharges from all the patients treated. One patient (Case 7), who was admitted with arthritis of a week's

duration, had received a course of urethral irrigations elsewhere. No gonococci were found in the urethral smears or in the urine at the first examination, but after four injections of serum large numbers of gonococci appeared in the daily urethral smears until irrigation treatment was recommenced.

The clinical results were all unsatisfactory. Urethral discharges in the majority of cases became more profuse during treatment. There was no indication that the condition of the joints of those suffering from acute arthritis was improved, and in three patients the joint pains were increased for several hours after each dose of serum. The injections seemed to have no influence in preventing other joints from becoming infected, and in four out of the five patients with this complication further joints became involved. One patient (Case 5) who was suffering from acute arthritis of the right knee with a metastatic gonococcal conjunctivitis developed, after three injections each of 5 c.cm. of serum, acute infection of the left temporo-mandibular joint, right elbow, left wrist, and the proximal interphalangeal joints of the fourth and fifth fingers of the right hand. Another patient (Case 7) was suffering from acute arthritis of the metatarsophalangeal joint and the first interphalangeal joint of the left big toe; after three injections of 1 c.cm. of serum he also developed acute arthritis of the right knee and the right ankle. Another (Case 9), with acute arthritis of the interphalangeal and metatarsophalangeal joints of the left foot and the right midtarsal joint, developed acute arthritis of the right knee and a bursitis over the right ischial tuberosity after three injections of the serum, each of 3 c.cm. A fourth (Case 13), who was suffering from acute arthritis of the right hip and right midtarsal joints, also developed acute arthritis of the left knee after he had had three injections, each of 2 c.cm. of serum. One patient (Case 3), admitted with acute prostatitis and left epididymitis, developed arthritis of both knees after the ninth injection of 3 c.cm. of serum.

It will be noted that extension of the infection to other joints during serum treatment occurred in 80 per cent. of the patients suffering from arthritis. On reference to the case records of eighty other patients with gonococcal arthritis treated by orthodox methods at St. Charles's Hospital and elsewhere, it was found that in only 11.25 per cent. had the metastatic involvement extended to other joints.

LABORATORY TESTS

Study of the literature has revealed no references to the possible effects of injections of serum on Wassermann and Kahn reactions in the blood serum. As already stated, these tests were carried out at weekly intervals in fifteen cases, and in nine of the patients one or other test became positive during the period of administration of serum or shortly afterwards. In eight of these nine patients there was no correlation between the positive findings in Wassermann and Kahn tests. In all but one case both tests had become negative without antisyphilitic treatment before the end of the observation period. In the other case the Kahn reaction was positive at the end of this period, but the Wassermann reaction remained completely negative.

When the patients first came under observation the gonococcal complement-fixation test was positive or weakly positive in seven and completely negative in eight cases. Of the latter group, six subsequently developed positive reactions. The serum appeared to exercise no influence on the strength of the complement-fixation test in the seven who originally had positive reactions. The results of these tests were often reported as "anti-complementary."

One patient (Case 10) refused further treatment after two injections and demanded his discharge from hospital.

HUMAN INFECTION WITH ACTINOMYCES CAPRAE

sypilis. No enlarged glands were observed, and the thoracic organs were normal. The spleen was enlarged to half an inch below the level of the umbilicus and as far as the mid-line, while the liver edge was palpable below the costal margin. The urine was clear, natural in colour, and contained no bile, but urobilin was present in small amount. There was no deposit. The blood count was as follows: red cells, 4,230,000 per c.mm.; haemoglobin, 64 per cent.; colour index, 0.7; white cells, 9,500. The differential count showed: polymorphs, 28 per cent.; lymphocytes, 62 per cent.; monocytes, 10 per cent. The red blood corpuscles were small, there was marked punctate basophilia and polychromasia; platelets were present but not abundant. The icteric index was 32 units. The Wassermann and sigma reactions were negative. Fragility of the red cells began at 0.6 per cent. saline and was complete at 0.32 per cent. A normal control done at the same time began at 0.32 per cent. and was complete at 0.28 per cent. Under observation the spleen became very slightly smaller and the jaundice less marked.

Operation.—This was performed by one of us (R. H. R.-I.) on July 6, 1936, under gas-and-oxygen anaesthesia given by Drs. Duigan and Alsop. The abdomen was opened by a V-shaped incision; the spleen was very large, and was adherent to the stomach and kidney, the hilum being closely involved with the tail of the pancreas. The adhesions were divided, the pedicle ligatured and divided, and the spleen removed without loss of blood. The wound was closed and strengthened with silk-worm-gut sutures. The wound healed well and the jaundice disappeared after the third day. The patient was discharged on August 1, 1936.

In October, 1937, he was a well-nourished boy without jaundice, and on examination his blood count was as follows: red cells, 5,020,000 per c.mm.; haemoglobin, 94 per cent.; colour index, 0.94; white cells, 18,800 per c.mm.; reticulocytes, 0.2 per cent. The differential count gave the following percentages: eosinophils, 4; metamyelocytes, 0.5; neutrophils, 62.5; lymphocytes, 29.5; monocytes, 3.5. The film showed slight anisocytosis and poikilocytosis; the corpuscles were small, but no polychromasia or punctate basophilia was present. The fragility was less than before the operation, but was not normal.

Description of the Spleens

Case I.—The organ was about five times the normal size and weighed 1,314 grammes. It had shrunk considerably from loss of blood. The substance was firm and was deep red on section; the capsule was slightly thickened. Malpighian bodies were difficult to identify, but trabeculae were easily seen, and some of them showed reddish opaque points of the siderotic or Gandy-Gamna nodule. Histologically several of these showed thick mycelial fibres, some undergoing calcification. In a few instances these fibres appeared to be in process of absorption. Eosinophils were present everywhere in the splenic tissue. It was possible to excise thirty-six of these nodules under aseptic precautions. They were ground up with a little broth in a sterile mortar and inoculated upon twenty-four whooping-cough agar plates and a dozen tubes of the same medium. After a week one plate suggested a growth of actinomycetes, and after four weeks the greater part of the surface was spread over with an actinomycetes growth, salmon pink in colour and adherent to the underlying medium. The plates otherwise were sterile except for a few colonies derived from air contaminations.

Case II.—The organ preserved its shape and was three times the normal size—8 in. by 4 in. by 3 in. The capsule was turgid but not thickened. Numerous minute buff-coloured siderotic (Gandy-Gamna) nodules could be identified in each cross-section of the spleen. The pulp was congested and moderately firm. Malpighian bodies could be distinguished only with difficulty. As in Case I

the procedure was adopted of grinding up a number of excised nodules in broth. Altogether the inoculations were made on fifty-one tubes of various media, solid and liquid, and eleven whooping-cough plates. Except for a few obvious contaminations these proved sterile, observed during a period of several months.

Description of the Organism

Subculture on broth after one week's incubation at 37° C. showed small flocculent colonies at the bottom of the tube. On the surface of the broth was a pellicle composed of small spherical colonies covered with a layer of white aerial mycelium. The appearance so strikingly resembled that of a strain of *Actinomyces caprae* obtained from the national collection of type cultures that parallel series of cultures of both organisms were made on whooping-cough agar (as used in the Serum Institute at Copenhagen), litmus milk. Dorset's egg medium, and blood agar, on which *Actinomyces caprae* shows its most characteristic features. Both organisms presented identical appearances, as follows: on whooping-cough agar, after seven days' incubation at 37° C., there were numerous orange colonies which had become confluent. The surface was much heaped up, and was covered by a layer of white aerial mycelium. After three weeks the colonies were heaped up still more and the aerial mycelium had turned salmon pink. On litmus milk, after one week at 37° C., the growth on the surface was pale orange. After a month the milk was peptonized. On blood agar, after a week's incubation at 37° C., there appeared small cream-coloured colonies covered by a thick layer of white aerial mycelium. No haemolysis occurred. After one month the colonies had extended so as to produce a thin margin, but there was no haemolysis. On Dorset's egg medium, after a week's incubation at 37° C., there were irregular pimple-like orange colonies covered with a thick layer of aerial mycelium.

Morphologically the strain belongs to Group IIa of Orskov's classification in that after twelve hours at 37° C. the mycelium breaks up into rods and cocci of various sizes and there is early formation of aerial mycelium. The breaking up of the threads begins with the appearance of fine transverse division lines, and the segments which ultimately form are displaced at different angles from one another. The same displacement occurs in the aerial mycelium.

Staining Properties.—The organism is Gram-positive (Claudius's method), and stains readily with haematoxylin, carbol fuchsin, and malachite-green. Parts of the mycelium are acid-fast.

Pathogenicity.—*Actinomyces caprae* is pathogenic for rabbits and guinea-pigs, and Dr. R. L. Vollum kindly undertook to make injections of both strains into these animals. Two guinea-pigs and two rabbits were injected subcutaneously. All the animals killed after three weeks showed subcutaneous abscesses, the strain from Case I producing slightly larger lesions than *Actinomyces caprae*. In all abscesses colonies of actinomycetes were found on microscopic section.

Discussion

We are unable to explain the occurrence of *Actinomyces caprae* in the cultures from the excised spleen of Case I except as a pathogenic agent in intimate relation to the splenic tissue. It is inconceivable that it could have been an accidental invasion or contamination. The reason why only one plate was infected is one that concerns the isolation of actinomycetes in known cases of this infection:

(h) The results obtained in these series were most unsatisfactory and were at complete variance with those reported in the preliminary account of the use of this preparation.

Conclusions

1. The serum described as "gonococcal antitoxin" appears to have no specific anti-gonococcal effect.

2. It appears to delay the development of the active immunity essential to recovery from gonorrhoea without substituting any compensatory passive immunity.

3. Its use in gonorrhoea is inadvisable on account of its lack of therapeutic value, its serious side-effects, its frequent interference with recovery, and possibly also the risk of its rendering patients liable to suffer from serious allergic reactions in the event of their requiring at some future date treatment with antitoxic sera for other bacterial infections.

[In a communication published after this paper was written Anwyl-Davies (*St. Thomas's Hospital Reports*, 1937, 2, 67) states that since his first report appeared many additional patients have been treated with an improved unconcentrated antitoxin. The precise number of patients is not stated, but the results claimed are: "excellent" and "good" together, 78 per cent.; "fair," 18 per cent.; "bad," 4 per cent.; with no clinical relapses to date.]

The London County Council accepts no responsibility for the opinions or conclusions expressed in this article.

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A HUMAN INFECTION WITH ACTINOMYCES CAPRAE

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The subject from whom this organism was isolated was one of two cases (Case I) of acholuric jaundice in a brother and sister. The following are the clinical histories.

Case I

A girl aged 14 was admitted to hospital on May 22, 1936, with a diagnosis of acholuric jaundice and splenomegaly. Her father was alive and well, with no history of jaundice and no evidence of jaundice or splenomegaly when he was examined on June 6, 1936. Her mother was healthy and active and without jaundice. One brother (Case II) had jaundice and splenomegaly. Four other children were alive and well.

Clinical History.—The patient was healthy at birth, but developed jaundice, which persisted. She had measles when a small child, and while in hospital in 1930 she contracted diphtheria. She was sent to the fever hospital and recovered without complication. The patient suffered from attacks of abdominal pain, mainly on the left side, associated with vomiting and a cold in the head. These attacks occurred every two or three months. The yellow colour increased with the attacks of vomiting. The motions had been normal in colour and the urine had not been dark.

Examination.—The patient was seen to have an adenoid facies and a marked icteric tinge of the skin and conjunctivae. There were petechial haemorrhages on the arms and trunk. Her weight was 74 lb. (the average for 11½ years). The right tonsil was larger than the left, and her teeth were normal. No abnormality was found in the heart and lungs. The spleen was greatly enlarged, and extended to one inch below and two inches to the right of the umbilicus. It was firm and not tender. The liver was slightly enlarged. There were no enlarged lymph glands. The urine was dark; bile was not present, but the test for urobilin was positive, and albumin was found. The deposit showed numerous cellular casts but no organisms. A blood count showed: red cells, 2,280,000 per c.mm.; haemoglobin, 46 per cent.; colour index, 1.0; white cells, 7,200 per c.mm. Differential count: polymorphs, 64 per cent.; lymphocytes, 22 per cent.; mononuclears, 6 per cent.; eosinophils, 8 per cent. All the red corpuscles were small, and two nucleated red cells were seen. There was some anisocytosis, poikilocytosis, and punctate basophilia, and platelets were present. The van den Bergh reaction (indirect) was positive. The icteric index was 55, the bleeding time two and a half minutes, and the coagulation time eight minutes. In the test for fragility haemolysis began at 0.66 and was complete at 0.54 per cent. (a normal control began at 0.32 and was complete at 0.28 per cent.). The sigma reaction was negative. Blood group, IV. An x-ray report on the hands showed no signs of rickets, but there was slight osteoporosis of the metacarpals. The patient was kept under observation in hospital for a month and was given large doses of potassium iodide, but no change occurred in the size of the spleen.

Operation.—This was performed by one of us (R. H. R.-I.) under gas-and-oxygen anaesthesia (Dr. Duigan). The spleen was exposed by a V-shaped incision. The head of the pancreas was found to be closely adherent to the pedicle of the spleen. There were some adhesions, which were ligatured, between the spleen and the stomach and kidney. The pedicle was carefully divided and the spleen removed without any excess of bleeding. The wound was closed with silkworm-gut sutures to the skin surface.

Progress.—The jaundice disappeared within a week and recovery was uneventful. The patient was discharged to a convalescent home on July 27, 1936. In October, 1937, she had grown and put on weight, and was more normal in appearance, without jaundice, though the tonsils were very large. A blood count showed: red cells, 4,990,000 per c.mm.; haemoglobin, 90 per cent.; colour index, 0.9; white cells, 17,000; reticulocytes, 0.07 per cent. The differential percentages were: eosinophils, 4.5; metamyelocytes, 1.5; neutrophils, 55.5; large lymphocytes, 2; small lymphocytes, 35.5; monocytes, 2.5. In the film there was slight anisocytosis, and most of the red corpuscles appeared smaller than normal. Poikilocytosis was slight, and no polychromasia, punctate basophilia, or nucleated forms were present. The fragility began at 0.4 per cent, and was complete at 0.32 per cent.—less than before operation and only slightly above a normal control.

Case II

A boy aged 7, brother of Case I, was admitted to hospital on May 22, 1936, with a diagnosis of acholuric jaundice and splenomegaly. He had been a full-time normal baby, weighing 8 lb., and was breast-fed. Jaundice persisted from birth, and he also had measles when 4 years old. He was always tired. The jaundice varied somewhat, and he had frequent attacks of sickness with pain in the abdomen, sometimes being constipated. The stools were normal in colour.

Examination.—He had an adenoid facies, with an appearance of having a large head; measurement, however, gave a circumference of 20½ inches (normal for age). His weight was 49½ lb. His intelligence was rather below the average. There was general slight jaundice, which included the conjunctivae. Petechial haemorrhages appeared on arms, legs, abdomen, and chest. The left tonsil was larger than the right. The upper and lower central incisors were notched along the cutting edge, but there was no suggestion of

FAMILIAL CLUBBING OF FINGERS AND TOES

MARCH 19, 1938

In 1902 Newton and Mercellis published the record of a Hungarian family in which a man aged 33, his four children, his brother, and his paternal grandfather had clubbing of the fingers and toes. The patient's father, who had been asthmatic, had died of cholera at the age of 36, and was said to have had normal fingers. On the paternal side the family had suffered from cough and shortness of breath, and had as a rule died of some lung complaint. The patient, who at this time was suffering from an indolent axillary abscess, said that his fingers and toes had been clubbed since birth. He had contracted a venereal sore at the age of 31, and had been refused admission to the Army because of a "weak chest"; he had a chronic morning cough, otherwise his health was good. Three of his four children had died in infancy, but all were said to be affected. The remaining child, a girl aged 4, was found to have clubbed fingers and toes, and also "acute endocarditis." In 1911 von Eiselsberg described a man aged 30 with clubbed fingers and toes, which he had had "since birth"; a grandfather, an uncle, and a sister were said to be similarly affected. Nothing was said about the man's parents or other relatives.

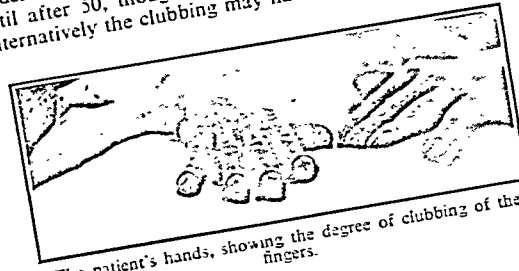
The following report of a case admitted to St. James's Hospital, Leeds, shows the condition to have been present in three successive generations.

Case Record

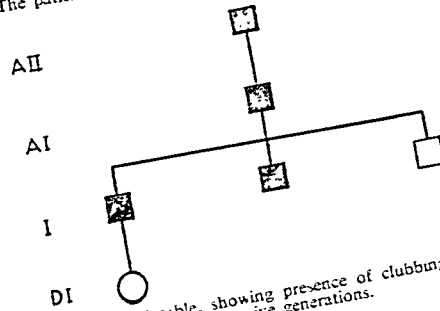
A man (I, 2 in the pedigree) aged 42, a piano-tuner, was admitted on April 10, 1937, suffering from a left hemiplegia, which had come on suddenly the previous day. Before this he had enjoyed good health, apart from occasional attacks of pain and swelling in his right great toe, which he had been told was gout, and several momentary bouts of dizziness during the month preceding the stroke. On examination it was found that his heart was enlarged, the apex beat was $4\frac{1}{2}$ inches from the mid-sternal line in the fifth left interspace, his blood pressure was 230/150 mm. Hg, the Wassermann reaction was negative, and the urine was normal. Apart from the degree of clubbing of the fingers and toes. Questioned regarding these he said that they had started to enlarge at the age of 21, and had quickly attained their present size, which merited the epithet "drumstick"; the nails had a livid tinge, and were curved like an inverted watch-glass. A radiograph of the chest showed left ventricular hypertrophy and normal lung fields: radiography showed no changes in the bones of the hands. The patient was aware of his abnormality, and said that his elder brother and his father had the same condition. His brother (I, 1 in the pedigree), aged 53, was next interviewed. He had lost three fingers of one hand in an accident, but the remaining fingers and his toes showed the same degree of clubbing as his brother's. He said that he had had the condition as long as he could remember. His health has always been good apart from recent slight winter cough, and he has been no physical signs of disease at present. The third brother (I, 3) was not seen, but was said to be unaffected; he has been out of touch with the family for twenty years. The father (AI) died at an advanced age of cancer of the throat; nothing of his sons agreed that he had clubbed fingers, but a battered photograph of a family group showed quite plainly that both he and the father (AI) were affected. The patient's niece (DI) aged 29, was seen and was found to be normal.

This is the second family to be described in which the deformity runs directly through three generations. In the case of a hereditary condition this is sufficient to show that the abnormality is probably inherited as a simple Mendelian dominant: all the previously reported instances conform to this hypothesis, with the exception of those which I have called anomalous. In the family described by Newton and Mercellis the patient said that his paternal grandfather was affected, but that his father was not.

Assuming that he was not mistaken, it is possible that the father had died before the anomaly appeared, as in one of the cases that I have described the condition was not evident until the age of 21, and in one of West's cases not until after 50, though this was not shown to be familial. Alternatively the clubbing may have arisen out of the lung



The patient's hands, showing the degree of clubbing of the fingers.



Genealogical table, showing presence of clubbing in three successive generations.

diseases to which this family was subject, although this seems unlikely. In von Eiselsberg's report no information is given except the bare facts abstracted above, so it does not afford enough material for discussion; but the argument that the patient's father or mother may have died before their fingers became altered applies here also.

Conclusion

As in most cases the normal members of the families have not been recorded it is impossible to compare their numbers with the numbers of affected persons; in the fully reported families the ratio of affected to unaffected persons is 15:10, which is as near to the 1:1 ratio of Mendelian dominants as one can expect with such a small number. At all events it can be said that extreme clubbing of the fingers and toes may occur in the absence of organic disease, and that the probability is that in some of these cases the condition is inherited as a simple Mendelian dominant.

My thanks are due to Dr. H. G. Garland and Dr. S. I. Hartfall for their advice and criticism.

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many specimens have to be taken and but few are positive. The number of cases, however (now amounting to thirteen), from which actinomyces has been obtained from the excised spleen or blood in acholuric jaundice, splenic anaemia, and Banti's disease makes it probable that the present organism bears an aetiological relation to the disease.

This is the first occasion on which a known pathogenic species of actinomyces has been isolated from cases of jaundice. It also appears to be the first occasion on which *Actinomyces caprae* has been found in a human case. *Actinomyces caprae* was first isolated from the lung of a goat by Silberschmidt (1899), Galli-Valerio (1912) obtained it from the same source.

An attempt has been made to identify agglutinin to *Actinomyces caprae* in the blood of the patient. The organism is particularly difficult to emulsify. A thin emulsion, however, made by continual shaking of a twenty-four-hour broth culture showed no agglutination as tested against the serum of Case I. The serum of Case I added to a broth culture of the organism increased the rate of growth and brought out more prominently the characteristic colour of the organism as compared with six normal control sera. Again, the siderotic nodules in the spleen on first exposure were a buff colour, but on being incubated in culture tubes under aerobic conditions they assumed the same tint as an old culture on agar.

The patients come of peasant stock and were born in a cottage which had been part of an old farm; it is said to have been very insanitary, and has since been pulled down. A neighbour used to keep ten to twelve goats, and occasionally these used to stray into the garden of the cottage occupied by the patients. There is no history of their having drunk goats' milk.

Summary

Two cases of acholuric jaundice are described in which splenectomy had the effect of completely relieving the jaundice, restoring the haemoglobin and number of red corpuscles to normal, and diminishing the fragility. From the spleen of one of these patients an organism was isolated which gave the characteristic reactions of *Actinomyces caprae*. It is concluded that this organism was an essential pathogenic agent in the production of the disease.

[Note.—Since the above was written a sister of the patients (aged 17), referred to in the text as normal, has come under observation with jaundice, splenomegaly, and a haemoclastic crisis.]

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On June 16 King Gustaf V of Sweden will celebrate his eightieth birthday, and a national subscription has been opened to celebrate the occasion. In accordance with the King's own desire the funds collected will be used for research into and for combating infantile paralysis and rheumatic diseases. Subscription lists have been issued throughout the country and also in Swedish Legations and Consulates abroad, thus giving an opportunity to Swedes, whether at home or in foreign countries, to contribute. A similar appeal on the occasion of King Gustaf's seventieth birthday brought in the splendid total of just over 5 million kronor (£275,000 at par). The fund on that occasion was earmarked for cancer research and the establishment of cancer clinics. Large sums from this fund have been spent on purchase of radium, and some of the projected clinics have already been opened.

FAMILIAL CLUBBING OF THE FINGERS AND TOES

BY

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Although it is not uncommon to find clubbing of the fingers in the absence of apparent cause (I have seen two instances during the past year), reports of such cases are infrequent, but they have been described by Mangelsdorf (1885), West (1897), and Lewy (1921). Decloux and Lippmann (1902) recorded the occurrence of clubbed fingers and toes in a man aged 55 and in his sister aged 30; there were sixteen other brothers and sisters, who were said to be unaffected, as were their parents and the man's children. None of these was seen. The affected pair said that the condition had been present since birth; neither had any pulmonary or cardiac disease. Weber (1919) put on record the cases of twin brothers aged 25 with clubbed fingers; another brother, aged 30, was not seen, but was said to be likewise affected. All were quite healthy.

Cases occurring in Two Successive Generations

Cases occurring in two successive generations have been recorded in six instances. Fraentzel (1888) described a healthy man showing "drumstick" fingers, his father and his sister having the same condition. Freytag (1891), in his monograph on clubbed fingers, mentioned two instances of father and son being affected in the absence of disease. Weber (1919) found clubbing of the fingers and toes of a man aged 25 and his father; three brothers and a sister had a like condition. Crouzon and Gutmann (1931) reported clubbed fingers in a healthy man aged 30; a radiograph of his hands showed normal bones. The father had been similarly affected, but had suffered from a chronic "broncho-pulmonary" condition. Kayne (1933) published a record of a family in which two brothers, a sister, and the father had clubbed fingers and slightly clubbed toes; the mother and four sisters were normal. The patient's Wassermann reaction was negative, as was a radiograph of his chest. Radiography of his hands showed only slight splaying of the terminal phalanges. In the same year Ragins and Freilich (1933) described a family in which a man, his sister, father, and a paternal uncle all had clubbed fingers and toes.

Witherspoon (1936) reviewed the articles on the subject and reported a negro family in which four brothers and their father had clubbed fingers and toes. One of the brothers had two children, aged 2 months and 17 months, who were found to have pronounced thickening of the volar pads of the fingers and thumbs, but no true clubbing. A maternal half-brother was said to be affected. The mother and four sisters had normal fingers and toes. Wassermann reactions were negative, and radiographs of the chest were normal in all cases examined. Neurath (1932) described four families in which clubbing of the thumbs and big toes was inherited as a simple Mendelian dominant. The clubbing in these cases was due to a bony malformation of the terminal phalanges, and was a special variety of brachyphalangia; for this reason it is not comparable with the present series.

Anomalous Inheritance

In the foregoing reports the inheritance is straightforward, from father to son; but there are two families described in which the inheritance is apparently anomalous.

Table of Results in a Series of Thirteen Cases

Case No.	Sex and Age	Disease	Smoking	Site of Block	Nocturnal Pain	Gangrene	Claudication Distance		Group	Temperature Rise	Treatment Duration	Result
							Before	After				
1	M., 60	A.S.O.	Mod.	R.P.A.	Yes	No	250 yds.	500 yds.	II	2° C.	Hours 460	A C D
2	M., 36	T.A.O.	"	L.F.A.	No	"	150 yds.	800 yds.	II	3	350	C D
3	M., 43	"	Heavy	L.P.A.	Yes	Yes	300 yds.	2 miles	II	3.6	500	A B C D
4	M., 49	"	"	R.P.A.	No	No	800 yds.	Unlimited	III	2	400	C D
5	M., 67	A.S.O.	Mod.	L.F.A.	Yes	Yes	50 yds.	500 yds.	II	1	450	A B C D
6	M., 45	T.A.O.	Heavy	R.P.A.	No	No	100 yds.	800 yds.	III	0.5	450	C D
7	M., 46	"	Light	L.F.A.	"	"	50 yds.	400 yds.	II	1.3	350	C D
8	M., 76	A.S.O.	"	R.F.A.	Yes	Yes	90 yds.	400 yds.	II	2.7	400	A B D
9	M., 75	"	Nil	R.F.A.	No	No	200 yds.	?	III	Nil	100	See text
10	M., 50	T.A.O.	Heavy	L.F.A.	Yes	Yes	50 yds.	?	II	1	440	See text
11	M., 65	A.S.O.	Mod.	"	"	"	—	—	II	Nil	300	A B
12	F., 60	"	Nil	R.P.A.	"	"	—	—	II	"	420	A B C
13	F., 63	"	"	R.P.A.	No	No	150 yds.	440 yds.	II	"	250	See text C

T.A.O.=Thrombo-angiitis obliterans. R.P.A.=Right popliteal artery. L.P.A.=Left popliteal artery. A.S.O.=Arteriosclerosis obliterans. L.F.A.=Left femoral artery. R.F.A.=Right femoral artery. A=Relief of nocturnal pain. B=Healing of gangrene. C=Increased walking capacity. D=Increased skin temperature.

Results

Recent cases still under treatment have not been included in the series of thirteen here reported. It will be noted that improvement occurred in all those treated with intermittent venous occlusion with the exception of Case 10. Nocturnal pain was present in six patients, including Case 10, and invariably relief of pain was obtained, in some instances within a few hours of starting treatment. It is interesting to note that although nocturnal pain was completely relieved in Case 10 the condition did not further respond to treatment.

Intermittent claudication was present in all but three patients (Cases 8, 11, and 12), one of whom was unable to walk because of diabetic skin lesions, another because of coronary disease, and the third because of recent amputation of the other leg. In the remaining ten patients, with the exception of Cases 9 and 10, there was a very satisfactory increase in walking capacity, in one case even to the extent of allowing the patient to take part in deer-stalking. Three patients (Cases 2, 5, and 7) were completely incapacitated when first seen, and are now able to work.

Six patients (Cases 3, 5, 8, 10, 11, and 12) showed degrees of gangrene varying from localized areas in Cases 3 and 5 to more extensive lesions. Thus Cases 8 and 10 had extensive gangrene of the left heel; Case 11 had lost the other leg through gangrene a month previously and showed a gangrenous area on the remaining big toe; and in Case 12 there was gangrene of the first and second toes. In all these cases treatment was successful in healing the gangrenous area without loss of tissue except in Case 10, where despite intensive methods healing could not be promoted and amputation was advised.

Discussion

It will be seen that apart from the clinical improvement the skin temperature has increased in practically every case. All cases were examined under the same constant temperature conditions before and after treatment. Sympathetic inhibition was induced, and the figures quoted represent the rise of temperature following treatment.

With the exception of Cases 4, 6, and 9, all belong to Group II—that is, those with a poor collateral circulation. In this group improvement can only be effected by assisting the formation of an efficient collateral circulation. It is therefore to be presumed that the poorer the initial collateral circulation the more dramatic will be the results of treatment, provided always that the condition is not so far advanced that the patient is no longer susceptible to treatment of any kind, as in Case 10. On the other hand, as might be expected, it has been our experience that certain of the cases in Group III with an initially very good collateral circulation would be unlikely to benefit from a form of treatment designed to develop a better collateral circulation. We therefore consider that in cases of this type treatment by intermittent venous occlusion is not indicated; arteriography with thorotrast, however, may be carried out to establish the nature and site of the local obstruction. Case 9 is an example of this type where intermittent venous occlusion failed to improve the already satisfactory collateral circulation. Arteriography revealed a localized block in the superficial femoral artery, and the excision of this segment of the vessel was followed by the complete relief of symptoms. It may be possible by means of intermittent venous occlusion so to improve the collateral circulation in certain cases of Group II that they may be amenable to similar treatment if symptoms are still present. We find that the response to treatment is better in the younger patients, who are mostly suffering from thrombo-angiitis obliterans, due doubtless to the greater capacity of their smaller collateral vessels to dilate.

While the results of treatment have been satisfactory, we have been unable to observe any actual increase in skin blood flow when specially designed foot calorimeters have been employed. Allan and McKechnie (1937), using a thermo-electric method, were unable to demonstrate any rise in skin temperature. However, it must be realized that both these methods indicate only the skin blood flow. Studies are being continued with particular reference to procedures better calculated to record muscular blood flow.

It is the consensus of opinion that in thrombo-angiitis obliterans any form of treatment will in large measure

TREATMENT OF OBLITERATIVE VASCULAR DISEASE BY INTERMITTENT VENOUS OCCLUSION FURTHER OBSERVATIONS

BY

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We have already made a preliminary report on the use of intermittent venous occlusion in the treatment of obstructive vascular disease of the limbs (1937). The method was originally introduced by Collens and Wilensky (1936a), and was based on the observation of Lewis and Grant (1925) that following venous obstruction there is a reactive hyperaemia in the tissues distal to the obstruction, lasting for a period varying from one-half to three-quarters of the period of occlusion. As already described, the apparatus consists of an electric pump which raises the pressure in a cuff surrounding the affected limb. The cycle is controlled from the electric motor in such a way that the pressure is maintained for two minutes at two-minute intervals. The pressure in the cuff is regulated by a safety-valve, and can be varied from 20 to 120 mm. Hg. We have had the opportunity of applying this method of treatment to a variety of cases, but it is our intention to limit the discussion to the results obtained in cases of obliterative vascular disease only.

Defective peripheral circulation can be regarded as being due to (a) obstruction of the lumen of the vessel by organic disease—thrombo-angiitis obliterans or arteriosclerosis obliterans; (b) excess of vasoconstrictor tonus, a defect which operates principally on the smaller arteries and arterioles; and (c) a combination of the two preceding factors. A clear definition of the relative importance of these factors is necessary in all cases because they call for distinctive forms of treatment. The clinical investigation of these cases should include:

Points in Clinical Investigation

1. *A Full History.*—Particular attention should be paid to a history of intermittent claudication, nocturnal pain or coldness, pallor on exertion or elevation of the limb, and trophic changes. The degree of sweating, the rate of growth of the nails, and the consumption of tobacco should also be ascertained.

2. *Careful Palpation of the Limbs Exposed to the Same Conditions.*—By this means any significant difference in temperature between the two sides can always be detected. The presence of normal pulsation in the peripheral vessels excludes obstructive disease of the main arteries, whereas the absence of such pulsation is not diagnostic of obstructive disease owing to the relative frequency of anatomical anomalies in the course of the smaller arteries. An approximate estimate of the severity of the obstruction to the circulation can be obtained by the venous filling test of Collens and Wilensky (1936b). This test consists in

the observation of the rate of filling of the veins of the dorsum of the foot when the limb is transferred abruptly from the elevated to the dependent position. The normal time required for filling is eight to ten seconds. A more accurate index is provided by the reactive hyperaemia test described by Pickering (1933). The limb is placed in water at 35° C. for ten minutes and is then elevated until blanching occurs. A cuff surrounding the proximal part of the limb is now inflated to a pressure greater than the systolic pressure. The limb is replaced in the hot water for a further four and a half minutes; it is then dried, put in a horizontal position, and the pressure released. A bright red hyperaemic flush courses rapidly down the limb, and should reach the toes in a few seconds if there is no vascular obstruction. This test is of value both in diagnosis and in the estimation of progress, but as it necessitates a prolonged period of circulatory arrest we have hesitated to use it in cases with severe vascular obstruction.

3. *Oscillometry.*—The oscillometer gives a valuable indication of the degree of pulsation at all levels, particularly those in which the vessel is not accessible to palpation. In this way the site of the obstruction can be approximately gauged. The instrument consists of an airtight box containing an aneroid capsule so arranged that the pressure in the blood-pressure cuff connected with the instrument is equal to that on both sides of the capsule. The cuff is applied to the limb, and readings are taken at intervals of 10 mm. from 240 to 0 mm. To take a reading one side of the aneroid capsule is cut off from communication with the blood-pressure cuff by closing a valve, and the extent of the pulsations is measured by the excursions of the needle connected to the aneroid. The instrument is not accurate enough to enable significance to be attached to small variations, and although of great value in the diagnosis of obliterative disease is of little use for estimating progress.

4. *Estimation of the Degree of Nervous Vasoconstriction.*—The patients are exposed for a period of an hour in a warm room the temperature of which is controlled thermostatically. The temperature of the digits is then recorded thermo-electrically, after which sympathetic inhibition is induced by the method of Landis and Gibbon (1933) and the temperature again recorded. The degree of sympathetic tone is shown by the difference between the two temperatures. Landis and Gibbon secure the release of vasoconstrictor tonus in the lower limbs by the immersion of the arms in water heated to 47° C., and we have found this method entirely satisfactory, although we occasionally employ spinal or regional anaesthesia.

Classification of Cases

On the basis of the foregoing tests we have classified our cases into three groups: (I) those showing a normal response to sympathetic inhibition and normal oscillometric readings; (II) those with a very deficient rise in temperature and defective oscillometric readings; and (III) those with only slight restriction of temperature rise but with a considerable deficiency in oscillometric readings. Group I comprises the cases associated with vasospasm and without obstruction; these have been excluded from our present series. Group II includes the cases of obliterative arterial disease with considerable deficiency in the collateral circulation. Group III comprises those cases of obliterative arterial disease with a good collateral circulation that are often attributed to a combination of vasospasm with obstruction.

apparent than actual. The fault or the deliberate tactics of counsel may prevent the truth from emerging. For example, it is the truth that food poisoning produces gastro-enteritis, but this must be modified by the undoubted fact that gastro-enteritis results from many different causes besides food poisoning. If medical evidence were given in the form of answers to an intelligent questionnaire there would appear more agreement than disagreement amongst medical experts. But counsel may not desire to achieve such agreement, and the zeal for victory rather than for the elucidation of truth may bring even medical witnesses into unwitting partisanship.

How Foods can Affect Health Adversely

A food may be deleterious either because of its own quality or of the constitution of its consumer. Even unaccustomed foods, good in themselves, or undesirable mixtures of harmless ingredients, may yield the same results as food defective in quality. Unwise drinking or extreme variations of temperature may produce a dyspeptic state without any fault in the food. Certain foods may affect in a specific manner individuals susceptible to them, gastro-enteritis may arise, with urticaria, alarming to the sufferer, but again not poisoning. Idiosyncrasy may manifest itself at any period—a point difficult to make clear to the person whose mind is filled with the suspicion that he has been poisoned by food. Obviously illness due to idiosyncrasy, although technically a form of food poisoning, cannot be laid at the door of the purveyor of the food. Nor is he responsible for the consumer's digestive weakness or his reckless dietary admixtures.

Food poisoning proper is the result of the presence of some noxious agent in the food. In the form in which it comes most frequently to medical attention it is due to the presence of specific germs or toxins originating, if in meat, in the animal from which the meat was taken or from some carrier handling the meat, or from sewage, as in oysters contaminated with typhoid germs, or in milk handled by a carrier of scarlet fever or typhoid, or, as has been learned recently, in pastries and piecrusts infected by a common staphylococcus. Again, there may be contamination of potted meats by a bacillus rare in this country—namely, the *botulinus*—leading to poisoning of a characteristic nature, with acute and rapidly fatal symptoms of paralysis of the nervous system. The medical jurist, however, is concerned with a much wider group than this, and his function is to prove whether a train of symptoms is the result of food unfit for human consumption.

The first inclination is to view the last meal with suspicion; but the last meal may have had nothing to do with the symptoms. Certain foods, such as shellfish, mushrooms, and ice-cream, are often suspect, and the sufferer is apt to go back several meals to locate such an article of diet, but here again the suspicion may be quite unfounded. Surmise is not proof, and it is not right to work on such generalizations as that oysters cause skin diseases or sausages gastro-enteritis. Many other possible causes enter into the story.

Proof of Food Poisoning

The various groups of poisons act in fairly constant ways. Each of the alkaloids produces its own train of symptoms by its selective action on the body, generally the nervous system; for example, strychnine produces spasms and twitches, nicotine acts on the nerve-endings of the heart, morphine acts on the higher centres in the brain. The toxins of poisonous fungi which are eaten in mistake for mushrooms act directly and with great severity on the nervous system as well as on the gastrointestinal tract, and symptoms of giddiness, stupor, convulsions, and coma are pronounced. I can find no evidence that severe and long-persisting skin diseases have been produced by mushrooms, though that has been the basis of many claims. In one unsuccessful action concerning alleged mushroom poisoning it was stated that the diarrhoea and vomiting had accompanied an erythema multiforme which persisted, but this picture is totally

different from the recognized results of poisoning by toxic fungi. Food poisoning as generally understood is characterized by gastro-enteritis, with pain, vomiting, and diarrhoea. It is an acute illness, ending rapidly, generally without fatal result, and leaving no after-effects.

The causes of gastro-enteritis are numerous, and therefore it is essential that proof of the food eaten and its causal connexion with the symptoms should be obtained in the early stages. The previous condition of the patient, the onset of the illness, and the time elapsing since the suspected food was taken are all-important. These circumstances should indicate whether there is a suspicion of a bacterial infection. Bacterial food poisoning has an incubation period during which the bacteria form toxins, and therefore several hours elapse before symptoms are manifested, though if the toxins are already present in the food before it is eaten the symptoms appear more rapidly.

It is important to know whether severe diarrhoea and vomiting occurred, also the nature of the flux. On two occasions I have been called to a case of alleged food poisoning following an unusual meal. Fortunately there remained some of the vomitus and diarrhoeic flux, which were typical of haemorrhage from a peptic ulcer, but it was difficult, in the absence of previous symptoms of ulcer, to persuade the patients of the seriousness of the illness and to get them to absolve the food. In another case of vomiting and later intractable diarrhoea the practitioner, without seeing the excreta, diagnosed food poisoning, but it came out in consultation that the claimant had been treated for many months at hospital for ulcerative colitis, which is not associated with food poisoning.

Cases occurring in Groups

A number of cases occurring together in similar circumstances is, of course, highly suggestive of food poisoning. But here again it is well not to jump to conclusions.

In one instance cream was alleged to be the cause of scarlet fever. Two ladies who had partaken of the cream were affected, and their two men companions, who did not partake, did not suffer. But it was found that the same cream was liberally used in sauces of which they all partook. Further inquiry showed that one of the ladies had just left a scarlet fever case, and it was suggested that she transmitted the infection to the other in her greeting kiss, while the men were not so exposed.

Unusual conditions must also be borne in mind in dealing with outbreaks. Recently in London there have been several scattered outbreaks of diarrhoea and vomiting due to the *Sonne* bacillus of dysentery. Epidemics of sickness and vomiting have also occurred, described under the name of *nausea epidemica*, which cannot be traced to food poisoning. Sometimes agonizing pain is an outstanding symptom, accompanied by vomiting and perhaps some diarrhoea, and as it follows a meal away from home the food is incriminated. But a careful history and examination will point to gall-bladder trouble or some other colic, which may indeed have been aroused by an unusual meal, but here again the purveyor of the food is not blameworthy.

On what grounds, then, can an uncontrovertible diagnosis of food poisoning be made? The symptoms can only point to food as suspect, the suspicion becoming stronger if more than one case occurs and a common origin can be suggested. Proof absolute would be demonstration of the toxic virus itself, and here we have a recognized procedure, often, but not always, successful. This includes the finding of the germs in the excreta and if possible in the remainder of the food, and administration experimentally to laboratory animals. It often happens, however, that the remaining food, or even the excreta, is not obtainable; then a test may show that the infected individual forms in his blood, after such infection, demonstrable antibodies. In a recent case in which pork chops were alleged to be the cause of the disease, it was on the demonstration of the agglutinins to Gaertner's

be nullified by persistence in the use of tobacco. We therefore insist that our patients should stop smoking.

Summary

1. A further series of cases treated by intermittent venous occlusion has yielded encouraging results.

2. The treatment is especially suitable in cases of obliterative arterial disease with a poor collateral circulation.

We are again indebted to Professors D. M. Dunlop and Sir John Fraser for their interest and help, and to the physicians and surgeons of the Edinburgh Royal Infirmary, who have kindly permitted us to treat their patients. The work was carried out during the tenure of a Syme Surgical Fellowship (J. J. M. B.) and the Shaw Macfie Lang Fellowship (W. M. A.). We also gratefully acknowledge a grant from the Earl of Moray Endowment towards expenses.

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FOOD POISONING*

BY

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To the clinician food poisoning has a definite significance. It refers to a state of ill-health resulting from food which contains some abnormal or noxious content. Although the condition may be brought about by various agents, these are definable and produce manifestations which, within the limits of clinical medicine, are fairly constant for the agent concerned. To the lawyer, on the other hand, the term "food poisoning" has no significance; it is not even a legal expression, though were it not for the legal aspect the whole problem would be less complicated.

Responsibility of the Food Purveyor

The Food and Drugs Administration Act makes it an offence to sell to the prejudice of the purchaser any article of food which is not of the nature, substance, or quality of the article demanded. There are provisions in public health legislation directed against the offering for sale of meat, fish, milk, and other foods which are diseased, unsound, unwholesome, or otherwise unfit for food. Gross conditions such as these come within the purview of the sanitary authorities, which have special machinery for dealing with them, rather than within that of the practitioner. Even if the food be eaten it does not follow that poisoning would result.

The purchase of food implies a warranty that it is fit for consumption. Actions for damages for food poisoning (to use that common but often misused expression) are based either on negligence or on breach of an implied warranty of fitness. The provision in the Sale of Goods Act, 1893, material for this purpose is as follows:

"Sect 14. (1) Where the buyer, expressly or by implication, makes known to the seller the particular purpose for which the foods are required, so as to show that the buyer relies on the seller's skill and judgment, and the goods are of a description which it is in the course of the seller's business to supply . . . there is an implied condition that the goods are reasonably fit for such purpose. . . ."

Whether the case is based on the implied condition that the food is fit for consumption or on the breach of the seller's

duty to his customer to exercise care, damages are recoverable. In so far as the ground is negligence it is now clear that the legal responsibility goes back beyond the immediate supplier of the article of food to its ultimate manufacturer. This was decided in 1932 by the House of Lords in the case of *Donoghue v. Stevenson*, overruling the Court of Sessions in Scotland.

A shop assistant had purchased at a café in Paisley a bottle of ginger beer. The bottle was of opaque glass. She drank some of the contents, and when the remainder was poured into the tumbler a decomposed snail made its appearance. The woman claimed damages from the manufacturer, averring that the nauseating sight, coupled with the impurity of the liquid she had consumed, had caused her shock and gastro-enteritis. The House of Lords decided by three opinions against two that the manufacturer of food, medicine, or the like, sold by him to a distributor in circumstances which prevented the distributor or the ultimate consumer from discovering any defect in it by inspection, is under a legal duty to that consumer to take reasonable care that the article is free from defect likely to cause injury to health.

When the claim is based on the implied warranty it is immaterial that the purveyor of the food could not himself have discovered the defect. He has warranted to supply safe food, and this warranty is absolute. This is established by the case of *Frost v. Aylesbury Dairy Company*, which came to the Court of Appeal in 1905, in which milk was held to contain typhoid germs. The existence of such germs could only have been discovered by prolonged investigation, so that the defect was not discoverable at the time of sale, but the plaintiff's right to damages under the implied condition of fitness was upheld. The question of negligence, therefore, need not arise, and I presume that is why the usual course is to found the claim on implied warranty.

The Wide Field of Possible Complaint

Man must eat to live, and man is one of the few animals with widely variable tastes. Hence arise innumerable possibilities for complainants. There are various illnesses of cryptic origin which puzzle medical men and in which the tendency of the sufferer is to ascribe the blame to a meal just taken, all the more so if the meal included some article of diet, such as mushrooms, lobster, or ice-cream, which the public mind associates with disease. Again, one man's food is another man's poison, and individual idiosyncrasy adds to the difficulty of proof of damage or disproof of causal connexion.

The crux of the question when a person alleges that he has been affected adversely by consuming deleterious food is whether he has actually suffered from such food, and if so whether the defect in the food was due to negligence in its manufacture or supply. Both these are questions of fact, the first essentially, and the second largely, material for the medical witness. The fraudulent claim is common, and often based on the supposition that the big firms are rich and will pay to avoid publicity. At the same time, there is also the individual who honestly believes that he has been made ill by some special article of food. He is perhaps influenced by a chance observation by his medical attendant that he might have taken some food which had upset him. He instantly translates "food upset" into "food poisoning." Sometimes the medical man himself is a credulous person, and accepts the patient's statement of his subjective symptoms—as, for example, diarrhoea and vomiting—without verifying it. Yet the essence of proof of poisoning rests on a detailed investigation in the early stages of the illness.

A legal action once started may drag on for a long time before the case is actually heard, and as time goes on the patient's symptoms, as imagined by him afterwards, tend to multiply. Generally, however, this is to the advantage of the defendant, for the symptoms become so numerous and complicating as to contradict one another. To add to the difficulty, a difference of opinion may arise among the experts called in—a difference apt to lead to the discredit of expert evidence. I suggest that the difference is more

* The substance of a paper read before the Medico-Legal Society on November 25, 1937

I regard food poisoning as an acute illness from which the patient makes a rapid recovery, and I cannot believe that chronic states of skin disease and intestinal trouble can follow even an actual case of food poisoning, let alone an imaginary one.

The problems are numerous, and I have touched only on some of them. Each case must be dealt with on its merits. It is obvious that the medical expert called in to weigh evidence must approach the subject in a different manner from the clinician. On the medical expert falls the onus of discovering proof. His outlook must be wider, and he must be careful lest he, too, like possibly the patient or claimant, become the victim of credulity. In view of possible sequels in court he should be prepared to produce all the proofs of his investigations and all the clinical deductions, bearing in mind that in this field especially the time factor is of importance because of the rapidity with which the evidence may disappear.

Clinical Memoranda

Weil's Disease following a Motor-car Accident

Although cases of Weil's disease have been reported in increasing numbers in recent years, it has been suggested (Maxwell, 1935) that all sporadic cases be put on record. I am therefore contributing the following case.

CASE RECORD

X. Y., a man of 55, was driving a saloon motor-car containing two other people and a dog. He failed to take a turning over a canal bridge properly, and crashed into the canal—the Fossdyke Navigation Canal, which is the oldest canal in Britain, being a relic of the Roman occupation. The car came to rest upside down, with only the wheels visible above the water. Bystanders on the canal bank dived immediately to the rescue. The two passengers—an old lady and her husband, who was partially paralysed—were rescued first, and then the driver, who was therefore immersed for few minutes, as the doors of the car had to be forced open under water. Artificial respiration was applied to all three on the canal bank, and it was some time before they were taken round. As soon as they could be moved they were carried by ambulance into Lincoln County Hospital—a distance of about six miles. The two older people were recovered as stretchers, but X. Y. had by that time so far recovered as to walk in. They were all treated for shock and partial drowning. The male passenger made an uneventful recovery. His wife also fully recovered, but for some time was very ill with bronchopneumonia. The driver of the car, whose case is here recorded, improved gradually. He stated that he had swallowed a good deal of the canal water, and often asserted during his illness he came kept on tasting it. Five days after admission he complained of severe cramp-like pain in his legs. On being questioned he gave a history of phlebitis, and said that he had had similar pains before. Except for these pains he continued to be quite well, and was considered fit enough for discharge ten days after admission. On that day he complained of sickness and malaise, and his temperature for the first time was above normal. The next day he was very vomit, and jaundice was noticed. The next day he was jaundiced, and complained of pain in his chest and epistaxis occurred the following day; the jaundice meanwhile continued to deepen. A clinical diagnosis of Weil's disease was made. He died twenty days after admission, fifteen days after first complaining of jaundice. The urine contained bile, albumin, pus cells, epithelial cells, and coliform bacilli. The van den Bergh reaction was biphasic.

At necropsy the liver was found enlarged and friable. The left kidney was very soft and friable, and there were haemorrhages into the suprarenals. On naked-eye examination nothing abnormal was found in the stomach, intestines, heart, or spleen. The lungs showed a few old healed tuberculous lesions at the apices and some terminal hypostatic congestion. Microscopical examination of sections from liver, kidney, and spleen showed *Leptospira icterohaemorrhagiae*. The organism was not seen in sections from the lungs.

Discussion

The above was a typical case of Weil's disease with a fulminating course. The incubation period was five days if the first complaint of pain is taken as denoting the onset, and ten days if the sickness and malaise are considered the first symptoms. Schüffner (1934) found that in cases where the patient fell into infected waters the incubation period varied between four and nineteen days. A case following bathing has been reported (Lendrum, 1936) in which the incubation period was only two days.

Bathing in, or falling into, infected waters is a fairly common mode of infection. Alston and Brown (1937), in a series of 142 cases, found that it was the fourth largest group. Bewley and Wilson (1937) note that the disease occurs in a greater proportion of those who fall into infected waters than of those who bathe in them. This is borne out by the above case, as the canal is used for bathing by very many people during the summer. Schüffner points out that this greater incidence is due to the fact that an unpremeditated immersion often causes violent struggling, so that water enters the respiratory tract. Infection usually occurs through broken skin or through the mucosa of the nose, mouth, or upper respiratory tract. No organisms in the above case were found in sections from the liver; and infection seems to have been from the swallowed water. It is unusual for infection to occur through the acid in the stomach and the bile antiseptic action of the organisms. Carnot and Weil (1934), however, report the case of a woman who, attempting suicide in the Seine at Paris, swallowed a large quantity of contaminated water. She developed spirochaetal jaundice; profound anorexia ensued, and death took place from inanition.

In the clinical course the above case followed the classical description, except that it was a fulminating one. The fatality rate in Weil's disease varies from 5 per cent. to 50 per cent. (Alston and Brown, 1937). The disease may be very mild and jaundice is not always present, diagnosis depending on serological reactions. Many cases may therefore be missed, being of subclinical types. This accounts for the differences in mortality rates.

Summary

A case of Weil's disease is described, and the incubation period, mode of infection, and mortality rates are discussed.

I have to thank Mr. G. C. Wells-Cole, senior surgeon, Lincoln County Hospital, for permission to publish this case.

REUBEN NAFTALIN, L.R.C.P. and S., L.R.F.P.S.

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bacilli in the blood that the action was decided. There are certain reservations to be made in drawing conclusions from such tests. Previous infections may leave agglutinins in the blood for a varying period, but the discussion of this matter is for the expert. I would stress only the importance of duplication of tests to avoid errors in technique, and the tests should be carried out in laboratories specially equipped for the purpose, or, better still, in a central laboratory, where the stock strains are of recognized accuracy. It must also be remembered that laboratory tests may fail at times owing to long delay in beginning the investigation. That errors can arise owing to the refinements entailed in identification of the bacteria and their products was impressed upon me whilst investigating an outbreak of sore throats following a banquet.

Some sixty of the diners went down with sore throats, in some cases followed by scarlet fever. At first a streptococcus isolated from the throat of the chef was thought to be the causal organism, but later reports from the Ministry of Health laboratories showed that the streptococcus so obtained was not the one associated with the conditions in question. Cream or ice-cream was suggested as the cause of this outbreak, but no bacteriological corroboration was forthcoming. It is obvious that when gatherings take place in a crowded banqueting hall the atmosphere may be such as to encourage the spread of any infection, and I could find no reason to blame the food despite the coincidence of so many cases.

Popular Fallacies about Food Poisoning

It is desirable to rebut certain popular fallacies. Bacteria are not necessarily noxious, nor is decomposing food necessarily poisonous. Many foods are eaten, from choice, in a high state of decomposition. It is a fallacy that poisoned food has a bad taste; it is the decomposing food which tastes, and indeed the decomposition is a safeguard, preventing stale food from being eaten, for in stale food dangerous germs may have had time to form their toxins before cooking takes place.

Ordinarily, food poisoning is an acute illness in which the patient gets rid of the poison by vomiting and diarrhoea and is better within a few days, suffering no after-effects. Cases due to toxins which attack the nervous system take a more fatal course, as, for example, in the fatal outbreak of botulism in 1922 at Lochmarea, when all the eight persons who had eaten sandwiches made of potted wild duck paste died.

The source of the infection is important in making investigations. It may come from the animal itself (and if the animal be diseased the whole carcass will be infected, so that there will be widespread incidence of food poisoning); from butchers and others who handle meat actually infected or are themselves carriers of disease germs; or from the fouling by vermin such as rats and mice of cooked food improperly stored.

The bacilli are destroyed by heat and cooking, but the toxins remain unaffected and potent for danger. Hence delay in the canning process after slaughter will allow of toxins being developed and conveyed in the sterilized food. A debatable point has been raised in court as to whether the temperature of cooking is sufficient to destroy bacteria in the depths of meat. Some experiments which were carried out for me appeared to demonstrate that possibility. Minor questions arise such as whether a portion of tinned meat can be infected and not the rest of the meat in the tin. This has been taken to explain an isolated case and the immunity of others who shared from the same container, but I regard it as unlikely in view of the process of canning.

"Psychological" Food Poisoning

Many claims are based upon the discovery of a foreign body in the food, as, for example, a piece of glass or a nail, a slug in a salad, or, as in the case already mentioned, a decomposed snail in a bottle of mineral water. Cases of this kind need looking into very closely. It

is not unknown for a cockroach to be produced from a match-box and placed in the soup by the prospective claimant. One case is on record in which a rat's tail had been introduced into a meat pie. This proved unfortunate for the claimant, however, for it was shown in the laboratory that the tail had not been cooked in the cooking of the pie. In one case which I investigated the claimant had been twice successful in contending that he had inadvertently swallowed pins found in food, and it turned out that the failure to expose his fraud was due to a too trusting radiologist. The radiologist, believing the man's story, and seeing the pins in various positions in successive radiographs, which had been taken only in one plane, was completely deceived. Apparently the man knew enough to place the pins on his back in appropriate positions to suit the time intervals. The swallowing of foreign bodies may, of course, be attended by harm, but in most cases the glass or pins are passed through the bowel without damage, and so the matter should end; but it may not so end if a large firm or insurance company is concerned and can be regarded as "fair game" by some claimants.

If a woman finds a slug in a salad and discards it without having tasted any of the food, does that constitute a just claim for damages? It is an unpleasant occurrence, but not enough to cause illness. Had she found the slug while preparing a salad in her own kitchen, would she not have removed it and served the salad? But apparently it is a more expensive slug which makes its appearance at restaurants!

In one case with which I had to do a woman tasted three mouthfuls of a chop, which she said was "tainted," but she followed it with fruit salad and cream, and then came the usual story of vomiting and diarrhoea, pains, and in this case an urticarial eruption with nausea. Her practitioner argued that, although this was not specific food poisoning, the tasting of tainted food by a highly sensitive woman caused an upset of digestive functions of a psychological nature.

Is this possible? And, if such sensitive persons exist, can the food purveyor be justly held responsible for their susceptibilities? Carried to a logical conclusion, such people would be equally upset by the presence of a deformed person or a person of unpleasant countenance in the restaurant. I am inclined to think that if such susceptibility exists it is in no way different from susceptibility regarding certain foods, and should be the entire responsibility of the individual unfortunate enough to possess it.

Medical experts differ regarding these quaint cases of what may be called psychological food poisoning, but to me it seems unfair that damages should be given in such circumstances. I hesitate to dwell upon the medical and legal possibilities if at a modern restaurant crowded with sensitive, fragile, twentieth century females the old nursery rhyme were re-enacted:

"Four and twenty blackbirds, baked in a pie.
When the pie was opened, the birds began to sing."

But perhaps the writer of a "Song of Sixpence" properly assessed the amount of the damages!

After-effects of Food Poisoning

A final word must be said on the after-effects of food poisoning. I have referred to a case of ulcerative colitis alleged to have followed poisoning by food, and I have notes of a case in which an attack of appendicitis was said to have followed the eating of tinned salmon. In this case it was obvious that the whole of the symptoms ascribed to the tinned salmon were actually due to the appendicitis. In the case mentioned above in which a woman had merely tasted a tainted chop, it was said that recurrent attacks of urticaria supervened, and for this she demanded compensation, with the proviso that she be allowed to reopen the case at any time within the next ten years.

Malignancy and Evolution (1926) and *The Serpent's Fang* (1930). He bears willing testimony to the influence of that philosophic pathologist, the late Dr. H. G. Sutton of the London Hospital, on all his thought, but avows himself an impenitent neo-Lamarckian.

This retrospect is not irrelevant, for *Bio-politics* is an attempt to codify the ideas expressed in his earlier books and to extend them to the whole body politic. He visualizes a human community, however, not so much as following the pattern of a complex metazoan type as that of the colonial protozoa. Curiously enough the idea of an evolution of colonial protozoa to the stage of a group-mind was elaborated also in Olaf Stapledon's novel *Last and First Men*, where our earth was invaded by Martians moulded on that pattern.

We hope it will not appear discourteous to a veteran controversialist if we call attention to a few points which seem to us to militate somewhat against the usefulness of his book. If he is out to convince, we would remind him of the old fable of the contest between the sun and the wind to compel the traveller to divest himself of his cloak. In a book professing rigid scientific argument, is not so much sarcasm and scorn out of place? The politician may be invincibly ignorant, but why bludgeon him? Mr. Harold Nicolson has not taken it lying down, but in a spirited rejoinder has given as good as the politician got. Among other things he calls attention to Mr. Roberts's admission that there must be castes in human society corresponding to the higher and lower functions of an organism. Wherein then lies the validity of the analogy with low-grade organisms such as colonial protozoa? No high degree of development or co-ordination is possible without a central nervous system. As an outcome of this wordy encounter we are reminded of Lord Baldwin's dictum that the function of the politician is to tell the expert just what the people will not stand for.

Again, the copious use of analogy has its dangers. Comparative anatomists rightly insist on the difference between analogy and homology. Analogy often provides an illuminating parable, but homology implies a basic organic similarity. We are not sure that all Mr. Roberts's analogies rest upon this firm foundation. Yet again, his conception of hostile symbiosis between every cell leads him to most pessimistic conclusions as to the possibility of peace ever being more than a temporary lull between wars. The face of Europe to-day might well be taken to support this contention. But consider the state of England during the six centuries between the end of the Roman occupation and the Norman Conquest; invasion after invasion by races of different blood and the establishment of a heptarchy. The Devil's Dyke near Cambridge, erected to keep out the Mercians, still stands. But no longer does Mercia desire to invade East Anglia, nor is a Wessex-Mercian axis practical politics. The symbiosis is more evident than the hostility, which has perhaps been "sublimated" into cup-tie contests. Mr. Roberts may retort that pressure from the external environment may promote unity within. Perhaps so, in which case threats from the East may yet produce a Europe so united in defence of its civilization as to be beyond attack.

But we would not withhold our meed of admiration for Mr. Morley Roberts's dogged determination, in the face of ill-health and other obstacles, to place the coping stone by this book on the philosophic system he has constructed. It is a remarkable effort, worthy of much praise, and we can fairly assert that orthodox biological and medical thought owes more to him than is often recognized.

SURGERY

The Science and Practice of Surgery. By W. H. C. Romanis, M.B., M.Ch., F.R.C.S., and Philip H. Mitchiner, M.D., M.S., F.R.C.S. Vol. i, General Surgery; vol. ii, Regional Surgery. Sixth edition. (Pp. 883 and 1053; 800 illustrations. 14s. each volume.) London: J. and A. Churchill Ltd. 1937.

A sixth edition of *The Science and Practice of Surgery*, by Romanis and Mitchiner, testifies to its continued popularity during the ten years which have elapsed since its first appearance. This is deserved, for it remains one of the best textbooks for the student, concisely and clearly written, well illustrated, and descriptive of current surgical practice. The latest edition contains a new section on the medical aspects of exposure to poison gas, and the chapters on fractures and dislocations have been largely rewritten so as to bring them into line with more modern views of treatment. Other sections of the book in which there has been extensive revision are those on anaesthesia and the sympathetic system. In the preface to this edition the authors remind us that the book is intended primarily for students who are required to meet the syllabuses of examining bodies, and that several methods of diagnosis and treatment are therefore discussed in dealing with each pathological condition rather than an arbitrary laying down of personal practice in these cases. Quackenstedt, pages 8 and 137, vol. ii, should be Quackenstedt.

Like good wine, this work apparently improves with age. This is the best edition that we have seen, and should be much in demand by the students for whom it is written.

DRUG BOOK FOR QUICK REFERENCE

Index Médico-Pharmaceutique. Edited by N. T. Delsanu, René Fabre, and L. Coniver. Preface by M. Maxime Radais. (Pp. 756. 488 pages of which are tables. 120 fr.: 150 fr. bound.) Paris: Masson et Cie. 1937.

This medico-pharmaceutical index, edited by Professors Delsanu and Fabre of the Faculty of Pharmacy of Paris and M. Coniver of the University of Bucharest, is based on the *Codex Médico-Pharmaceutic*, which was prepared and published in Rumania in 1927. It is intended to serve as an extra-pharmacopoeia which will give French-speaking doctors a book of rapid reference for problems relating to the composition, chemistry, and action of drugs. Articles on special subjects have been contributed by a number of different authors. For example, Professor Tiffeneau writes on the general principles of drug action and on chemotherapy. Other articles deal with poisoning, hormones, vitamins, prophylaxis of infectious diseases, etc. About two-thirds of the volume is occupied by an alphabetical index of drugs. This gives in tabular form their chemical, physical, and therapeutic properties, dosage, toxic actions, antidotes, and incompatibilities. The index contains about 1,200 titles, and in addition to the official drugs (that is, those contained in the French Pharmacopoeia) a large number of proprietary drugs are described.

From what is said above it will be seen that the arrangement of the volume differs in many ways from comparable British publications such as the *Pharmaceutical Codex* or the *Extra Pharmacopoeia*. In these latter all information relative to a drug is gathered under a single title, while in the book under review only a brief tabular account is given of the therapeutic properties of drugs, and about one-third of the text is devoted to general reviews of special subjects. The volume will be found particularly useful by practitioners in this country who wish to look up the chemical and pharmaceutical properties of drugs used in France.

Reviews

PRACTICAL RADIOTHERAPY

Radiation Therapy. Its Use in the Treatment of Benign and Malignant Conditions. By Ira I. Kaplan, B.Sc., M.D. (Pp. 558; 198 figures, 1 table. 30s. net.) London, New York, Toronto: Oxford University Press. 1937.

The need for a comprehensive and practical book on the therapeutic uses of x rays and radium has long been felt, and so it was with very considerable interest that we received a copy of Dr. Ira Kaplan's new book on *Radiation Therapy*. The author is well qualified for the important task he has undertaken, for, in addition to being director of some of the most important radiotherapeutic clinics in New York, he is also editor of the therapeutic section of the *Year Book of Radiology*. In all these capacities Dr. Kaplan has drawn upon his own experience in writing this useful and valuable textbook, and indeed always seems at his happiest when discussing some practical point arising out of his own clinical work. The indications where preference should be given to the use of either x rays or radium are clearly set forth, and we think he has done wisely in forgoing the lengthy preliminary sections which are often introduced into books dealing with the uses of x rays or radium. In general such accounts are calculated to give a wholly inadequate impression of the importance of experimental radiology as an essential study for all who intend to practise this important and difficult branch of treatment. We are so accustomed to think of radiotherapy as specially concerned with malignant disease that its extensive field of application in non-malignant conditions is apt to be overlooked. In the present work these important uses of radiation are clearly and concisely set forth, and wherever possible the theoretical considerations upon which the treatment is based are explained. Many will perhaps be surprised to learn that x rays have been successfully employed for the cure of such lesions as erysipelas and carbuncle. The curative effects are due not to the direct action of the rays on the micro-organisms concerned but probably to their disintegrating action on the leucocytes, whereby bactericidal substances are freely liberated. Many cases of asthma which respond unsatisfactorily to other methods of treatment have similarly been treated with success; and the same holds good of persistent cough in children where the aetiology is obscure. In dermatology many conditions receive benefit from x-ray therapy, and the author's experience with intractable and extensive psoriasis will certainly be of interest to all who are faced with its treatment.

"For persistent and resistant lesions we have found treatment over the sympathetic nervous system to be effective in controlling the condition. For this purpose the spinal area is divided into four sections, the cervical, upper and lower dorsal, and lumbo-sacral. The section treated corresponds to the region of the body involved with the disease—that is, if the chest is involved treatment is given to the cervical and upper dorsal spine; when other regions are involved the corresponding spinal section is treated."

Such are a few non-cancerous conditions, chosen on account of their general practical interest; but the list of such diseases in which radiation is successfully used is a long and ever-increasing one. The treatment of malignant disease is, of course, also discussed, but as it has been so often referred to in this *Journal* any more observations on the subject are here unnecessary. There are

two further points which call for mention. On page 23 the remarks on the examination of patients by the radio-therapist are calculated to give a wrong impression of his professional duties. Dr. Kaplan writes: "While as a rule the patient referred for irradiation has previously been examined and diagnosed, it is nevertheless advisable for the therapist to make an examination himself," and then proceeds to explain the various reasons for which such an examination is required. This might, with limitations, be appropriate to a technical assistant, but is hardly so to a member of the medical profession. The other point is concerned with irradiation of the ovaries and subsequent child-bearing. In spite of the author's fifty cases in which "normal" living children were born, we cannot help feeling that the subject is treated a little too lightly. The subsequent mental as well as physical development of such children and of their offspring will be a matter of great interest. At the same time the term "normal" must be interpreted with due reference to the social position of both parents and offspring.

There is every probability that a new edition of this very useful book will soon be called for; if so, it is to be hoped that every page will be carefully examined, as there are a number of typographical errors, which we are unaccustomed to see in works issued by the Oxford University Press. The present volume is printed and published by the American branch of the firm, who in other respects seem to have done all that the most critical author or reader could desire.

BIOLOGY AND THE BODY POLITIC

Bio-politics. An Essay in the Physiology, Pathology, and Politics of the Social and Somatic Organism. By Morley Roberts. (Pp. 240. 15s. net.) London: J. M. Dent and Sons, Ltd. 1938.

Mr. Morley Roberts in his time has played many parts, and each of them with zest—in turn sailor before the mast, rancher, novelist, and biologist. His *Bio-politics*, published on his eightieth birthday, shows that his natural force is not abated. Starting from the axiom that the laws of biology apply to man and his institutions as strictly as to the amoeba, he proceeds to analyse all human activities from that standpoint and to deduce sociological conclusions, particularly for the benefit of the politician. It may be thought that there is nothing new in this method of approach. That remarkable man, Walter Bagehot, did it in his *Physics and Politics* when Darwin's *Origin of Species* was causing evolutionary ideas to permeate all fields of thought. More recently Mr. Wilfred Trotter's brilliant essay on *The Instincts of the Herd* attracted much attention in the same direction, and Sir Arthur Keith has posed the question "Does Man's body resemble a commonwealth?" with his accustomed lucidity. What however was new in Mr. Morley Roberts's *Warfare in the Human Body* (1920) was his insistence on the effect of pathological lesions on the process of evolution, and it was this which made his work of interest to medical men; stress, breakdown, and repair were claimed as stepping-stones to higher things. His sturdy materialism would, however, resent any such teleological gloss as that good thereby came out of evil. Indeed he might point to Sir Frederick Andrewes's fascinating lecture on "The Evolution of the Streptococci" as proof that by the same steps a harmless saprophyte became a dangerous enemy to man. Good for the streptococcus no doubt, but evil for its host! The other *leit-motif* is "hostile symbiosis" as a definition of the conditions obtaining between the different tissues by which a *modus vivendi* is established. Mr. Roberts elaborated the same theses in

MEDICAL RESEARCH COUNCIL

REPORT FOR 1936-7

If a reviewer ever trembles he might well be excused for doing so when confronted with the annual report of the Medical Research Council, the body which by its allocation of Government funds and funds from private sources ordains to a large extent the direction of medical research in this country.¹ The report comprises 196 pages, and it covers the range of medicine. Fortunately for the reviewer, however, this document is in the main an epitome of what has already appeared during the year in certain journals or special publications or has been discussed in medical societies, so that one is conscious of travelling over familiar territory. Over a hundred such contributions appeared during the year from workers at the Council's own central laboratories, the National Institute for Medical Research at Hampstead, and many others from external workers receiving in one form or another grants-in-aid; but set out in the succinct form of the present report the impression is given of an army of research pursuing its objective through many highly specialized units.

Many-sided Investigations

Over twenty investigation committees for special subjects have been set up by the Council, the subjects including clinical science, therapeutic trials of new remedies, anaesthetics, nutrition, dental diseases, mental disorders, tuberculosis, vision and hearing, hormones, bacteriology, cancer epidemics, chemotherapy, and statistics. The Industrial Health Research Board, which assists the Council, has set up half a dozen more, including committees for industrial pulmonary diseases and industrial psychology. The National Institute has a staff of over forty professional workers. The Council, by the way, has decided in principle—the scheme awaits a final decision on the ground of cost—to abandon the Hampstead site of the Institute and to concentrate the whole of the work at Mill Hill, where, fifteen years ago, it purchased a considerable property.

But the Council does not put all its golden eggs in the National Institute basket. It supports clinical research units at three London hospitals—University College, Guy's, and Queen Square. It also makes grants in aid of research work in different institutions throughout the country. Another development is one under which appointments are made to the Council's staff for work in external institutions. In this way every department of medicine is covered, and most notably clinical medicine. Arrangements have also been made by the Council, in consultation with the Colonial Office, for the promotion of a more extensive programme of research in the field of tropical medicine; this is now in its second year, and work is being done on a number of specified subjects, including trypanosomiasis, yaws, yellow fever, and pellagra. One pleasing circumstance is the resumption and augmentation of the Rockefeller fellowships. The award of these was suspended a couple of years ago, the Rockefeller Foundation deciding to concentrate on certain special fields of research activity, but this year once again seven Rockefeller Fellows have been appointed by the Council and are all at present working at centres in the United States. In the special field of tuberculosis the Council has itself

awarded a further series of four research fellowships, and the holders are at present studying problems of tuberculosis abroad.

Research in Chemotherapy

Chemotherapy, the administration of chemical compounds synthesized in the laboratory and found to have a specific action on the infected organisms causing particular diseases, is this year on the first page of the programme. Following the submission of proposals by the Council, the Government has approved an additional sum of £30,000 a year with a special view to the development of research in this subject. The decision has been made not entirely on medical grounds but on the grounds of industrial opportunity and of national and colonial requirements. The investigation so far has scarcely begun, the first allocations being devoted to building and equipment.

Up to now the principal successes of chemotherapy have been in infections with spirochaetes and protozoa rather than with bacteria, but there is good reason for regarding the value of chemotherapy as likely to be established in infections of a bacterial nature also. The recent achievements in the treatment of streptococcal and other infections by the substance known as "red protosil" and the colourless substance of simpler constitution usually called sulphanilamide are pointed to as an encouraging indication, and a new field in chemotherapy has been opened up which is being effectively and rapidly developed.

Apart from such new directions, the chief role of chemotherapy has been in tropical diseases, and therefore the subject has a special significance for the British Empire. But the discovery and production of chemical compounds of value in this respect have depended, and still depend, almost entirely on German science and industry. The most notable exception to this—namely, tryparsamide—is of American origin. Several fundamental discoveries in chemotherapy have been made in this country; it was here, for example, that the trypanocidal action of atoxyl was first demonstrated, and here also that the similar action of tartar emetic was discovered and its value in bilharziasis established. The original discoveries have been made here, but the intensive researches for compounds superior to the original substance have been carried on abroad, and therefore the production has passed into foreign monopolies. The matter is more serious than one merely of prestige, for in the event of war the British Empire might find itself deprived of essential drugs. Obviously this is a matter which calls for a national scheme supported by public funds. Large research facilities are necessary to secure substantial advances in chemotherapy. The proposals include the setting up of a central research laboratory with a staff able to give their whole time to some most laborious investigation, and also the assignment of certain parts of the work to different academic centres.

The scheme will follow the general line of action of a great commercial organization like some of those in Germany, but with the extremely important difference that it will not aim solely at financial success. A commercial undertaking, again, would be likely to neglect the large amount of information of scientific but not of immediately commercial value incidentally obtained.

Sulphanilamide and Allied Substances

The work at Queen Charlotte's Hospital on the treatment of puerperal sepsis with protosil is already familiar. It is touched upon again in the present report. The work has since branched out to other streptococcal infections

¹ Report of the Medical Research Council for the Year 1936-7. Cmd. 5671. H.M. Stationery Office. (3s.)

SKELETAL MATURATION

Atlas of Skeletal Maturation. By T. Wingate Todd, M.B., Ch.B., F.R.C.S. (Pp. 202; 4 tables, 75 plates. 31s. 6d. net.) London: Henry Kimpton. 1937.

Some standard yard-stick for the measurement of the normality or delay of physical growth is badly needed by those concerned in the care of children, and Professor T. Wingate Todd's *Atlas of Skeletal Maturation* will be welcomed for offering a possible solution to this problem. This volume appears to be one of a series, for after over thirty pages of introduction the reader is led to a section headed "Part I—Hand" with twenty pages of text and over eighty illustrated by x-ray pictures of the hands of children, male and female, at different ages from three months to over eighteen years, each with appropriate comments according to a special plan. Probably something like a million skiagrams have been examined by the author and a large team of associates, and this gigantic task has yielded an atlas of standards of first-rate scientific importance. Three preliminary surveys have been discarded, and the final selection here presented offers few grounds for criticism. For the accurate treatment of retarded children the first essential is a precise and reliable method of measuring the stage of maturity. This is now afforded by Professor Wingate Todd's work, upon which he and his collaborators are to be sincerely congratulated.

Notes on Books

Students attending the short course in bacteriology which forms part of the ordinary medical curriculum often prefer to use a textbook containing only essentials and simplifying the subject as far as it reasonably can be. Among such books Dr. L. E. H. WHITBY'S *Medical Bacteriology*, which has now appeared in its third edition (J. and A. Churchill, 11s. 6d.), has become a popular choice. Concise writing, together with a profusion of well-drawn if perhaps rather over-diagrammatic illustrations, makes it attractive and readable, and in some respects the information given is remarkably full for a work of such modest size. This edition contains a new chapter on theories of immunity, a rather surprising revival of an aspect of the subject which has lost favour in most elementary teaching of recent years. The chapters on protozoa and animal parasites are a valuable feature, and the extensive concluding section on applied bacteriology will doubtless be of value, more perhaps to the practitioner than to the student, but its advocacy of vaccine treatment for such conditions as arthritis, colitis, and "intestinal toxæmia" must be regarded as a departure from the strictly scientific outlook of the earlier pages.

Crossen's *Operative Gynaecology*, first published in America in 1915, has long been well known in this country. It is a book which has proved useful to many gynaecologists and to surgeons embarking upon pelvic work. A fifth edition, entirely revised and reset, has now been prepared by Professor H. S. CROSSEN and Dr. R. J. CROSSEN after an interval of seven years. New knowledge, physiological, anatomical, and therapeutic, has been thoroughly sifted by the authors, and in the course of rearrangement and rewriting they have held to the principle that underlay previous editions: "The selection of the operative measure most suitable for the particular modifying conditions present in that patient, instead of trying to apply one operation to all classes of lesion regardless of type and details." The illustrations, as before, are very numerous, and many new drawings have been included. This handsome volume of 1,076 pages is published by Henry Kimpton at 52s. 6d. net.

Nuevos Estudios sobre los Neumotórax Espontáneos consists of a series of beautifully illustrated papers on spontaneous pneumothorax by MARIANO R. CASTEX and EDIGIO S. MAZZEI. Most of the papers were originally read before the National Academy of Medicine in Buenos Aires. The first article deals with the anatomy, radiography, and pleuroscopy of subpleural bullae; the second with benign spontaneous pneumothorax caused by their rupture; and in the third is described the recurrent form of pneumothorax. In another article the relation of spontaneous pneumothorax to asthma and emphysema is discussed, and in yet another the uncommon painful forms of spontaneous pneumo- and haemothorax. In the last chapter the authors discuss fully the causation and treatment of spontaneous pneumothorax (and its complications) in the course of pulmonary tuberculosis. The bibliography at the end of each section of this book will be found a valuable feature. It is published at Buenos Aires by Aniceto Lopez.

The price of *The Silent Social Revolution*, by G. A. N. Lowndes (Oxford University Press), reviewed in the *Journal* of March 5 (p. 515), is 6s. net—20s.

Preparations and Appliances

RUBIAZOL

Rubiazol (Roussel Laboratories Ltd., 36, Cavendish Square, W.) is an interesting new derivative of sulphamido-chrysoidine (prontosil), which was discovered in 1936 by Girard. Its chemical name is carboxy-sulphamido-chrysoidine. Gley and Girard (1936) found that rubiazol was less toxic than prontosil and had a higher anti-streptococcal activity. Clinical trials in one of the largest maternity hospitals in Paris (3,598 cases) showed that the total number of days of hospitalization for cases of severe puerperal sepsis fell from 1,297 in 1934 to 162 in 1936.

The original prontosil was introduced in 1935, and the whole subject is too recent to permit judgment on the relative merits of the numerous compounds which have been introduced. Fortunately the difficulty in making such a decision is due to the fact that excellent results have been obtained with several rival compounds. The claims made for rubiazol are high, and it will be interesting to see whether it proves to have a clear superiority over sulphonamide.

LAMPS FOR ULTRA-VIOLET TREATMENT

A copy of the catalogue (No. 120) of Lumsden quartz lamps has been received. The outstanding introduction is the Lumsden "medical sun lamp," which is designed for general ultra-violet treatment by medical practitioners in private practice or in hospitals. The quartz mercury vapour lamp is of a new gas-filled discharge type, rich in its output of radiation, and requiring no tilting to start the arc. The reflector is made to move in all directions so that it can be rotated to a convenient angle and used either vertically or horizontally for sitting or recumbent patients. Doors are provided to focus or confine the light. The control unit containing the choke coil and resistances has a drawer to hold goggles and accessories. A word should be said about the attractive appearance of the unit. The body is finished in black and silver, and the reflector is matt silver outside and chromium-plated inside. Another device is the Lumsden "central sun lamp" for use in clinics where there are a large number of patients who are able to move about, doing exercises or even playing games during treatment. It consists of a central pillar with a triangular reflector around which are grouped three quartz burners so arranged that no matter where they stand patients up to twenty or more may be always under the rays of two burners but never of more. It is claimed for this equipment that it represents the most economical method attainable of irradiating a large number of patients with mercury vapour lamps.

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MEDICAL RESEARCH IN BRITAIN

The Medical Research Council owed its origin to the "research penny" which, under a provision of the first National Insurance Act, Parliament undertook annually to provide. After five years' experience of its working the enlarged scope already granted to the Medical Research Committee (to give it its first name) was confirmed by a charter of incorporation. The Council received its present status under the direction of a Ministerial Committee of the Privy Council; hence the annual reports are formally presented "To the Lords of the Committee of the Privy Council for Medical Research." Looking back over the early years we may recall how much development was affected by the war, which broke out shortly after the work began. The success that attended the application of the principles and methods of scientific medicine to the medical war problems of 1914-19 had a great effect at that time. Appreciation of the importance of science to industry had been growing steadily, though very slowly, in Great Britain before 1914, and it was hoped that lessons taught to the public during the war would not be forgotten when the emergency organization for medical research was dissolved. At the breaking up of that organization many men marked by distinguished scientific achievement in the war were in danger of returning either to non-scientific duties or to teaching posts so poorly paid that they would have to augment their stipends by doing professional work of a kind incompatible with serious effort in research. Both public subvention and private munificence came to the rescue. The House of Commons made further financial provision for the universities (now administered through the University Grants Committee); it increased the annual vote for the Medical Research Council, and voted other money for scientific, industrial, and agricultural inquiries. The action of Parliament and the growth of public opinion stimulated benefactors to give or leave money to supply the needs of scientific research, and notably those of medical research, and this change of attitude made the lay authorities of many hospitals newly alive to their responsibilities for aiding the advancement of knowledge.

The Medical Research Council, whose report for the year 1936-7 appears this week (see p. 625), has acted throughout in co-operation with the universities and the medical schools attached to universities. The work done directly for the Council, or with its aid, includes that of the M.R.C. staff, whether in its own laboratories at the National Institute for Medical Research, in the clinical units it has established in various hospitals, or elsewhere. The record for the year also includes numerous researches, which are helped by grants from the Council, in the universities, hospitals, and other institutions in various parts of the country. Brief reference was made last year to the Government's intention to provide an additional sum of £30,000 per annum for the work of the Medical Research Council, with a special view to fostering progress in chemotherapy. This decision followed proposals framed by the Council in consultation with the Department of Scientific and Industrial Research, not only from the point of view of medical science but also with regard to industrial opportunity and national and colonial requirements. Chemotherapy, by definition, consists in the giving of chemical agents synthesized in the laboratory and found to have specific inhibitory actions on infective organisms causing particular diseases in man and animals. In a closely allied but much wider field of therapeutics advance depends on the same kind of investigation made by chemists and biologists working in collaboration. This wider field of research includes the discovery of chemical substances produced in the laboratory which have specific actions on certain bodily functions and which are thus of great value in the systematic treatment of disease as well as in other aspects of medical practice.

In so far as the chief role of chemotherapy has until recent months been in diseases of man and animals in tropical countries the subject is of peculiar importance to the British Empire. Yet the discovery and production of chemical compounds of value in this way has depended almost wholly on German science and industry, and still so depends. The outstanding exception (trypan-blue, for sleeping sickness) is of American origin; and the best example of a natural product for like purposes (quinine, for malaria) is practically a Dutch monopoly. Thus the needs of the British Empire for these drugs have to be met almost entirely from foreign sources. This is all the more remarkable and regrettable because several basic discoveries, opening up new fields in chemotherapy, have been made by British chemists and physiologists. From every point of view there is need for further research in Great Britain aimed at the discovery of new chemical substances of therapeutic

unconnected with childbirth, the most spectacular being streptococcal meningitis. The sulphanilamide compounds have been shown to have curative effects in infections by typhoid and other coliform bacteria, and, somewhat less impressively, in infections by pneumococci and staphylococci. From the standpoint of public health perhaps the greatest importance attaches to reports of curative effects of sulphanilamide compounds in acute and chronic gonorrhoea in both sexes. Some of these reports, however, are unfavourable, and it is thought well to suspend judgment for the present as to the complete efficacy of the treatment, though the reports may have arisen only owing to wrong dosage and administration. The indiscriminate sale of a preparation of this kind in America has had most unfortunate results, simply owing to the fact that another and quite unsuitable component had been added to the sulphanilamide itself. But it is necessary to warn the public that a powerful remedy must be used with discrimination and always under medical advice.

Among the various pieces of work narrated are some experimental studies of these compounds at Glasgow University, where the powerful curative effects of the drugs in mice infected with different strains of haemolytic streptococci, provided that the treatment is begun soon after infection, have been confirmed. No striking prophylactic effect against the streptococci was, however, demonstrable, and it has occasionally happened that mice, apparently cured of the infection, have developed fatal relapses after treatment has ceased.

The reason why progress has been so rapid in this field during the last year or so is easily explained. It is because, unlike the earlier attack upon protozoal parasites, this latest work has been concerned with organisms which can be easily seen and cultivated and which lend themselves to experimental investigation.

Immunology and Biological Standards

Some work at the National Institute carried out mainly during the year under review has opened up what may prove to be an important chapter in immunology. The production of passive immunity by injection of an antibody prepared in an animal of a different species has been familiar since the introduction of antitoxins for the treatment of diphtheria and the prevention of tetanus, but this interspecific type of immunity was of short duration. In some recent investigations on the nature of the substances neutralizing certain hormones a new type of interspecific has made its appearance. This substance appears in the blood serum of animals subjected to long-continued courses of injections of these hormones, and the evidence so far obtained suggests that it is of true antibody type.

Arising out of this work it has been found that diphtheria antitoxins from the horse, the goat, and the ox fail to cause any perceptible sensitiveness of the guinea-pig or its plain muscle to diphtheria toxoid, but that the antitoxin from a rabbit, and still more readily that prepared in a guinea-pig, render the guinea-pig and its isolated plain muscle highly anaphylactic to the diphtheria oxid. It is found, further, that serum from a man who has been successfully immunized belongs to the group of the rabbit and the guinea-pig rather than to that of the ungulates in that it readily makes the guinea-pig anaphylactic to the diphtheria toxoid. By a suitable adjustment of conditions guinea-pigs can be made actively, as well as passively, anaphylactic to the diphtheria antigen. It is thought that this new factor in the relation between an organism and an antibody artificially introduced into it, depending on the species yielding the antibody, may prove

to have important bearings on immunological therapeutics.

A reference is made to the new insulins. It is pointed out that these preparations have presented fresh problems of control under the Therapeutic Substances Act. The zinc-protamine-insulin has been the subject of a good deal of work by British manufacturers, controlled by suitable tests imposed under that Act. Experiments are still in progress, and information is being exchanged between the National Institute for Medical Research in this country and the Toronto Insulin Committee with the object of further improving the tests which control the activity of this important preparation of insulin.

The Virus of Influenza

In the report of the Council last year certain investigations were described which had led to the preparation of a vaccine from the lungs of mice infected with the influenza virus. This vaccine consisted of a filtrate from the infective material, inactivated by treatment with formaldehyde. The widespread epidemic of influenza in the winter of 1936-7 gave an opportunity for observations and trials of the virus, and the high percentage of positive results has strongly reinforced the identification of the virus as the primary cause of the infection, especially when contrasted with the uniform failure to obtain the virus from non-influenzal cases of respiratory infection. From a detailed clinical study of influenza as seen in 120 patients—chiefly in Service hospitals—it is tentatively concluded that the disease caused in man by infection with the influenza virus probably constitutes a recognizable clinical entity, differing in symptoms as well as in its epidemiological character from other catarrhal infections of the respiratory tract which have often been confused with it.

The misuse of the term "influenza" as a label for various catarrhal conditions is therefore all the more to be deprecated. The misuse arose inevitably at a time when the causative organism of influenza was unknown, and probably it continues by reason of a preference on the part of patients to describe their ailment as influenza, which is considered an adequate reason for invalidism, whereas "catarrh" is not.

The results of vaccination against influenza have so far been inconclusive. Vaccination with the inactivated virus does not give protection in all cases, even when the conditions are favourable. All that can be said at present is that if vaccination is to have a good chance of success in any future epidemic it will be necessary to choose an inoculum made from a virus belonging to the same immunological group as that responsible for the immediate outbreak.

A note is appended to the report on a method of egg-membrane culture in the study of viruses, including that of influenza. It has been found that a number of viruses can be propagated in the developing egg of the domestic fowl, and such eggs can now be used with advantage to replace experimental animals. This laboratory method is likely to prove its utility in the study of diseases due to infection with filter-passing viruses.

(To be concluded)

A new hospital at Cape Town has been opened by the Governor-General, Sir Patrick Duncan. This building consists of five floors, and there are 850 beds, of which seventy-seven are for paying patients. According to Reuter, it is the best-equipped hospital in the Union of South Africa, and has cost approximately £1,000,000.

been performed; interns have absented themselves from duty without permission and even against orders. It is an all too common occurrence for interns to pack up and leave whenever a likely opening in practice presents itself." Further, the conditions of licensure in the Dominion and in its several Provinces differ from those in Great Britain. Whereas here the possession of a recognized diploma or degree of itself entitles the entry of a name on the *Medical Register*, in Canada further examinational tests and requirements have to be fulfilled before the licence to practise is granted. Such differences may increase or lessen the difficulties to be overcome if either undergraduate or immediate postgraduate internship (or some corresponding alternative) is to be made a condition of entry upon independent practice; but they do not in any degree detract from the mutual obligations of the intern and those under whose supervision and responsibility he acts.

The statement and clarification of these obligations are the main concern of this joint report. The purpose of internship is described succinctly and admirably, and under no fewer than twenty-six headings there are set out what should be the conditions and procedure of intern education. The main desiderata are a definite programme of instruction; adequate facilities for work and discussion of cases; increasing familiarity with nursing procedures, the administrative problems of hospitals, the social aspects of medical care, and the requirements of medical ethics; responsibility in the out-patient department, and experience in dealing with patients in "private" wards; health supervision and recreative activities; and, as absolutely vital, a real interest in the welfare and education of interns on the part of the medical staff, both individually and collectively. Most of the points are developed in some detail, and it is much to be hoped that this valuable report may be made the basis of discussions, leading to practical improvements in medical education, both in the immediate and in the more remote future.

SERUM TREATMENT IN GONORRHOEA

We published last year an account¹ by T. Anwyl Davies of the results of treating gonorrhoea with "gonococcus antitoxin." This account was exceedingly favourable; the serum had a clearly specific effect, the duration of the disease being lowered while complications were reduced in frequency or responded remarkably to the treatment. In subsequent correspondence the significance of these observations was questioned, mainly on the grounds that they were uncontrolled by comparison with other cases not treated with serum, and that the

possible effect of other measures had not been taken into account. In spite of these elements of doubt the enthusiastic nature of this report induced E. T. Burke, J. Gabe, A. H. Harkness, and A. J. King to adopt the treatment in three venereal clinics, and a combined account of their experiences appears in our opening pages to-day. This account is wholly unfavourable; the serum had no specific anti-gonococcal effect; recovery, so far from being accelerated, was interfered with, and serious reactions were frequently produced. There can rarely have been a flatter contradiction between the results of two series of observations on similar patients and with the same remedy. Careful analysis of the records on both sides would doubtless reveal minor differences in procedure, but it seems altogether unlikely that unrecorded variations of this kind could explain so glaring a discrepancy. Therapeutic trial must always be the final court of appeal in assessing the merits of any remedy, but let us admit that its judgments are fallible. There are other grounds upon which the claims of "gonococcus antitoxin" to be a specific remedy may be judged, and to these we referred in editorial comment² on Dr. Anwyl Davies's paper. The supposition involved in the mode of preparation of this serum, that the gonococcus produces an exotoxin, is disputed, and the methods available for testing such a serum have unfortunately little claim to significance as an index of therapeutic value. There was therefore no strong *prima facie* case in favour of this serum, and a favourable verdict on it had to rest on those reported results of clinical trial which now meet so emphatic a denial. It was pointed out in the correspondence of last year that further research in methods of serum preparation was needed, and although this remains generally true, it may be doubted whether any such efforts are now likely to take gonorrhoea as one of their earlier objectives, or indeed perhaps meningococcal meningitis, which is also involved in the same difficulty. During the past year the new chemotherapy has widened its scope to include both these diseases, and in both it seems capable of achieving at least as much as serum ever has; in gonorrhoea certainly more, according to many recent reports.

ENCEPHALITIZOIC ENCEPHALOMYELITIS

Little is known of intra-uterine infections apart from syphilis, and so fresh ground is broken by A. Wolf and D. Cowen³ in their recent description of an undoubted example of an encephalomyelitis of this kind due to an organism resembling the *Encephalitozoon cuniculi*—a parasite causing spontaneous encephalitis in rabbits and mice. In retrospect the authors surmise that two similar cases have already been reported in the literature, but these are insufficiently documented to establish this point. The case now reported was in an infant which came under medical observation at the age of 24 days suffering from convulsions. It was born of parents who had spent their lives in or near New York City and were apparently healthy. During the first five

¹ *British Medical Journal*, 1937, 1, 321.

² *British Medical Journal*, 1937, 1, 335.

³ *Bull. neurol. Inst. N.Y.*, 1937, 6, 366.

value, and strong reason for developing a national scheme of investigation. An outline of research work on chemotherapy proceeding in this country under the auspices of the Council is given in the present report, with proposals for further development, more especially in the highly important direction of the treatment of streptococcal and certain other bacterial infections with sulphanilamide and allied substances.¹

Other matters discussed at some length in the general introduction are influenza, surgery of the heart, the causes of mental defect, the role of common salt in the body, and the part played by nicotinic acid in biological phenomena with special reference to its action as a vitamin of the B complex. As in former years, the work of the National Institute for Medical Research, under the direction of Sir Henry Dale, is set out in some detail. The need for additional laboratories for the new work on chemotherapy is one of several factors which have raised in acute form the question of future policy regarding the site and buildings of the National Institute. After long consideration of the problem in all its bearings the Council has decided in principle to abandon the Mount Vernon site at Hampstead and to concentrate the whole of the National Institute at Mill Hill. The main advantage of this will be the close contact and means for collaboration between different departments and the convenience of common services, with greater ease of control and economy in maintenance. Proximity to the new laboratories of the Imperial Cancer Research Fund at Mill Hill on land leased by the Council will bring mutual benefit.

The success of the policy followed from its early beginnings by the Medical Research Council is not often questioned to-day, and few would now deny the debt owed by British medicine to the zeal and foresight and good judgment of Sir Walter Fletcher, who left his physiological work in Cambridge to accept the arduous duties of secretary of the new body. The tradition set by Fletcher has been continued since his death by Sir Edward Mellanby. Both secretaries have been fortunate in their chairmen and in their office colleague, Dr. Landsborough Thomson.

INTERNSHIP AND MEDICAL EDUCATION

One of the most important suggestions made by the British Medical Association's Committee on Medical Education in its report of July, 1934, was that each student should be given, within the period of the curriculum, not less than six months' responsible clinical experience under supervision,

together with instruction in certain aspects of medical practice. The conditions under which, and the methods by which, such experience, supervision, and instruction should be secured were laid down with some particularity. It was recognized, however, that there would be much difficulty in giving immediate practical effect to these proposals; and eventually, while reiterating the conviction of their great value, the Association was content to express the hope and belief that further consideration will lead to their adoption when the curriculum is next under revision by the General Medical Council, presumably some years hence. That those concerned with medical education in Canada (and incidentally in the United States of America too) are now coming to similar conclusions is evidenced by a report on "Intern Education and Supervision," prepared by a joint committee of the Ontario Medical Association and the Canadian Medical Association.¹ This report is a really important study of its subject, and though it deals with the matter mainly from the aspect of hospital service—the duty of the intern to the hospital and of the hospital to the intern—it includes the consideration of such questions as undergraduate internship, resident posts in specialties, the legal status of interns and of students in a like position prior to licence to practise, the alternative plan of a period of practice in conjunction with a senior private practitioner, and the issue of a temporary interim certificate to practise in these and similar circumstances. Some of these points require further study and elaboration, but it is noteworthy that they have been brought definitely into the field of serious discussion and that there is an apparently widespread feeling that they embody a policy or a cause which is in itself desirable, and the difficulties of which, though evident, should be faced and overcome.

The position on the other side of the Atlantic is not identical with that in Great Britain and Ireland. In Canada it appears that the number of openings for internship is much in excess of the number of students available to fill them, whereas on this side it would require some organization and much co-operation between various types of hospital to provide a large enough number of resident posts. Again, Canada complains of a laxity in observing contractual obligations in this sphere which is rarely, if ever, seen in this country. It is astonishing to read that among certain interns—though the offenders constitute only a minority—"long alternate week-ends are being demanded without consideration of the needs of the patients; strikes have occurred for higher pay; assigned duties have not

¹ See *British Medical Journal*, March 5, 1938. "The Mechanism of the New Chemotherapy."

¹ *Intern Education and Supervision*. Department of Hospital Service, Canadian Medical Association, 184, College Street, Toronto, 2.

receiving additional vitamin B. The percentage of babies showing anorexia was about the same in both groups. Thus with the exception of the promotion of a more stabilized growth and what is termed "greater nutritional stability" there was no obvious advantage in adding vitamin B to the diet of healthy, well-managed infants. Certain psychometric observations were also undertaken.² The general picture of the infants receiving increased amounts of vitamin B is summarized as "one of slightly accelerated maturation in basic behaviour patterns (except the sympathetic), augmented alertness in attention and perception phenomena, and slightly accelerated adaptive behaviour patterns (learning)." On the other hand there were many individual variations, and, in fact, with certain types of co-ordination there was an actual lack among the babies receiving extra vitamin B at the age of 1 year. Much time and energy have obviously been expended on these investigations, and if the more or less negative results obtained are accepted as final it would appear that no supplements of vitamin B to children's diets are really necessary.

THE HOSPITALS OF CORNWALL

It is probable that the report of the Voluntary Hospitals Commission issued last year carried conviction that some scheme for the grouping of hospitals in areas or regions was highly desirable or even necessary. To translate conviction into action may be much more difficult. It is therefore a good thing that a further committee should have been set up with a view to implementing the recommendations of that report, and that some survey of county areas in England and Wales should have been taken in hand. One such survey of the hospitals in Cornwall has just been issued. It was made by Dr. Eric Donaldson, representing the Ministry of Health, and Mr. R. H. P. Orde, the honorary secretary of the British Hospitals Association, in response to a resolution passed last August at a meeting of representatives of the voluntary hospitals of the county at Truro inviting such a joint survey. In due course a meeting of the hospital representatives is to be called to consider this joint report. Conditions in Cornwall are in some respects unique among those of the English counties. Truro is the capital town and is fairly centrally situated, but there are three or four other towns in the county of approximately the same size, and none of them is large. In both Truro and Redruth there are at present hospitals the enlargement of which is in progress or in contemplation, and these towns are within eleven miles of each other. The other hospitals of the county are small, but the total accommodation seems to be sufficient; and the Penzance hospital is the only one which shows some signs of overcrowding. There are four small hospitals in East Cornwall whose natural outlook is towards Plymouth rather than towards Truro—Stratton, Liskeard, Saltash, and Launceston—so that in this case, as probably in most other counties, the actual county area does not constitute the most convenient hospital region. The joint report suggests

that these four hospitals shall continue to be based upon the Prince of Wales's Hospital at Plymouth as their central hospital, and that the other smaller hospitals of the rest of Cornwall shall be based upon the combined Truro and Redruth hospitals. These two, it is recommended, should combine at least so far as to share the same staff of physicians, surgeons, and specialists, and to develop those special departments which they already possess. The Royal Cornwall Infirmary at Truro would develop as the orthopaedic centre, establish a fracture clinic, and also throat, nose, and ear and ophthalmic departments, while the West Cornwall Miners' and Women's Hospital at Redruth would become the maternity centre and an outlying radiological centre linked with the national radium centre at Plymouth. In both would be treated general medical and surgical patients.

THE CASH BASIS FOR PROFESSIONAL ACCOUNTS

Recent correspondence in the columns of a technical periodical—*Taxation*—suggests that some misapprehension still exists as to the precise nature of the cash basis, and particularly as to the result of a change of proprietorship, in whole or in part, on the income-tax liability of those concerned. The point around which discussion often ranges is whether the vendor of a practice should account for income tax on the cash received by him after the date of sale, or, as it was put in a letter published by the journal referred to above, "What law prevents the Revenue (seeing they will not have another chance) from including the outstanding debts in that adjusted assessment, less, of course, an allowance, based on experience, for bad debts?" The writer proceeds to answer the question by adding: "I don't see how such an assessment could be resisted." With all respect we differ from his conclusion. The matter is one which has created discussion and misunderstanding for many years, but in essence is fairly simple. The professional profit of any particular year is the excess of the year's earnings over the year's expenses. Where credit is given the earnings of the first year—that is, the value to the practitioner of the consideration given or to be given for the services rendered—will clearly be less than the cash he will receive in the same year. There will be a "lag" in his cash receipts represented by, say, £x. But the Revenue authorities will rightly require him to include that sum in his gross earnings. At the end of his second year he may have received the £x, but another "lag" has been set up of, say, £y, and he will have to add to his cash receipts for the second year an amount represented by the excess of £y over £x. After, say, three years, however, it is probable that the cash receipts from work for previous years will be about equal to the uncollected debts arising out of the work of the year under consideration; the "lag" will have vanished, the cash receipts will have become a reasonably reliable measure of the year's earnings and the most convenient way of arriving at the profit. That is recognized by

² *Amer. J. Dis. Child.*, 1937, 54, 750.

months of the pregnancy they had lived in an apartment which was heavily infested with mice; there had been no contact with rabbits. Two days after birth the infant began to have convulsions, followed by diarrhoea and vomiting. It was acutely ill when admitted to hospital, with bulging fontanelle and slight head retraction. Xanthochromic fluid containing an excess of mononuclear cells and protein was withdrawn by lumbar and ventricular puncture. No growth was obtained on aerobic and anaerobic culture of these fluids. Both retinæ showed patches of yellowish-white inflammatory exudate. The infant died after five days in hospital. The necropsy, which was performed three hours later, revealed nothing of outstanding interest, apart from the central nervous system. This showed, to the naked eye, focal exudative meningitis with patchy areas of discoloration and necrosis in the underlying brain. The ventricles were dilated and their ependymal lining was replaced by stringy exudate and raised islands of yellowish tissue. The basal ganglia were friable and showed patches of yellowish discoloration. Microscopically the whole central nervous system was unequally affected by a meningo-encephalitis, which proceeded in places to necrosis and caseation and, in less severely inflamed areas, to the formation of discrete miliary granulomas. The latter were most frequently found in the white matter, the tissue in the neighbourhood of the lateral ventricles being severely affected. The spinal cord and the brain-stem were less involved than the cerebral hemispheres. Especially noteworthy are the changes described in the optic nerves and retinæ, where similar granulomatous lesions were present. A careful examination of the fundi is therefore indicated in the investigation of any future patients who may be thought to fall within this class of case. The organisms found in the lesions are fully and carefully described and are illustrated by photomicrographs and a colour plate. They closely resemble the *Encephalitozoon cuniculi*, and, as the authors point out, the lesions which this organism can produce in the rabbit and mouse are of a similar histological character. Its life cycle is unknown, and hence the means whereby human beings may become infected is at present obscure.

PHYSICIANS OF THE MAYO CLINIC

A distinguished editor once said that whenever he had nightmare his dream always took the form that Mr. Gladstone had died suddenly just after the paper had gone to press and that the stock obituary had been inadvertently destroyed. *Physicians and Surgeons of the Mayo Clinic and Mayo Foundation*¹ will save future editors from a similar nightmare as regards the alumni of that great school, and they alone will be able to appreciate its full value. The book consists of short biographies arranged alphabetically, each with a portrait and a hand-list—improperly called a bibliography—of the alumni of Rochester. The major part of the work is devoted to those who have been officially connected with the Clinic or Foundation for a year or more. A

second and smaller section tells of those who have served for a shorter time. There are appendices giving the universities at which the alumni were educated and the countries and States where they were born. The record fills 1,571 octavo pages and shows the world-wide influence which the Rochester school has exercised upon the progress of surgery. The book is issued in the U.S.A. by the University of Minnesota Press and in Great Britain by the Oxford University Press. The editorial duties have fallen upon Dr. and Mrs. R. M. Hewitt, who have carried out the work with the able help of members of the Division of Publications of the Mayo Clinic.

PROBLEMS OF VITAMIN B DEFICIENCY

Although gross lack of vitamin B is met with rarely in this country and in the U.S.A., moderate deficiency is perhaps not uncommon. A suboptimal intake of vitamin B is said to lead to such ill-defined functional disorders as anorexia, inefficient utilization of food, and a lowered haemoglobin content. Many of the investigations have been conducted on children living in institutions or presumably under-nourished before the special additions of vitamin B have been made. M. W. Poole and his co-workers have now published¹ an important study on the effect of adding vitamin B to the usual diet of healthy infants. Great care was taken to secure, so far as possible, comparable groups of "average well" babies, of whom two-thirds were white and one-third negro. The children were attending a special clinic for observation, but otherwise they were left in their own homes and cared for by their own parents. A special evaporated milk was used throughout the experiment, and apparently contained about 227 Sherman-Chase units of vitamin B in the average daily quantity of milk taken. One group of babies was taken as a control, and another group, numbering seventy-four, received a diet to which specially prepared extracts of rice polishings were added, giving the average daily content of 320 Sherman-Chase units of vitamin B. In all other respects the diets were kept as nearly identical as possible, and the amounts of cod-liver oil and vitamin C added were carefully watched. The main result of the experiment was negative. The babies in the control group gained in weight and in length approximately as well as those receiving extra vitamin B, but there was a definite smoothing of the weight curves, and the average gain was more regular and consistent, among those receiving extra vitamin B. From the detailed observations made it seems clear that the supplement of vitamin B had a mild laxative effect, for twice as many cases of mild diarrhoea were observed among the infants receiving the increased amount: on the other hand, constipation, which was uncommon, occurred with equal frequency in the two groups. There was no difference in dentition in the two groups, and in the matter of resistance to infection it was observed that when all grades of severity of nasopharyngitis were added to bronchitis and pneumonia the number of "infections per infant" was slightly higher in the group

¹ London: Humphrey Milford, Oxford University Press. (45s. net.)

¹ Amer. J. Dis. Child., 1937, 54, 726.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

FOREIGN BODIES IN THE TISSUES

BY

HAROLD DODD, M.Ch., F.R.C.S.

The removal of foreign bodies from the tissues can be a humiliating and a time-consuming experience, but a preliminary study and preparation will eliminate much of the usual difficulty. Foreign bodies in the eye and the respiratory, alimentary, and urinary tracts are not dealt with in this article, nor are wartime missiles.

In general practice and hospital service three types of foreign body are commonly met with: (1) hypodermic needles in the arm and buttock; (2) domestic needles and pins in the hands and feet; (3) miscellaneous substances—glass, wooden splinters, shot, metal filings, pieces of clothing, etc.

Hypodermic Needles

Treatment with insulin at home and the large amount of injection therapy now given result fairly often in hypodermic needles being broken in the tissues. Apart from the surgical aspect a medico-legal point is raised, and a working rule can be laid down that even though the needle fragment is in a situation where it is apparently innocuous the patient or his guardian must always be informed, a radiograph taken, and removal advised. If intervention is thought to be of doubtful value, then a consultation with a colleague should be sought and a considered opinion expressed, thus safeguarding both patient and practitioner.

An embedded hypodermic needle may exert a bad effect on the patient's health, as the following case illustrates:

A diabetic girl aged 20 was given insulin twice a day by her mother; she took a generous diet and kept sugar-free. One day a hypodermic needle broke in her arm, and after this, although more insulin was given and the diet was reduced, the glycosuria returned. She was admitted to hospital, where the needle was located by radiographs, but its extraction was deferred until the urine was sugar-free, owing to the possible danger of spreading infection in the wound. After a month's treatment the sugar persisted, and the opinion was formed that there was low-grade sepsis about the needle which exerted a toxic effect on the islets of Langerhans; consequently the needle was removed. There was a bead of pus around it, although no external signs of inflammation were visible. The next day the patient was sugar-free and has remained so.

It is common knowledge that hypodermic needles almost invariably break at the same place—that is, the junction of the shaft with the syringe piece, where the old-type plated needles of carbon steel corrode; the newer stainless needles, which bend rather than fracture, are better. Before giving an injection the point of the needle should always be inspected and tested, and from time to time it will be found broken off or bent over; a blunt needle has indifferent penetrating power.

Domestic Sewing Needles

Domestic sewing needles are a more difficult problem. They often penetrate deeply, perhaps between the metacarpals or metatarsals; besides which, some patients delay seeking treatment until the point of entry has healed and cannot be seen. Stories of a fortuitous spontaneous evacuation some distance away from the original wound are common, but such occurrences are exceptional.

Treatment

It is a *sine qua non* that all parts containing foreign bodies, suspect or actual, must be radiographed in two or more planes before removal is attempted. Stereoscopic films are a further assistance. Unfortunately, not all articles are opaque to x rays, but it is surprising what an amount of detail a good film will show.

Objects buried in the tissues should never be removed without: (1) access to an operating theatre or an x-ray table arranged as an operation table; (2) a good light; (3) preliminary radiographs in two or three planes, or a portable x-ray apparatus; (4) plenty of time; (5) an anaesthetic—local infiltration, spinal, or general; (6) when possible, exsanguination of the part by a tourniquet; (7) the patient being admitted to hospital or a nursing home.

The incision should be planned with due regard to the anatomical structures—for example, avoiding nerves, tendons, and arteries. An approach transverse to the axis of the needle must surely strike it, and should be used when permissible. The x-ray film is but a shadow: film distances and sizes are misleading, and must be estimated in relation to palpable bony points rather than by measurement on the negative. Thus "one inch below the radial styloid" will not be satisfactory, but a proportion of the distance between the ulnar and radial styloids—for example, a half or a third—is likely to be less erroneous. Further precise assistance is available from one of the following methods, modified according to the individual problem.

A long straight cutting needle is inserted into the part, aimed to strike the middle of the foreign body. Then a second needle at right angles to the first is similarly introduced. Lloyd (1936), writing on foreign bodies about the tarsals and metatarsals, advises the use of a Kirschner wire in the same manner, whilst a further aid to orientation is the insertion of a Michel's clip or clips into the skin. X-ray films in two positions are then taken, and from them the surgeon estimates the lie of the foreign body and plans the incision accordingly. If the guide needles are wide of the mark they are reinserted, or additional ones are used and more films are taken. The time spent in this preliminary investigation obviates tedious fumbling operations, with possible injury to important structures; in fact, the actual extraction often proves to be easy.

Harris (1936) describes a practical point that assists in the location of a recently entered foreign body. He states that as the needle penetrates it makes a track of ruptured capillaries and contused tissue, with a small extravasation of blood, and that if the part is completely exsanguinated this track remains red, brown, etc. (according to its age), and is clearly visible. It is traceable for several weeks after the accident. The limb is elevated for five minutes and an Esmarch bandage is applied. The position of the needle is estimated from the history and the radiograph, and the incision passes through the exact or an approximate point of entry. The dark red track, now easily identified in the white glistening tissue, is carefully followed to the foreign body. The method is applicable only to bodies in the upper and lower limbs, not for the buttocks. Caution in the use of a tourniquet on the arm and forearm is always necessary, for a median or ulnar palsy is rapidly caused; good padding and the minimum

the income-tax authorities, and is the basis on which most medical returns are made and accepted. Let us now look at the "final" year—that is, the year immediately prior to the sale of the practice by A. to B. A.'s cash receipts in that year are, we will suppose, £2,000, and he expects to receive a further £500 as the outstanding debts are collected. There seem to be very firm grounds on which A. could resist an assessment based on regarding his gross earnings for the final year as £2,500. In the first place that amount is clearly £500 too much: all the facts indicate gross earnings of £2,000 only in one year; secondly, the £500 represents A.'s compensation for having accounted for tax in his first three or four years on sums in excess of his cash receipts for that year. The Revenue cannot have it both ways; they cannot put the cash basis aside when the result is inadequate and adhere to it when it is excessive—and to do them justice they do not desire to do so. We have stated the simplest case—that of a sale of a single-handed practice—but the same principle applies where the change in proprietorship operates through a change in the constitution of a partnership—that is, the outgoing partner should not be required to account for tax on cash received by him after the date from which the change takes effect. Where, however, a partnership is concerned the question is one which usually affects the partners only, the amount of tax payable not being materially affected, and in such circumstances the precise terms of the agreement entered into by the partners will of course govern the matter so far as they are concerned.

MEDICAL WORK IN THE SUDAN

The report of the Sudan Medical Service for 1936 reflects the greatest credit on the Director and his staff. It is a mine of interesting information, and every item is readily accessible. When it is recalled that there are only forty-three British medical officers in the Sudan Medical Service, and that the country, though sparsely populated, is vast in extent, the quality, quantity, and diversity of work performed, as described in the report, compel the reader's admiration. A wise delegation of authority to native officials is the keynote of the administration. In addition to fifty-two Sudanese medical officers, trained at the Kitchener School of Medicine, Khartoum, there are 239 Sudanese assistant medical officers. These latter are selected after several years' training as hospital orderlies. They first undergo a year's special course, followed by an examination. They are then placed in charge of dispensaries. A network of these dispensaries, 337 in number, covers the whole country, and thus brings medical aid within reasonable reach of the entire population.

"The establishment of an adequate hospital and dispensary service is the first task in the medical administration of a country, as it enables the confidence of the people to be gained, and sweetens the pill of preventive medicine which follows it; but it is essential that the progress of the second and really more important function of a medical service, that of prevention of disease, is not held back by lack of funds owing to the cost of the more popular and spectacular curative branch."

The report tabulates a remarkable series of figures showing the progress made in the last ten years. In 1927 in-patients admitted numbered 33,407, out-patient attendances were 1,457,706, and 3,445 operations were performed; the respective figures for 1936 were 96,081, 6,500,441, and 11,229. A serious epidemic of cerebro-spinal meningitis occurred during the first half of the year under review, involving more than 13,000 cases and over 9,000 deaths. The provinces of Darfur and Kordofan suffered most heavily. In Khartoum province there were 360 cases with 251 deaths, a case mortality rate of 69.7 per cent. It is recorded that two-thirds of the cases were in males, of whom the majority were engaged in arduous manual labour. General prophylactic measures in this province were successful in keeping the epidemic within bounds until the advent of the first rains secured its termination. Refugees from Abyssinia introduced small-pox into frontier districts of the Blue Nile province in August. Owing to the inaccessibility of this region during the rainy season it was difficult to deal promptly with the outbreak; 501 cases with 132 deaths were reported. It is stated, however, that, owing to a coincident epidemic of chicken-pox, differential diagnosis was a matter of difficulty in some cases for the subordinate medical staff stationed in the area. The incidence of malaria, which still constitutes the most important public health problem in the Sudan, assumed almost epidemic proportions in parts of Merowe, Dongola, and Wadi Halfa districts, climatic and other factors favouring the breeding of mosquitos. A permanent increase in the sanitary service in these districts is deemed necessary in order to prevent a repetition of the outbreak. There were thirty-eight cases of blackwater fever during the year, with fourteen deaths; the majority were Sudanese-Arabs; British cases numbered three, one of which was fatal. From Omdurman a number of cases of mercury poisoning were recorded. In the instance of one man, who died, mercury was recovered from his organs, and it was discovered that he had been treating himself for gonorrhoea with intra-urethral instillations of native butter (semn). A sample of the semn proved to be contaminated with mercury. Analysis of samples from all parts of the country pointed to an origin of contamination in the Western Sudan. It transpired that semn producers in that region were using drums which had previously contained abavit, a preparation containing mercury biniodide and mercury perchloride, used as a seed dressing. One drum was found still to contain traces of mercury. Measures were immediately taken to seize and destroy all empty abavit drums, and semn producers were warned against their use. As a result no further contamination was discovered and no further cases of mercury poisoning were reported.

The Secretary of the British Medical Association receives requests to appoint delegates to various conferences which take place in the summer months. He would be glad to have early information regarding proposed visits by members to places abroad this year.

THE NEW INSULINS

THIRD LETTSOMIAN LECTURE

The third and concluding Lettsomian Lecture was delivered by Dr. GEORGE GRAHAM before the Medical Society of London on March 7, the subject of the lecture being the new insulins. The first two lectures were reported in the *Journal* of March 5 (p. 529) and March 12 (p. 579).

The new insulins, said Dr. Graham, had been available only for a short time, one of them for two years and the other for one year, and he himself had certainly not had enough experience to be dogmatic as to their value. His conclusions were for the moment tentative. Insulin when first introduced in 1922-3 was a very crude product, with certain impurities which had no value for the treatment of diabetes. Later the ordinary insulin became far purer. Nevertheless, the number of patients whom it seemed difficult to control had become greater. It had been suggested that this was due to a change in the insulin, the older insulin having a slower action than the newer.

The problem of looking after these difficult cases had been dealt with in various ways. The late Dr. Otto Leyton gave a mixed oil and insulin, which, however, was somewhat painful; others had tried a mixture of insulin and adrenaline, and others, again, a mixture of insulin and pituitrin. Then came the modification devised by Hagedorn of protamine insulin, an insulin being produced which was insoluble and had a much slower action than the ordinary product. Scott in Toronto, who had already found that zinc was always present in the pancreas, added zinc to protamine insulin, so that now there were three insulins on the market: first, the ordinary insulin; secondly, the protamine insulin of Hagedorn, known as "insulin retard"; and, thirdly, the insulin introduced by Scott and Fisher in the form of zinc-protamine-insulin. Hagedorn's insulin had been in use for two years, zinc-protamine-insulin for only one. The former had to be given, as a rule, in two doses, zinc-protamine-insulin could very often be given in one, which was a great advantage as many patients disliked the two injections.

Overdose

Dr. Graham devoted most of his remaining time to showing a series of case charts and discussing them. In most of these cases he had started with two doses of ordinary insulin a day, and then introduced a certain number of units of one of the newer insulins. Most often he used a mixture of ordinary soluble insulin and zinc-protamine-insulin. In a certain number of cases he had been able to do away altogether with the ordinary insulin and to use only the zinc preparation. He dealt at some length with the question of overdose. When protamine insulin was introduced it was said that patients would notice the signs of overdose very much better, because the blood sugar would go down more slowly, and they would have time to recognize that something was the matter and to take sugar. But he found that some of his patients who did not recognize their signs of overdose were no better off with zinc-protamine-insulin. He had heard of some who when put on zinc-protamine-insulin suffered very severe overdosing, although in fact that had not happened among his own patients. But he did not think the new insulins were any better in this respect than the old.

The great advantage was the ability to give the day's injection in one dose. Hagedorn originally introduced his insulin for difficult cases, and in a number of such patients, whose case sheets he exhibited, Dr. Graham had found the product of value. A mixture of ordinary and "retard" had proved very useful indeed. He showed three cases of failure of control, the patients having their overdose soon after breakfast and feeling very miserable,

but by a judicious working in of the new preparation with the old it had been possible to restore them to a happier condition. Among child patients especially the "retard" made them much better, easier to look after, and less irritable.

At first he thought the slow-acting insulin never acted in quite the same way two days running. But since then he had looked up a number of patients who had had only ordinary insulin and had found the same fluctuations if the patient had his diabetes well under control. Therefore he had come round to the view that it was not the failure to absorb the insoluble product which gave rise to the erratic sugar curve, but that the fault lay with the severity or type of diabetes. Some patients raised objections to the new insulin, saying that with ordinary insulin they knew when to expect their overdose; others refused to change because it would disarrange their habit of life, and others again were disinclined to try anything new. Nevertheless, he thought the new insulins were of great value for the mild cases especially, and he hoped that by a blend of insulins, using the slow-acting and the quick-acting together, control of the difficult cases might be obtained.

The fifteen years' experience of treatment of diabetes which had been the general subject of his lectures had been a most interesting period in which to work, and he felt increasingly what a debt of gratitude was due to Banting and Best.

A vote of thanks to Dr. Graham for his lectures was accorded on the motion of Sir WILLIAM WILLCOX, seconded by Dr. E. R. CULLINAN. The subject of the new insulins was also discussed at the Royal Society of Medicine on March 8, and a report appears in this issue (page 637).

FRANCIS AMORY SEPTENNIAL PRIZE

In compliance with the requirements of a gift under the will of the late Francis Amory of Beverly, Massachusetts, the American Academy of Arts and Sciences announces the offer of a septennial prize for outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs, to be known as the Francis Amory Septennial Prize. The gift provides a fund the income of which may be awarded for conspicuously meritorious contributions to the field of knowledge "during the said septennial period next preceding any award thereof, through experiment, study, or otherwise . . . in the diseases of the human sexual generative organs in general." The prize may be awarded to any individual or individuals for work of "extraordinary or exceptional merit" in this field.

In case there is work of a quality to warrant it, the first award will be made in 1940. The total amount of the prize will exceed ten thousand dollars, and may be given in one or more awards. It rests solely within the discretion of the Academy whether an award shall be made at the end of any given seven-year period, and also whether on any occasion the prize shall be awarded to more than a single individual.

While there will be no formal nominations, and no formal essays or treatises will be required, the committee invites suggestions, which should be made to the Amory Fund Committee, c/o The American Academy of Arts and Sciences, 28, Newbury Street, Boston, Massachusetts, U.S.A.

Sir Ashley Mackintosh, Extra Physician to His Majesty's Household in Scotland, who died on October 14, 1937, left personal estate in Great Britain valued at £24,590. After a few personal legacies he left his property, subject to a life interest, as to seven-fifteenths to Aberdeen University for the study of medicine; five-fifteenths to Aberdeen Joint Hospitals Fund; and one-fifteenth each to Aberdeen Maternity Hospital, Aberdeen Sick Children's Hospital, and Dr. Barnardo's Homes.

of tension for the shortest period possible are the points to observe to avoid this complication.

Another method of attack is advised by Chitty (1936). After the preliminary tourniquet the area is infiltrated with novocain, and, if the body is opaque to x rays, then under the fluorescent screen a hypodermic needle is inserted into the tissues guided by the history and the radiographs, probing until its point touches the foreign body. The light is turned on, the part incised along the needle, and the object located. In some cases it is an advantage to use two needles, directing the shafts approximately at right angles to each other, and on localization the incision is made between them.

In spite of these aids the operator may fail to detect the foreign body; then with the uncovered sterilized finger palpation of the wound tissues is helpful: the naked finger is more sensitive than the rubber-gloved hand. In the buttock, however, the meshes of connective tissue are dense; they feel hard and grate almost like a foreign body, so that in this situation digital palpation is of limited value. Despite its usefulness digital palpation is not the method of choice in seeking foreign bodies in a wound, although admittedly it is sometimes necessary under the x-ray screen. Wounds from which foreign bodies have been removed should be but loosely closed; a drain is often advisable, and always so if sepsis is apparent.

Fish-hooks and Crochet Needles

A fish-hook or crochet needle usually only partly penetrates a finger or hand. In such a case the part should be disinfected, anaesthetized by 1 per cent. novocain or 1 in 1,000 pantocaine, and the article grasped and pushed (not pulled) so that it emerges through the skin, which is snicked where the head presents. The bulbous or barbed extremity—for example, a crochet needle—is pressed on until the head protrudes; it is then cut off with wire-cutting forceps or pliers and the stump withdrawn. Incision or set operation is rarely necessary.

Sewing-machine Needles

A finger may be trapped by a sewing-machine needle, which passes through the nail, the phalanx, and the pulp of the finger; then, by a combination of bending and snatching away of the hand, the needle breaks. In this event the pulp of the finger should be anaesthetized and the finger pressed hard down on to a metal plate; the point of the needle is thus forced to retrace its path through the bone, and the fractured end appears under the nail. A little manipulation or enlargement of the hole of entry suffices for the needle to be seized with an artery forceps and extracted.

Miscellaneous Objects

Many foreign bodies—for example, wood, glass, aluminium, clothing, fish-bones, etc.—are not opaque to x rays. They are often associated with a wound which, whether a foreign body is suspected or not, should be treated as if it were infected, carefully explored, probed, and if necessary extended, the contused tissue being excised. Lacerations containing or suspected of containing glass require detailed search, as the sharp fragments travel unexpected distances. This surgical treatment will locate articles and missiles known and unknown, and it avoids infection and complications.

Occasionally a wound containing glass or a splinter will heal; a capsule of fibrous tissue forms around it, and no further trouble may be experienced. On the other

hand, the area may become painful to touch, causing the patient to seek advice. If the discomfort is constant and a nodule is palpable, exploration of the part is indicated. Glass fragments and needles are not as a rule heavily infected, and wounds containing them often heal by first intention. Lacerations contaminated with wooden splinters, metal filings, fish-bones, and pieces of clothing usually suppurate. All wounds below the knee, including superficial abrasions, must be given prophylactic anti-tetanic serum.

Gravel Rash

In cases where the foreign particles have not been removed, gravel rash of the face and hands heals with a disfiguring scar, which is only corrected by an extensive plastic operation; consequently every effort should be made to extract the whole of the foreign matter early after the injury. Under an anaesthetic the wound must be assiduously cleansed—this requiring considerable time—but not sutured, and compresses of 12 per cent. sodium sulphate should be applied four-hourly until healing is complete. The hypertonic action of these applications encourages extrusion of possible remaining particles; but their extraction is essentially the surgeon's responsibility, and demands patience, resource, and resolution.

Splinters

Splinters, if visible, are easily recovered by forceps, unless the wood is rotten, when the incision must be enlarged to allow of complete extraction. Metal filings are often oily and infected. In addition to scrupulous cleansing the wound must not be sutured, and a drain should be inserted.

Pellets

Pellets from air-guns and sporting guns are met with in civil hospital practice. Less often the plug of a blank cartridge may cause a wound. Although this paper is not intended to include these types of injury, two essentials are worthy of mention. The first is that the wound should never be closed after removal of the foreign body even though a joint be involved; and the second, that anti-tetanic serum should always be given.

REFERENCES

- Chitty (1936). *British Medical Journal*, 1, 446.
Harris (1936). *Ibid.*, 1, 386.
Lloyd (1936). *Ibid.*, 1, 310.

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee three annuities and thirty-four grants were awarded. The total amount voted was £995.

One of the recipients was a doctor who is quite unable to practise owing to paralysis. He is married and has one child of school age. His grant was renewed for the fifth year in succession. The following letter has been received in acknowledgment:

"It has not been possible owing to my paralysis for me to write to you before, but now I have a typewriting machine on which I can tap with one finger of my left hand. It gives me great pleasure to address you personally. I am truly grateful for all the Fund has done in the past and is doing at the present time on my behalf. The Fund is truly a marvellous society. I do not like to think what our position would be without your magnificent help. I beg to convey my own and my family's most sincere thanks to the Committee."

Subscriptions and donations are urgently needed, and may be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

Reports of Societies

THE VALUE OF ZINC-PROTAMINE-INSULIN

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on March 8 a discussion took place on the value of zinc-protamine-insulin in the treatment of diabetes.

Dr. R. D. LAWRENCE said that as a result of some work on the protamine insulin known as "insulin retard" two years ago he had suggested that insulin was secreted in two ways—namely, a small continuous secretion to control the carbohydrate metabolism, especially from endogenous sources of sugar, all the time, and an added secretion of insulin after a carbohydrate meal to deal with the augmented intake of carbohydrate substance. Since then his further work on the new insulin had confirmed that view. The ideal insulin preparation to reproduce normal function would have two actions: a slow and continuous one and a short and rapid one. That was asking a great deal of any preparation. There were now three insulins available: the old quickly acting type, the original Hagedorn preparation known as "insulin retard," and the more slowly acting preparation in which a small amount of zinc was added to the protamine preparation. Dr. Lawrence exhibited the following table to show how these insulins acted (in adults):

	Units	Duration (hours)	Hypoglycaemia commonly at	Type of Action
Soluble	10	4-6	2-4 hours	Quick and strong, balances carb. but little meals
	20	6-8	3-5	
	30-40	10-12	4-9	
"Retard"	10	8-10	4-6 hours	Slower and weaker, balancing less carb. hydrate
	20	12-16	6-9	
	40	18-24	7-12	
Zinc-protamine	10	6-8	4-5 hours	Very slow and weak, balances carbohydrate poorly
	20	12-14	8-12	
	30	18-24	16-24	

Unless the treatment with these new preparations could be brought down to one dose a day there was not a great advantage in the new insulin over the old. He had not been in a hurry to give the new preparations to patients who were having two doses of soluble insulin a day. Nevertheless, in the mild insulin case it was a great advantage to give 20 units of the zinc-protamine-insulin in one daily dose before breakfast. This was a great blessing to the general practitioner. His patient had to have insulin only once a day, a more liberal diet was allowed, and the general health remained excellent. With the more severe type of diabetes, the patient who would act for twenty-four hours, but many patients, especially young people and children, were so insulin-sensitive that it was impossible to treat them on one dose a day.

Rate of Action of Insulin

Dr. R. AITKEN said that the larger doses of zinc-protamine would exert their effect not only for twenty-four but for forty-eight or even sixty hours. The duration was not constant for a given dose for all patients; it varied somewhat from patient to patient. He wondered whether during that prolonged action insulin was being absorbed from the depot into which it was injected at the rate of so many units per hour, or whether the rate of absorption, and therefore the rate of action of insulin in the metabolism of the body, was greater during the earlier part of the time and tailed off towards the end. One would expect the latter, but it was a little difficult to get a convincing proof. It was likely, to judge from his case-

sheets, that these doses of zinc-protamine-insulin reached the peak of their activity quite soon after being given. They did not, of course, produce hypoglycaemia quite soon after being given, but there were other factors which determined the time when hypoglycaemia arose. If it were granted that the maximum activity was developed soon and diminished progressively, little diagrammatic pictures could be made of the daily course.

Dr. E. P. POULTON was not sure that Dr. Lawrence had been quite fair with regard to "insulin retard." In a communication to the Association of Physicians last summer it was stated that protamine insulin—Hagedorn's preparation—lasted nearly as long as zinc-protamine-insulin, while that might not be true, protamine insulin was, as regards time, an intermediate product between the soluble and the zinc-protamine-insulin. He had on occasion used the three insulins together. As regards changing from one to the other, he related a striking case of a woman who had a severe increase of her diabetes as a result of pregnancy, and had first been put on three doses a day, afterwards she was put on two doses of protamine-insulin, about 100 units a day. When the zinc-protamine-insulin was substituted the daily dose came down to 40 or 50, and for many months now she had remained on that basis of dosage, and was doing better than with the three doses of soluble insulin or the two doses of "retard."

Dr. GEORGE GRAHAM said that he was inclined at the moment to use a mixture of ordinary or soluble insulin and zinc-protamine-insulin. Only in a certain number of cases had he been able to do away altogether with the soluble insulin and use only zinc-protamine. In a number of cases he had used a mixture of ordinary and "retard," giving 50 units of "retard" in the morning and 20 or 30 units of ordinary at night, and in three cases he had an effect quite unexpected in the way of overdose, but an effect favourable on the whole to that combination. Dr. W. W. PAYNE said that in some cases in which he had used "retard" he had found great variation. One could not predict in any given subject which type of insulin was the best to use. One was less liable to get severe hypoglycaemic reactions on "retard" insulin than on the zinc-protamine, so that if he could find a formula with "retard" insulin which was satisfactory he preferred to use it. Unfortunately in children who became absolute diabetics, requiring something like 100 units a day, it was very difficult to get the required balance, but he had been successful in such cases in keeping a reasonable balance with just one dose of 100 units of zinc-protamine-insulin. With these newer insulins there were variations in some cases from day to day, but often patients, in spite of this inconvenience, refused to go back to soluble insulin, saying they were so much more comfortable on the one-dose-a-day method.

Dr. LAWRENCE did not approve of the "blunderbuss" method mentioned by Dr. Poulton of giving the three types of insulin together. It had not appealed to him from what he had seen of the results. One was dealing with at least two irregular forms of insulin, and their respective irregularities did not cancel one another out but more or less added together, and he had found the most enormous variations in experiments he had made with that method.

Vegetable Proteins for Diabetes

At the same meeting Dr. W. W. PAYNE brought forward a short communication on the use of some vegetable proteins in the treatment of diabetes. The subject was to have been developed at that meeting by the late Dr. Otto Leyton. Dr. Payne spoke in particular of the protein preparation called "profarin," said to be derived from locust beans. His trials with this substance so far, which had appertained only to diabetic children, were inconclusive, but when it was added to the basic diet a number of cases had been found in which there was no increase

SAFEGUARDING WATER SUPPLIES

MINISTER'S ADVICE TO LOCAL AUTHORITIES

The Minister of Health, Sir Kingsley Wood, on Saturday last issued a communication to local authorities and other water undertakers on the question of their water supplies. He feels it incumbent upon him, in the light of recent experience, to remind water undertakers of the serious responsibility that rests upon them in relation to the purity of the water supplies they control. He points out that it is the statutory duty of all local authorities operating under the Public Health Acts to ensure that water supplied by them to consumers is at all times wholesome, and a like responsibility is expressly placed by Parliament upon water undertakers, whether local authorities or statutory companies, who derive their powers from special statutory enactments.

Appointment of Water Engineers

The communication states that the relative immunity from serious outbreaks of water-borne disease that the country has long enjoyed must not be allowed to obscure the paramount importance of taking all possible steps to ensure that this responsibility is adequately discharged and every practicable precaution adopted to safeguard the purity of supplies. The machinery and methods of control, which must necessarily vary with the circumstances of different undertakings, are matters for the decision of the responsible authorities themselves, but it will be realized that the first necessity is that the undertaking should be under the supervision of a qualified engineer who, in the case of the larger undertakings owned by local authorities, should be a chief officer of the authority directly responsible to the appropriate committee, and in all cases should be in a position to give detailed personal attention to the work.

The Minister states that he has no doubt that water undertakers generally will appreciate the need for maintaining the high standards of administration rightly demanded in a matter of such fundamental importance to public health, but the results that may ensue from neglect of precautionary measures are so serious that the Minister regards it as his duty to impress upon all water undertakers the imperative need for unremitting care in the supervision of the water supplies for which they are responsible.

Constant Watch Necessary

Where water is being supplied without treatment the water undertakers must satisfy themselves that this practice can safely be continued. For this purpose they should keep a constant watch on the quality of the water by frequent analyses. How often the analyses should be made in a particular case depends on local conditions—for example, on the character of the source and of its gathering ground and their position in relation to each other. The Minister is satisfied that under modern conditions more frequent analyses are needed in many cases as a minimum precautionary measure, particularly where there is a tendency to fluctuation in the composition or bacterial content of the water. The water undertakers should be guided as to the frequency of analyses by the views of their expert advisers after examination of the local conditions. It is not sufficient, however, to rely on results from analyses alone. Regular and frequent inspections should be made of the area forming the gathering ground of any spring or stream used as a source of supply and of areas surrounding underground sources of supply situate in or near the outcrop of the strata from which the water is drawn, and all practicable steps should be taken to remove possible sources of contamination in these areas. If as a result of their analyses and

inspections or for any other reason the water undertakers have cause to think that any of their sources of water supply cannot be made and kept free from liability to pollution, they should immediately treat the water by effective methods of purification.

Control of Treatment of Water

Where the water is treated the treatment should as far as possible be automatically controlled, and where the treatment includes chlorination the dosage should be automatically and continuously recorded. The efficacy of any form of treatment given should be verified by frequent tests of the treated water. The method, extent, and control of treatment required in any particular case are also matters on which the water undertakers should be guided by expert advice. Periodic analyses should be made of the raw water in order to keep a check on any change in its character and on the treatment needed. The Minister stresses the point that treatment of the water should be regarded not as a complete security in itself but as complementary to the taking of all practicable steps to seek for and remove the causes of pollution of the raw water.

Special Precautions during Works

Sir Kingsley Wood emphasizes that the utmost vigilance is also required to ensure that no risk of contamination of the water supplies arises from operations in connexion with the normal maintenance and improvement of waterworks, such as extensions of the works, the re-conditioning of wells, reservoirs, and filters, the repair of pumping plant, etc.; and in some cases—for example, where men are engaged on work in a well—it is essential either to cut off the supply from the well until after the work is completed or to give precautionary treatment to the water.

Importance of Co-operation

The Minister further points out that the administrative responsibility for a service of such vital importance to health can only be successfully discharged if there is effective collaboration and co-operation between those responsible in their various capacities for the conduct and efficiency of the undertaking and between the water undertakers and the local authorities of areas served by them. It is essential that local authorities who are themselves water undertakers should ensure that the water committee and its officers work in close co-operation with the public health committee and the medical officer of health. Where the water undertakers are not the local authority for an area supplied by them they should always be ready, on request, to furnish full information to that local authority or its medical officer of health as to the quality of the water supplied and the precautions taken to safeguard its wholesomeness. On the other hand, local authorities should make it their duty to bring to the notice of water undertakers cases of enteric fever or other diseases likely to be water-borne, and also any building development or other operations in the local authority's area which might affect the purity of a source of water supply.

On March 8 the Croydon Borough Council authorized its special Typhoid Committee to appoint a water engineer as a principal officer of the Corporation, in accordance with the suggestion made in the report of the public inquiry by Mr. Harold Murphy, K.C., and endorsed in the letter sent to the Corporation by the Minister of Health. On March 14 the Council agreed to set up a committee to deal exclusively with water matters.

ENGLAND AND WALES

MARCH 19, 1938

Local News

ENGLAND AND WALES

Blood Sedimentation Rate Test

The Empire Rheumatism Council has convened a meeting of medical scientists to consider means to endeavour to standardize the blood sedimentation rate test, important in the treatment of rheumatic disease. The meeting will be held at the Royal Society of Medicine at 11 a.m., Saturday, March 26, the opening day of the International Congress on Rheumatism. The following have accepted invitations to attend: Dr. Douglas Collins, Harrogate; Dr. Harry Coke, London; Dr. Warren Crowe, London; Professor S. Davidson, Aberdeen; Dr. Gibson, Bath; the pathologist, Charterhouse Clinic for Rheumatism, London; the pathologist, St. John Clinic and Institute, London; Mr. Joseph Race, Buxton; Mr. H. B. Salt, Droitwich; Dr. J. W. Shackle, London; Dr. L'Estrange Orme, London; Dr. C. W. Buckley, Buxton; Sir William Wilcox, London; Dr. C. W. Gordon and Dr. W. S. C. Copeman, chairman and hon. secretary respectively of the Scientific Advisory Committee of the Empire Rheumatism Council.

Moorfields Eye Hospital Dinner

The annual dinner of the Royal London Ophthalmic Hospital took place on March 10 at the Langham Hotel. The toast of "The Hospital and School" was proposed by the chairman, Mr. A. C. Hudson, consulting surgeon. Mr. Theodore W. Luling, chairman of the hospital, and Mr. Charles Goulden, dean of the school, replied. The health of the guests was proposed by Mr. R. Affleck Greaves, and Major-General W. P. Macarthur, Director-General A.M.S., replied. Mr. P. G. Doyle proposed the health of the chairman. In responding to the health of the school the Dean incorporated his report. The entries, he said, were even larger than in 1936, and October, 1937. Seventy-seven old students had continued their attendance. British Postgraduate Medical School, these being in addition to the numbers given. The examination results had been satisfactory, and various honours had fallen to old students during the past year. The Dean again drew attention to the urgent need of ophthalmology being placed in its proper position in relation to the other branches of medicine by the foundation of a professorship and a suitable team of helpers. Until this was done it was impossible to achieve more in the direction of teaching and training.

Maternity Scheme for the West Riding

Some idea of the West Riding County Council's scheme for the provision of hundreds of maternity beds in the West Riding and of a medical services scheme was given at the opening of the new Listerdale Maternity Home, Rotherham, reported in the *Yorkshire Post* of March 14. Maternity homes and maternity units are to be provided throughout the West Riding at a capital cost of £308,000, with an annual maintenance cost of £45,000. The Listerdale Home is the first to be opened directly under the control of the county council, and is the forerunner of other schemes for the provision of a further 300 maternity beds in the West Riding. Councillor W. T. Blewitt announced the beginning of a scheme on April 1 to provide home help, and said they had already had hundreds of applications from young women prepared to do the work. Alderman Cartwright said it was proposed to put a unit of £80,000 and a maintenance cost

of £1,586 per year. At Skipton they were going to put a unit of eight beds. At Keighley there would be a new unit, and in the great new hospital in North-West Yorkshire there would be a maternity unit of fifty beds. At Staincliffe there would be fifty beds, and at Wakefield eighty beds. The new general hospital between Barnsley and Doncaster would provide another twenty beds.

Anti-gas Training at L.C.C. Hospitals

Many of the London County Council's hospitals and other institutions would, in the event of war, be used as casualty clearing hospitals and base hospitals, and it is considered essential that the whole of the staff at these establishments, except purely casual employees, should receive anti-gas training. Almost all the medical and senior nursing staff of the hospitals and mental institutions have already received training from Home Office instructors, and those so trained are undertaking that of the junior nursing staff. Other arrangements, however, have to be made for the training of the non-professional staff, numbering several thousands, many of whom will be required to perform duties in connexion with cleansing contaminated casualties, decontaminating buildings, and forming fire squads. It is accordingly proposed that five officers in the Council's service who have been trained as qualified instructors at the Government civilian anti-gas school, Falfield, shall be released from their ordinary duties so that they may undertake the training of the staff. It is expected that the work will be substantially completed within twelve months.

IRELAND

The Queen's University of Belfast

During the past few days an appeal has been sent to graduates of the Queen's University for subscriptions to a fund which has been inaugurated to meet the urgent needs of the University. It is pointed out that the income is just sufficient to "carry on" in a manner which does not do justice to the progressive spirit and enterprise of the Ulster. The need for modern laboratories is urgent, but even more clamant is the need for proper buildings to house the departments that are accommodated in the old wooden erections used for the U.V.F. Hospital during the war. The latter have been in use long past the usual span of life of wooden buildings, and their further repair and maintenance is rapidly becoming out of the question. And yet they are the only available place for housing the various departments of one of the most progressive universities in the Kingdom. A scheme for the orderly and harmonious development of the University which will meet the more urgent needs has been prepared by the architects, but for this a sum of upwards of £250,000 is required. The financial position has caused a great deal of anxiety to the University authorities as the income from all sources is considerably less than half of that of any other university of a similar size and age in the United Kingdom. The Vice-Chancellor produced the following figures of the number of students and the income of universities during 1935-6:

	Number of Full-time Students	Total Income
Belfast	1,567	£95,263
Birmingham	1,437	£217,904
Bristol	1,033	£200,143
Leeds	1,663	£264,954
Liverpool	2,119	£250,104

The appeal eloquently states: "That the academic results achieved here are out of all proportion to the

whatever in the excretion of sugar, and in a number of other cases, while there was an increase, it was not of such an order as would have followed an equivalent amount of protein in the ordinary form. Dr. R. D. LAWRENCE said that he had had some slight experience of the profarin preparation. It had no appreciable starch or soluble carbohydrate in the usual sense. He thought it desirable that further work should be done on adult cases not having insulin.

TOMOGRAPHY

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on February 11 Dr. F. G. STEWART read a paper on tomography in chest radiography.

Dr. Stewart said that tomography was the taking of a radiograph of a section through the patient, objects in planes superficial or deep to this selected plane being blurred out; several tomograms were needed in each case. Films were shown illustrating the value of the method in demonstrating cavitation in pulmonary tuberculosis. In twenty-two out of fifty cases tomograms gave an altogether different conception of the underlying pathology; unsuspected cavitation was demonstrated in 40 per cent., and in 74 per cent. information additional to that obtained by ordinary radiography was given.

The president, Dr. E. T. FREEMAN, said that at the meeting of the Association of Physicians in Sheffield in 1934 a tomograph had been exhibited the cost of which was £1,200. The model designed by Dr. Stewart was considerably cheaper. In the discussion which followed many members took part, among them being the president of the Academy, Dr. A. R. PARSONS, and Drs. H. F. MOORE, T. M. CORBET, W. R. F. COLLIS, J. C. FLOOD, ST. G. SMITH, and A. THOMPSON. Several questions were asked, and Dr. STEWART, in replying, said that what he had done was just to alter slightly Twining's modification of the tomograph, which meant that it could be produced at a lower cost.

INDUSTRIAL DISEASES

At a meeting of the West London Medico-Chirurgical Society, held at the West London Hospital on March 4, with the president, Dr. D. G. RICE-OXLEY, in the chair, a lecture was given by Dr. DONALD HUNTER on industrial diseases.

Dr. Hunter began with a reference to the diseases of coal-miners, in particular miners' nystagmus and "beat knee," the latter caused by the cramped posture in which the men worked in the pit. In the iron-mining and smelting industries great precautions had to be taken for the protection of the eyes of the workers, and until this was done the toll taken of sight was enormous. More than once it had happened that an occupational disease or liability had been discovered, not by a medical man but by those engaged in the industry itself. For example, it was the secretary of the glassblowers' trade union who, at the end of last century, discovered the condition known as glassblowers' cataract. As a result of the precautions now taken this condition was disappearing. Turning to anthrax, the lecturer mentioned that at the London Hospital, over the period 1884 to 1935, the cases had numbered 116, of which ninety-eight were occupational. Of these only one was of the deadly pulmonary type, and among the whole of the cases the deaths had numbered only eleven. He described the precautions taken to prevent anthrax among wool-sorters by the careful cleansing of all wool at the port at which it was landed

in this country. The same methods of protection, however, were not applicable in the case of furs and skins. He next mentioned Weil's disease, to which London sewer workers were particularly liable. It was a disease of very wide occurrence, and was found in workers in the sugarcane fields of Queensland and on the canals of Holland. After touching upon some of the new diseases which were appearing with developments in chemical industry—such, for example, as the use of alkalis for chlorination processes—he mentioned the heavy toll of life which lead poisoning had exacted. Even now, owing to the carelessness of workers in some departments, lead poisoning was not infrequent. He objected in particular to the spraying of lead pigment by means of a gun, which he described as an invention of the devil. Occupational dermatitis in its many forms was mentioned, alkalis heading the list of causative agents. Chromium salts also caused a very severe dermatitis. In considering occupations which involved the risk of cancer the industrial use of x rays should not be overlooked. A large number of industrial workers were now using powerful x-ray apparatus, and it seemed possible that the same calamity might befall some of them as befell the early medical pioneers in this subject.

Means of Prevention

After referring to diseases caused by dust, and mentioning the most dangerous of dusts—namely, silica and the silicates—Dr. Hunter suggested the various means of preventing disease in industry. The first line of prevention was the elimination of dust and fumes. The next was the installation of protective apparatus uncontrolled by the workman; and the third, the education of the workman as to the nature of his dangers. Cleanliness of working places and the bodily cleanliness and general hygiene of the worker were obviously important. England protected the workman in its factories against disease better than any other country in the world, not excepting Germany, where the regulations were more stringent but were less punctiliously followed. England had also the advantage of a Factory Department of the Home Office, which was at all times ready to give advice and to take any necessary action.

At a meeting of the Devon and Exeter Medico-Chirurgical Society on February 24, with the president, Dr. ROBERT SCOTT, in the chair, Dr. FRANK ROPER showed a case of what he termed emphysema of unknown origin, the treatment of which was discussed by Dr. R. L. MIDDLEY. Dr. MARSHALL SCOTT showed a decidual cast from the non-pregnant horn of a bicornuate uterus. A thirty-seven weeks' foetus was delivered from the right horn and the cast was expelled from the left horn on the fifth day of the puerperium.

O. Henrich (*Zbl. Chir.*, February 5, 1938, p. 316) reports a case of benign ulceration of the rectum. He believes that the condition is much more frequent than is generally assumed, though the diagnosis is often missed. The lesion is usually mistaken for an inoperable carcinoma of the rectum; the patients, however, are cured after some time. In the case reported by the author the condition proved inoperable, and a colostomy was performed. After ten weeks all traces of the tumour disappeared and a retrospective diagnosis of benign ulceration with an extensive inflammatory infiltration was therefore made. Laparotomy one and a half years later confirmed the absence of neoplastic infiltration. The rectum, however, was stenosed and the colostomy had to be left open.

MARCH 19, 1938

SCOTLAND

psychiatric field, and this was likely to perpetuate the schism between the physical and the mental which medical men had been endeavouring to bridge. Medicine needed the help of every intelligent person interested in the problems of human betterment, but it was the physician alone who realized the complexities of treatment for highly charged emotional disorders. Civilized people could not be divided arbitrarily into the sane and the insane, nor between these groups there were a large number who were unable to adapt themselves to ordinary social life. Prison methods had little to offer in this respect, and, moreover, such cases did not fit in with the regime of a mental hospital. The disorder or conduct had been present from early childhood, and it was of altruistic feeling, moral blindness, or selflessness. These cases were very important for three reasons: first, because they were very numerous; secondly, because they were the most disruptive element in society; and, thirdly, because there was no adequate provision for them. The problem of treating them was far too big for private practice, and was closely bound up with public health, social welfare, and education throughout the country. It was necessary for their treatment that a more positive health policy and more positive health laws, of which education was a fundamental part, should be developed rather than lunacy laws.

SOME PROBLEMS IN GLASGOW

Professor J. W. McNece, presiding at the annual meeting of the Royal Mental Hospital, Glasgow, on February 25, said that this hospital, originally founded as a charitable institution, had undergone great changes to meet altering circumstances, and was now essentially a pay-bed hospital. Its income being derived partly from accumulated funds but mainly from the fees paid by patients was devoted and maintenance. All the income, however, was devoted to the hospital itself, and it was governed by a voluntary body of citizens of goodwill. Psychological medicine was merely a specialized branch of general medicine. Students in Glasgow were adequately trained to deal with psychoses, but in general practice psychological disturbances not amounting to certifiable insanity were far commoner than frank psychoses and bulked more and more in ordinary practice. Of necessity the mental hospital was almost entirely filled with cases of real psychoses, and therefore provision must be made for teaching students, which they would have to carry out mainly themselves. For this reason a clinic was held once a week at the Western Infirmary. The speaker believed that many of the patients seen at this clinic should be admitted for treatment, and they would go willingly into wards attached to an ordinary general hospital. The report of Dr. Macniven, physician-superintendent, emphasizes the difficulty that during the past year there was considerable difficulty in maintaining an adequate staff of female nurses in the hospital, particularly because of the necessity for increasing the staff in order to introduce shorter working hours. It was found that since 1913 from one-quarter to one-half of the nurses who entered the service failed to complete their three years' training, and this did not make for efficiency. The fact that the mental nurse was regarded as holding a lower status in the profession than the general trained nurse was one reason why mental nursing was not more popular. The remedy appeared to be to introduce a comprehensive training for all nurses which would include mental nursing as part of a mental hospital would give the general trained nurse a better orientation in her work. The necessity for a pension scheme applicable to all classes of nurses was obvious, and the absence of an interchangeable pension scheme in royal mental hospitals placed these in an unfavourable position for recruitment of nurses.

Vital Statistics of Scotland

The supplementary return of the Registrar-General of Scotland for the year 1937 is included with the quarterly return for the last quarter of that year. The return shows that the birth rate for the year of 17.6 per 1,000 was with one exception the lowest yet recorded for Scotland. The death rate was 13.9 per 1,000, being 0.5 higher than in the previous year. Maternal mortality showed a marked decline, being only 4.8 per 1,000 live births as against 5.6 in 1936. The total number of births during the year was 87,812, and the deaths from all causes 68,942. Deaths of children under 1 year numbered 7,050, giving an infantile mortality rate of 80.3 per 1,000, or 2.0 below that for the previous year. There were 2,693 deaths from influenza, this being the highest recorded for any year since 1929, when there were 3,435 deaths from this cause. All forms of tuberculosis accounted for 3,663 deaths, the rate being 4 per 100,000; the rate for the respiratory form of the disease was 56, or 1 more than in the previous year. For the first time in the last ten years the deaths from malignant disease were fewer than in the preceding year, the number being 7,811 as against 7,909, and the death rate 157 per 100,000. The number of deaths certified as due to heart disease continued to increase—14,358 as compared with 13,698 in 1936; the recent increases were attributed to more definite specification of the cause of death.

Aberdeen University

Aberdeen University Court, at a meeting on March 8, accepted the resignation of Professor Alexander Low from the chair of anatomy on September 30 next. Professor Low graduated M.A. at Aberdeen in 1891, and M.B., C.M., in 1894, taking the M.D. in 1912. He became an assistant in the anatomy department at Aberdeen immediately after qualifying, and was later appointed reader in embryology. He succeeded Professor R. W. Reid in the chair of anatomy in 1925.

Dr. James William Howie, M.B., Ch.B., was appointed the first lecturer in bacteriology in the university. He has been assistant in bacteriology in Glasgow University and assistant pathologist to the Western Infirmary.

At the same meeting intimation was made of a gift to the university from Sir Ian Forbes Leith of Fyvie Castle, consisting of the library of Professor John Gregory, who was professor of medicine at Aberdeen, and later at Edinburgh, about the middle of the eighteenth century. The library includes over 2,000 volumes.

FRANCE

[FROM OUR CORRESPONDENT IN PARIS]

Significant Trends in French Medicine

This year's president of the French Academy of Medicine, Professor F. Bezançon, devoted the greater part of his opening presidential address to a discussion of the most significant trends in French medicine to-day. He joined issue with those foreigners who see in French medicine a slave-like attachment to clinical teaching based on the traditions of the great masters of the past to the exclusion of a sufficient share of technical science. This estimate, in Professor Bezançon's opinion, does French medicine injustice. Clinical research, he said in effect, is, at its best, science of a very high order, and has yielded epoch-making discoveries which the laboratory may confirm but did not originate. The modern science of endocrinology, for example, is entirely derived from clinical observation. As for the future, it undoubtedly belongs to clinical specialization allied to scientific methods. "We must seek more and more to be men of science, well grounded in science and, above all, trying to acquire the scientific

meagreness of our resources is familiar to everyone acquainted with universities; but equally it is obvious that no amount of enthusiasm or ingenuity can overcome the very grave handicap from which Queen's students suffer in the lack of provision for teaching, equipment, and research." It is pointed out that in almost all departments there is a paucity of lecturers and other junior staff which severely limits the teaching and the extent of individual attention available to students; several principal subjects either lack a professorship or are unrepresented altogether. It is to be hoped that the aims of the Appeal Committee will be reached, and that a generous response from all old Queen's men will be forthcoming to meet a call which should find a ready response from those who owe their present position to their alma mater.

Ulster Medical Society

One of the most successful sessions of the Ulster Medical Society, over which Professor W. W. D. Thomson has presided, is drawing to a close. The president's opening address on "Some Aspects of the Life and Times of Sir Hans Sloane," to which reference was made in these columns on February 12 (p. 349), was a masterly presentation of a subject which has not hitherto attracted the attention it deserved. An outstanding meeting of the session was the Robert Campbell Memorial Oration delivered by Dr. Leonard Colebrook, who took for his subject "The Control of Infections due to Haemolytic Streptococci." Dr. Colebrook gave an appreciative audience an account of the present position in this important field of medical interest and research, and his paper was published as a supplement in the *Ulster Medical Journal* (1938, 7, 1). At the conclusion of the meeting Sir Thomas Houston presented the orator with the Robert Campbell Medal. Other papers contributed were of general and special interest and prove that the Society is very much alive to its responsibilities. On February 24 Dr. William Moodie of the London Child Guidance Clinic discussed the working of a child guidance clinic, and on March 3 the penultimate meeting of the session was held in the Institute of Pathology, when the members were the guests of Professor Biggart and his staff to inspect a display of clinico-pathological and pathological material. The manner in which the specimens were set out, with full clinical records and reports, was much appreciated, and the interest shown by the members was a measure of the praise due to the organizers of the meeting. During the past year the Society has lost two of its Honorary Fellows in the persons of Sir Thomas Moore of Dublin and Professor W. St. C. Symmers. Among the names added to the list this year are those of Sir Humphry Rolleston and Sir Robert Johnstone.

Royal Victoria Hospital: Musgrave Clinic

The new paying patients pavilion of the Royal Victoria Hospital, Belfast, which has been opened by the Lord Chief Justice of Northern Ireland, the Right Hon. James Andrews, K.C., owes its existence to a generous benefaction of the late Henry Musgrave, who left the residue of his estate for some necessary extension of the hospital. The trustees felt that a clinic for paying patients of moderate means would meet in every respect the wishes of one who had always given very generously to charitable objects in and around Belfast. The clinic has accommodation for 52 patients (44 single-bed wards and 2 four-bed wards). The operating theatres are lavishly equipped and spacious in size; there is a modern x-ray installation and equipment for electrotherapy. Suitable waiting and rest rooms for relatives are provided, and the kitchen appointments leave nothing to be desired. That the clinic will provide a long-felt want and prove popular is shown by the rapid filling up of the rooms; already it is working almost to capacity. Altogether the Royal Victoria Hospital, the Royal Maternity Hospital, and the Musgrave Clinic have about 700 beds, and the fact that they are grouped together in the same grounds as the new Nurses'

Homes and the Queen's University Institute of Pathology, forming a colony of medical and surgical treatment and research second to none in its quality and usefulness, adds to the sense of pride of those who conceived and carried to fruition such an ambitious project.

Medical Research Council of Saorstát Éireann

The Medical Research Council of Saorstát Éireann (whose offices are at 85, Merrion Square, Dublin) has made the following awards: Dr. R. A. Q. O'Meara, whole-time appointment for one year to investigate the experimental production of therapeutic antisera, the work to be carried out in the School of Pathology, Trinity College, Dublin, under the direction of Professor J. W. Bigger. Dr. J. C. Flood, part-time appointment for one year to carry out an investigation of the total body electrolyte, work to be done in the Pharmacological Laboratory, University College, Dublin, under the direction of Professor E. J. Conway. Professor J. H. Biggart, grant-in-aid to purchase special apparatus in connexion with a series of researches to be carried out in the Institute of Pathology, Queen's University, Belfast. Dr. P. C. Bresnahan, grant-in-aid to cover laboratory expenses in connexion with his training in the Pathological Institute, Freiburg, under the direction of Professor Buchner. Miss M. O'Sheehan, grant-in-aid for expenses in connexion with an investigation regarding the isolation and chemical identification of a substance in urine related to vitamin C, the work to be carried out in the Department of Pathology, University College, Cork, under the direction of Professor J. Reilly. Dr. J. D. H. Widdess, grant-in-aid to enable him to receive a short period of training from Professor J. H. Biggart, Institute of Pathology, Queen's University, Belfast, in connexion with an investigation of the pathogenesis of diabetes insipidus.

SCOTLAND

Treatment of Mental Disorder

At the annual meeting on February 28 of the Royal Edinburgh Hospital for Mental and Nervous Disorders Professor D. K. Henderson, physician-superintendent of the institution, presented his annual report, in which he discussed mental health policy. He said that the managers of the Royal Infirmary, Edinburgh, had co-operated in providing facilities for a psychiatric clinic and a child guidance clinic in their medical out-patient department. The essential aim of the child guidance clinic was to provide help for those children who found it difficult to adjust themselves to the home, the school, or social life in general. The majority of such children reached a high intellectual standard, and the problem they presented was quite different from that of the subnormal or retarded child. With regard to a mental health policy, the attention of the public should be directed to the broader issues of psychiatric work. The method of approach to mental illness was now to correlate the symptoms with the whole life-history of the patient and all the forces which had played a part in moulding his personality. Naturally, the earlier a patient placed himself under treatment and the more understanding he was the better would be the results. - One great difficulty was that nervous people disliked admitting that they were ill, and regarded themselves as failures and incompetents. It was important that the patient should realize there was nothing to be ashamed of and no reason why he should not be able to resume ordinary life. Physical and mental health could not be separated, for one was dependent on the other, and a recognition of this was now leading to much closer work between physicians and psychiatrists. In recent years the clergy and other lay persons who might have excellent academic qualifications were tending to invade the

CORRESPONDENCE

MARCH 19, 1938

detect, will be handed on by a raved individual to his offspring, and will form part of the general gene pool of mankind. Most of them, according to our experience of other organisms, may be expected to be deleterious. Many will be "lethals," whose effect is to cause early, often intra-uterine, death; but these are perhaps not so dangerous as the even larger class whose only effect is a slight lowering of viability.¹

There are two further points which are of importance. First, the effects of successive doses of x-rays are cumulative: two doses of one unit have the same effect on mutation as one dose of two units. Secondly, mutation may occur in cells at any stage of development and not only in mature gametes, so that after a period of temporary sterilization the newly formed gametes are liable to be affected, though it is probable that those with the strongest lethal effects are at least partially eliminated by cellular selection.⁴

The frequency of occurrence of individuals showing a deleterious condition determined by a rare recessive gene is simply related to the mutation rate of the gene in the population and the effective fertility of the affected individuals; if the condition is due to an autosomal recessive and leads to death before breeding, the frequency of occurrence is half the mutation rate per life cycle. Thus any increase in mutation rate will eventually lead to an increased incidence of the pathological condition in the population. It is, however, the mutation rate within the whole population with which we are concerned, and from the point of view of human biology the important thing is not the x-ray dose given to single individuals but the total quantity of radiation applied to the whole population. A single individual part of the germinal store of the next generation, and a doubling of the mutation rate within this fraction may legitimately be considered of minor importance. If x-ray treatment were applied to the greater part of the population the situation would be quite different, and a serious deterioration of the human material might be expected.—I am, etc.,

C. H. WADDINGTON
Strangeways Research Laboratory,
Cambridge, March 7.

After-effects of Modern Treatment of Carcinoma

SIR,—I feel inclined to agree with Mr. James Phillips (*Journal*, March 5, p. 538).

A few years ago I attended a patient who was suffering from bilateral endotheliomata of the inguinal lymph nodes. He was in hospital on several occasions. No operative removal was attempted beyond what was necessary for pathological examination. At intervals when he was allowed home he felt well, apart from inguinal discomfort and pains on lying down. During his last stay in hospital he received x-ray therapy. The growths started to slough shortly after he returned home; within three weeks all that remained were foul craters, as if some selective corrosive had been applied. Severe loss of flesh coincided with the destruction of the growths. It is unnecessary to say that he partook of his normal foods.

What struck me most in this case was the local malignancy but complete absence of metastases. The sloughing affected the growths very uniformly and left the surrounding tissues, even the blood vessels, severely alone. The loss of flesh after x-ray therapy may have been caused in several ways: (a) by absorption of toxic products

from destruction of the growths; (b) by secondary infection (this patient was apyrexial during the whole period and even the surrounding tissues appeared to be free from secondary inflammation); (c) it may have been a coincidence; and (d) the x-ray therapy, as suggested by Mr. James Phillips, may have been at fault. I think this last is the most probable.—I am, etc.,

E. S. LEE.
Dalmellington, Ayrshire, March 7.

SIR—I think Mr. James Phillips's dismay at the lamentable results of x-ray treatment of malignant tumours (*Journal* March 5, p. 538) is not unusual, although not so painful as in Mr. Percy Furnivall's case (*February 26, p. 450*). My personal experience may be of interest.

I am 77 years of age, weigh 10 to 11 st., of which I have lost a stone, and have always had good health. Even now my general condition is good; I can read, smoke, and sleep well when allowed. In January, 1936, cancer of the rectum was diagnosed, the growth being about the size of a guinea-fowl's egg. I went to London and, owing to my antipathy to x-rays, I was put under deep x-ray therapy for three months. I had thirty applications, which did not cause much inconvenience. At the end of this time the size of the growth had been reduced by half. I was at home for a fortnight, then went up again, but took the precaution of being cystoscoped before I underwent the radium treatment. The urethra was found healthy, and the prostate slightly enlarged.

On May 11, 1936, I had radon seeds in the rectum for twenty-five hours in two nights. The radon seeds being in an inflated rubber bag. I was sent home and warned that the reaction would take place in a fortnight. It did. On May 23 a profuse purulent reaction began and still persists, with a stricture was practised. In July signs of obstruction appeared, and early discharge. In September I was digitally examined and only found half-way up the rectum. On September 22 I had a colostomy performed. The growth had disappeared and only a fibrous band was left. I went home, and had a nurse who washed me out on alternate days. I was able to get up for lunch, rested, and then retired at 6.30 p.m. This went on until August 31, 1937, when there was a serous discharge from the colostomy opening of the upper part of the rectum, which did not appear to have been involved previously. At the same time a perforation took place between the rectum and bladder, which had been painful, with difficult micturition, for some time. Almost all the urine is passed per rectum, and since I have been bedridden the serous discharge has persisted until early March, when I presume, the hour-glass stricture relaxed and allowed the discharge to percolate into the lower chamber; now the rectal sphincter has started leaking, which makes the dressings wet.

The sum of it all is that the treatment with radium has arrested the growth, but has so damaged the pelvic viscera that there is little hope of tolerable comfort for my few remaining years.—I am, etc.,

WILLIAM GOSSE, M.D.
Wimborne, March 12.

SIR,—I fear the account of Mr. Percy Furnivall's unfortunate experience after treatment by radiotherapy (*February 26, p. 450*) will give an unbalanced impression of modern results, unless in all fairness more evidence in a contrary sense can be stated. I therefore ask your leave to give a brief account of an elderly private patient, with a lesion apparently similar, who has given me a personal description of the after-effects of deep x-ray therapy in her own case.

The patient, a lady now aged 85 years, was seen originally by me in August, 1936, and gave a history of six months' duration. The diagnosis of epithelioma of the tonsil was confirmed by biopsy. I referred her for treatment to Dr. Gwen Hilton, radiotherapist to University College Hospital. She attended the hospital daily from a hotel near by. The general disturbance of hotel life as compared with home life,

¹ N. W. Timofeev-Ressovsky, *Nachr. Ges. Wiss. Gött.*, 1935, N.F., Bd. 1.
⁴ *Biol. Zentralbl.*, 1937, Bd. 57.

spirit, but we must continue first of all to retain a thorough clinical education, and let us remember that this is not to be found in laboratories and lecture halls but in the hospital and in practice out in the world. . . . With us bedside observation and intern service in hospital are at the root of French medicine."

Conseil Supérieur d'Hygiène Sociale

M. Rucart, the Minister of Public Health, issued early this year a decree which embodies in a single central council all the commissions, associations, etc., which have hitherto concerned themselves with various aspects of social health and welfare. Among the organizations labelled as "suppressed" by a stroke of M. Rucart's pen are such important bodies as the Cancer Commission, the Permanent Rheumatism Commission, and the Tuberculosis Commission. The new central body is to consist of seven commissions, the first three of which will be exclusively concerned with tuberculosis, venereal disease, and cancer respectively. The importance attached to rheumatism as a social problem is indicated by the creation of a commission devoted solely to this subject. Another commission will be concerned with the problems of nurses and social service workers. Documentation and propaganda share a commission between them, and there is to be one for health and social co-ordination and the maintenance of contacts with the national insurance services. If it is not too unwieldy this new central body ought to be able to act with more administrative efficiency than the individual organizations it has replaced.

Professor Leroux's New Appointment

When Professor Roussy accepted the appointment of Rector of the Academy of Paris he resigned his professorship of pathological anatomy. The vacancy thus created has been filled by Professor Leroux, who has served under Professor Roussy since 1919 in various capacities. Since 1926 he has been subdirector of the Cancer Institute, with which Professor Roussy has been so closely associated. Professor Leroux's most recent work in the field of pathological anatomy has been concerned with malignant disease.

Control of Sera and Vaccines by the Academy of Medicine

The supervision of the production of sera and vaccines by a special commission of the Academy of Medicine has hitherto provided a valuable check on manufacturers tempted to err from the narrow path of commercial rectitude. But this supervision has naturally entailed the employment and payment of a highly technical staff, and when the Academy recently made application for funds to increase this staff the Government, represented by the Minister of Finance, refused the wherewithal. The Academy's response to this ill-advised economy is a note addressed to the Minister of Public Health, in which it states that it will henceforth be unable to examine any new preparation submitted to it.

Professor René Leriche at the Collège de France

The appointment of René Leriche of Strasbourg to the professorship at the Collège de France in succession to Charles Nicolle is a most popular one, and when the new-comer was to give his opening address in Paris the other day a large part of his would-be audience formed a queue reaching well out into the street. It is, of course, difficult to decide how much the remarkable hold Leriche has on the medical world to-day depends on his personality and how much on the solid gains he has achieved in the surgery of pain and of the endocrine glands. His operations on the sympathetic nervous system would alone qualify him for a high place in the

history of medicine, and it may be truthfully said of him that while his hands are the hands of a surgeon, his brain is that of a physician thinking in terms of physiology. The Collège de France, with which he will henceforth be associated, was founded in 1530 by François I. The first reader in medicine was a Florentine, Vadius Vidi, who was invited by François I to Paris. His successor was Jacques Sylvius of Amiens. During the French Revolution the Collège de France was the only teaching institution allowed to continue its activities, although several of its professors were imprisoned. More recently the Collège was honoured by its association with such names as Laënnec, Magendie, Claude Bernard, Brown-Séquard, and d'Arsonval, the latter now living in remarkably active retirement.

Correspondence

Effect of X Rays on Hereditary Mutation

SIR,—In the *British Medical Journal* of February 19 Dr. Louisa Martindale, after alluding to the discussion of the Sections of Radiology and of Obstetrics of the Royal Society of Medicine reported in your number of January 29, put forward the suggestion that x-ray treatment might provide a convenient method of temporary sterilization which could with advantage be used as a technique of contraception. She made no reference to the effect of x rays on hereditary mutation, and this aspect of the matter was not touched on in the meeting referred to. Dr. M. Donaldson, indeed, did suggest the need for caution in applying x rays to germinal tissue until it is quite certain that this leads to no harmful results in the offspring. The danger, however, is more insidious. We know that a dose of 30 r units doubles the mutation rate in *Drosophila*,¹ and the effect in mice seems to be of the same order of magnitude.² The effect in man³ may perhaps be somewhat lower, since the spontaneous mutation rate of the haemophilia gene, which is the only human one for which we have any data, is about 100 times less, in terms of the number of mutations per year, than is usual in *Drosophila*.⁴ But we do not yet know how closely the rate of x-ray-induced mutation is correlated with the spontaneous mutation rate, and it is unsafe to assume that x rays have 100 times less effect on man. Even if this were so the effect of the commonly used doses would not be negligible on the mutation rate in the individual concerned.

Most of the mutated genes are likely to be recessive, so that they will not be manifested until two individuals each containing the same mutated gene come together in mating. The immediate offspring of a fayed individual are therefore very unlikely to show the harmful hereditary factors which they contain. Indeed, in an organism like man it will probably always be impossible to measure the change in mutation frequency caused by x rays with the accuracy which can be obtained by special breeding methods in *Drosophila*. But the mutated genes, however difficult to

¹ H. J. Muller, *Science of Radiology*, 1934; N. W. Timofeef-Ressovsky, *Experimentelle Mutationsforschung*, Dresden, 1937.

² G. D. Snell, *Genetics*, 1935, 20.

³ The question of dosage in man has recently been discussed in a paper which is not available to me in Cambridge: A. Pickhan, Welche Strahlendosen dürfen bei der Röntgendiagnostik der weiblichen Zeugungsorgane nach der Ergebnisse der experimentelle Strahlengenetik in erbbiologischen Sinne als unschädlich betrachtet werden? *Forsch. Röntgenstr.*, 1936, 53.

⁴ J. B. S. Haldane, *J. Genetics*, 1935, 31.

CORRESPONDENCE

MARCH 19, 1938

Undulant Fever in Malta

SIR.—Dr. J. E. H. Gatt's article on undulant fever in Malta (*Journal*, February 26, p. 454) contains certain statements which cannot be allowed to pass unchallenged. In the first place, the average duration of the infection is nearer three months than six, according to an analysis made by Hughes and myself of 1,000 consecutive cases from the records of the Central Civil Hospital. As a rule there is a marked leucopenia and not a leucocytosis, and in fact this is a diagnostic feature. The mononuclears are not affected in any way, but there is a slight relative mononucleosis and a more pronounced relative lymphocytosis, since the reduction in the number of leucocytes is mainly at the expense of the polymorphonuclear cells. Perhaps Dr. Gatt uses "mononuclears" as synonymous with lymphocytes when he refers to the frequency of 50 per cent. Dr. Gatt also mentions the frequency of tubercle as a secondary infection; this belief is widely prevalent in Malta, but it has no scientific foundation. The previous incidence of undulant fever in one hundred cases of pulmonary tuberculosis was no higher than in another one hundred unselected cases, and although I am particularly interested in both diseases I cannot recall a single instance in which the development of tuberculosis was influenced by undulant fever. The myth arose from the close similarity between the two infections. A tubercle temperature with no physical signs in the chest is often diagnosed as "clinically undulant fever" until the signs appear, when it becomes "post-undulant tuberculosis."

With regard to treatment, vaccines in the ordinary sense—that is, particulate bacterial vaccines—have been repeatedly proved to be not only ineffective but positively harmful. There was a time when a filtrate—melitin or brucellin—appeared to have an almost specific effect, but extended experience with this method of treatment has shaken my faith in its efficiency. We know so little about the immunology of undulant fever that our crude attempts at specific therapy may do more harm than good. The intradermal injection of melitin and of *Br. abortus* emulsions in goats as a diagnostic measure has been tried at the Brucella Research Station in Malta, but the method has been found to be unreliable, inconvenient, and inferior to the agglutination reaction carried out by Huddleson's rapid method.

It is difficult to understand the possible use of "the preventive vaccine with live, non-virulent organisms . . . for infected animals" to which Dr. Gatt refers. If the animals are already infected, what is the use of prevention? The use of a live vaccine as a prophylactic measure is open to many objections, which cannot be discussed here, but I believe that the Ministry of Agriculture in England is opposed to its employment. In Malta a large-scale experiment is being carried out on the possibility of immunizing goats by the injection of a filtrate of avirulent bacteria. The results should be available in from six to nine months, and whether the method proves to be successful or not much valuable information will have been obtained on the immunology of this most interesting but most elusive of infections. The slight misstatements which I have attempted to correct do not detract from the value of Dr. Gatt's paper; but it is important to draw attention to them now, as otherwise they might be copied and recopied and in time would acquire vested rights.—I am, etc.,

J. E. DEBONO,
Member of the Undulant Fever Research
Committee.

Malta, March 1.

A. H. DOUTHWAITE.

London, W.1, March 12.

MARCH 19, 1938

benefit from mobilization and after-treatment as described by Dr. Douthwaite.

4. If the pain and limitation of movement of the shoulder-joint is due to bursitis, mobilization will be ineffective and the conditions require other treatment.

Finally, if during mobilization the "exudation" occurs by Dr. Douthwaite's technique, the results will be poor. But if on beginning mobilization the "tearing of wet wash-leather" feeling is experienced, further stretching of the joint capsule should be done, subsequent mobilizations being necessary, otherwise the "exudation" will occur, with inflammatory reaction likely to set in, and so retard rather than hasten the patient's recovery," as pointed out by Dr. Thomson.

C. B. HUGHES

London, W.1, March 13.

SIR.—Dr. F. G. Thomson in his letter to the *Journal* on several points of criticism of my recent article on this subject. His mention of fracture of the humerus resulting from manipulation is as irrelevant as if I had condemned diathermy on the grounds that it might cause a burn. In both cases the fault would lie with the operator and not with the method. Dr. Thomson writes that the tearing of adhesions results in the exudation of serum or blood with inflammatory reaction likely to set up more fibrosis and so retard the patient's ultimate recovery. The fact, however, remains that in every one of my cases restoration of movement has been recorded, maintained, and complete recovery has been obtained by the patients' doctors in thirty-five out of thirty-seven cases.

Dr. Thomson takes exception to my statement that the treatment of this condition by x-rays, baths, and dieting is futile and a waste of time, and declares that the cases respond quite well to balneological treatment, including manipulation in a pool bath. Dr. Thomson is either writing of a condition quite different from that which I described, or his happy experiences must be limited to the early stages of the disease, which should be treated, as I have already written, by rest, heat, and later by massage.

To suggest that the diffuse periarticular fibrosis with adhesions requiring considerable force for their rupture (I am using Dr. Thomson's description) can be cured by balneology can only indicate a failure to visualize the actual state which these words describe. It is true that with baths, heat, massage, and gentle manipulation a temporary improvement can be obtained, presumably as the result of stretching adhesions, but within a few weeks of return from Bath or other spa the condition is as bad as ever. When I tell Dr. Thomson that eighteen of my patients had been treated by the very methods he advocates, twelve of these having been at Bath, he will appreciate my reasons for scepticism in relation to balneological treatment of scapulo-humeral periarthritis as opposed to simple fibrositis of the shoulder girdle, with which perhaps he has confused it.

Mr. St. J. D. Buxton (*March 12, p. 589*) quite rightly assumes that I had no intention of giving a detailed description of the necessary manipulative technique. In point of fact, the essential thing to remember is that the shoulder-joint should be put through all its normal movements, though not necessarily at one sitting. I have not experienced difficulty in fixing the scapula hitherto, but shall certainly bear in mind Mr. Buxton's suggestions.—I am, etc.,

London, W.1, March 12.

together with the fatigue of fifty visits, was her chief trouble during the treatment. The pain in her throat before treatment was noteworthy, but it diminished after the first week. Her main complaint was dryness of the mouth, which persisted for over a year but is now considerably less. Her weight at the beginning of treatment on August 31 was 11 st. 1 lb., and at the end, in spite of an attack of influenza, had only fallen to 10 st. 9 lb. She has now returned to her original weight, and there is nothing abnormal to be found in her throat save some glazing of the mucosa of the pharynx. The skin of her neck is supple and free from any telangiectasis.

She tells me that she had no pain during the course of the treatment or afterwards, and that her eating and drinking were never seriously interfered with. After she recovered from the influenza her general condition improved rapidly, and she has been active beyond her years, even nursing her family. She is most explicit in her statement that the treatment was worth while.

The difference in response in these two cases has probably some technical explanation, but the point I wish to make is that the distressing symptoms which Mr. Furnivall has suffered are not a necessary sequence of the modern treatment of pharyngeal carcinoma by radiotherapy.—I am, etc.,

London, W.1, March 12.

D. J. COLLIER.

SIR,—Dr. J. H. Douglas Webster (March 12, p. 588) appears to think that I have been making an attack on ray therapy. My letter was an appeal for information as to whether any experimental work had been done on the effects of radiation on normal tissues. As Mr. Percy Furnivall states, there is much uneasiness regarding the far from infrequent disastrous after-effects on general well-being of ray treatment—either by x rays or by radium. Dr. Webster admits having such cases after the use of radium needles, and therefore he now suggests treatment by repeated doses of beam radiation.

I venture to inquire whether it would not be wiser to try to discover by experiments on animals the least harmful method of applying x rays, rather than trusting to arrive at a decision by the trial-and-error method on human beings. Won't one of the cancer research departments take this inquiry up?—I am, etc.,

Bradford, March 12.

JAMES PHILLIPS.

Co-operation

SIR,—The tone of the discussion in your columns on the securing of co-operation between a medical officer of health and the general practitioners in his area suggests that your readers might be interested to learn of the working of a co-ordinating committee, on the lines suggested, in a small borough.

The Accrington committee came into being as an *ad hoc* body, to discuss with the M.O.H. a matter of procedure, in November, 1936. After the amicable settlement of the point at issue the committee remained as a standing co-ordinating body, which did not propose to hold regular meetings, but which was available whenever either party desired to approach the other regarding matters of common interest. It has recently been of the utmost value in aiding the preparation of a diphtheria immunization scheme, and I am convinced that, while the occasions for its use are unlikely to be many or frequent, its existence is none the less of very considerable value. It is not to be expected that a medical officer of health and the private practitioners of his area will invariably agree, but even if the M.O.H. and the committee, in the classical phrase, merely "agree to differ," the fact that the matter has been discussed in this fashion

will produce a happier disagreement than might otherwise have occurred. Moreover, the feeling of confidence engendered by the committee's existence will probably render both parties less liable to magnify a trivial difference into a major grievance.

The value of the committee in times of epidemics will be comparatively small. Action and communication must be prompt, decisive, and direct; and the use of an intermediary for communication would give rise to undesirable delay. So far, at least, as administrative epidemiology is concerned, when epidemic disease is present the M.O.H. must necessarily be autocratic, but, of course, his "declaration of martial law" will be more effective and more easily acquiesced in if relations in time of epidemiological peace are on a democratic basis.

It should be sufficient for the committee to be recognized by the general practitioners themselves and by the M.O.H. without the formal recognition of the town council being sought. The latter might, in fact, prove a disadvantage, since the M.O.H. is the official adviser of the local authority in health matters, and that authority cannot well acknowledge the guidance of any other person or body. Official recognition of the committee might, quite possibly, lead to the ventilation of the committee's disagreements in open council, with the consequent risk of destroying any harmony previously established.

A further attempt at the securing of co-operation has recently been made in this area by the issue of a monthly bulletin to all general practitioners in the area. This bulletin gives an abstract of the borough's vital statistics for the previous month, together with such matters as the number of cases of certain non-notifiable diseases reported from schools and any other figures of interest. In addition it contains notes on any points to which I wish to call the attention of the practitioners (unusual clinical types of infectious disease; modifications in the local health services, etc.), and a brief extract of any Ministerial circulars or other topical publications which may be of interest. While it is possible to be sceptical about the practical value of such a publication, there is every reason to believe that in this area the bulletin is being generally appreciated. At any rate, it removes the reproach, too often heard, that the Public Health Department keeps itself to itself.—I am, etc.,

Accrington, March 7.

JOHN D. KERSHAW,
Medical Officer of Health.

Scapulo-humeral Periarthritis

SIR,—Dr. F. G. Thomson (*Journal*, March 12, p. 589) advances powerful reasons why mobilization of the shoulders without careful selection in cases of scapulo-humeral periarthritis may make the pain and limitation of movement worse. On the other hand, Dr. A. H. Douthwaite's technique and after-treatment for stiff and painful shoulder-joints (February 26, p. 441) yields in his hands a high percentage of successful results. There is nothing more difficult to decide than the type of case in which and the moment at which mobilization should be recommended and carried out. I have endeavoured to provide myself with certain guiding rules.

1. If pressure at, or near, the roots of the brachial plexus radiates pain into the shoulder-joint then the shoulder is not ready for mobilization.
2. If when the arm is abducted, the scapula being fixed as far as possible, pain is felt in the axilla and spreads over the shoulder, this shoulder also is not ready for mobilization.
3. If, however, pain is felt at one place only, and tends merely to increase at this place, then the shoulder will

relief and the patient complained of increasing pain and discomfort in the right iliac fossa. When examined, a tumour was discovered in the caecal region, and an x-ray film showed a filling defect of the caput caeci. At operation, however, the tumour was located not at the caput but on the inner side of the caecum and seemed to be continuous with a mass of glands which spread up along the ileo-caecal artery. There was considerable inflammatory reaction all around the caecum and the ileo-caecal junction. As the patient was frail and poorly nourished it was decided to do the operation in two stages. The ileum was anastomosed to the transverse colon, and two glands were removed for biopsy. Examination of the glands showed no evidence of carcinoma or tuberculosis but only chronic inflammation (Dr. W. W. Woods, London Hospital). There was no further operation. The tumour disappeared and the patient has remained well.

—I am, etc.,

London, W.1, March 15.

MICHAEL J. SMYTH.

Excision of the Patella

SIR,—The number of letters I have received since the publication of my recent article (*Journal*, February 19, p. 383) on the treatment of arthritis of the knee and fractures of the patella by removal of the patella prove the great interest taken in this operation. Professor Fawcett of Bristol informs me that a friend of his, the late Dr. Altham of Penrith, some forty years ago excised both patellae from a medical colleague for comminuted fractures which had become infected, and the patient stated afterwards that he was better off than he was before his accident. This case Professor Fawcett believes to have been reported in one of the periodicals of the time. In reply to Mr. H. Jackson Burrows's letter (p. 418), warning against removal of the patella in cases of congenitally displacing patellae, it goes without saying, though I should no doubt have stressed the point in my article, that the alignment of the extensor pull must also be corrected by some form of tenoplastic operation. I think, however, that it is unfair to pour cold water on this operation of removal of the patella, as yet in its early days of trial, on the strength of two cases of this rare condition for which excision was carried out. I have seen hernias recur, but I still advise operation, because in the majority success is attained. The objection that hyperextension is apt to occur is too mythical to controvert. Dr. P. W. Hampton (March 5, p. 539) has forgotten his physiological teaching as regards the reciprocal innervation of muscles: also the crucial ligaments, as every sportsman knows, will take any amount of strain before snapping. In arthritis, where some atrophy of the crucial ligaments may be expected, there is also reflex wasting of the muscles about the joint, so that hyperextension is again unlikely. I am surprised, however, that more correspondents have not commented on what I consider the most important application of this operation of excision of the patella—namely, to relieve the pain in early cases of osteo-arthritis. This, to my mind, is where the future usefulness of this operation lies.

—I am, etc.,

London, W.1, March 7.

G. O. TIPPETT.

* Perhaps the case to which Mr. Tippet refers as being recorded "some forty years ago" is that described by Dr. James Altham of Penrith in the *British Medical Journal* of May 24, 1890, at page 1190. The case was one of a compound comminuted fracture of the patella with avulsion of the ligamentum patellae. The patella was excised, and ten months later "the patient could walk with perfect freedom and confidence, could go up and down stairs as usual, and was able to ride on horseback."—Ed., *B.M.J.*

Cause of Chronic Gastric Ulcer

SIR.—The statement I read in a medical journal a short time ago that "the cause of chronic gastric ulceration is still quite unknown" prompts me, rather diffidently, to suggest a cause, and a method of treatment that I have been using in practice with good results for about a year.

When I was a student I was taught that chronic ulceration of all types could be subdivided into tuberculous, syphilitic, varicose, etc., and that treatment depended on the cause. We all know that the ordinary chronic gastric ulcer is not syphilitic and not tuberculous, and is not due to any germ isolated to date; but is there any reason why it should not be regarded as a chronic varicose ulcer?

Thousands of years ago man, struggling upwards in the process of evolution, assumed the erect posture, and since then his heart and blood vessels have had to adapt themselves, often failing in the task, to the fact that there is a natural tendency for the blood to stagnate in dependent areas. So we get varicose ulcers of the legs, which caused so much misery until the genius of Mr. Dickson Wright showed us the proper way to treat them. So we get haemorrhoids—the pull of gravity on the contents of a loaded rectum in the upright position must be considerable. And so it is not feasible that we get a tendency to varicosity of the stomach, no longer resting on the abdominal wall, as in animals, and probably also given far too much work to do in digesting too heavy and unsuitable food?

Once it is admitted that the term "chronic gastric ulcer" means "varicose ulcer of the stomach," a host of minor puzzling points become clear. We see now the comparative failure of the alkaline treatment in its proper perspective—the usual hyperacidity is only secondary to the main cause. We see afresh the overwhelming importance of rest, overshadowing, as we have always known, all other treatment. We understand the obstinacy of these ulcers, their world-wide distribution, and their tendency to bleed. We appreciate the failure of excision to cure them and the comparative failure of gastro-enterostomy. And we see now why an experimental ulcer produced in a dog's stomach never remains chronic but heals quickly as soon as the dog is given its liberty. I leave wiser and more skilled heads than mine to do the same sort of experiments on normal and ulcerated stomachs that Mr. Dickson Wright did on normal and ulcerated legs, but I shall be surprised if they do not show the same extraordinary venous stasis.

The treatment I give my patients on this hypothesis is simple. They are put to bed on the usual milk diet, and the usual alkaline powder given if it agrees, otherwise they get no medicines at all. The foot of the bed is raised by at least six inches, and that is all. It is useless for me to say that the ulcer heals any more quickly under this treatment, as every physician knows how impossible it is to dogmatize, and without the control of x rays I am working in the dark. But the results have at least been promising, and I suggest to others to try this simple method, especially on those large ulcers of the lesser curvature that are the despair of physicians and surgeons alike. After-treatment is most important. The foot of the bed should be raised for the rest of the patient's life. At every opportunity the patient should elevate his legs at least to the level of his abdomen. Food should be small in amount but taken often and easily digested.

I am, etc.,

Corwold, York, March 8.

WILLIAM MCKIM.

Appendicitis in Tristan da Cunha

SIR,—I have read with great interest the article by Dr. A. M. Spencer on the aetiology of acute appendicitis in the *Journal* of January 29 (p. 227). There is, however, one small point to which I should like to draw attention.

Dr. Spencer says: "The disease is also very common among the inhabitants of Tristan da Cunha, who live on an exceptionally low cellulose diet owing to the impossibility of growing cereals on the island." Tristan da Cunha has now been inhabited for over a hundred years and earlier medical history is scanty. During this century, however, it has been visited on numerous occasions by ships of the Royal Navy. Since the war a systematic examination of all the islanders has been done on three occasions. I myself was present at the last of these. Medical notes have also been made by the doctors of exploring expeditions and the resident missionaries. Several of the latter have published books of reminiscences, and make no reference to appendicitis, a disease which is well recognized by laymen. The register of deaths is not very accurate, especially as regards diagnosis, as the islanders keep it themselves during the periods when there is no missionary. I have been able to find no record of a death from anything resembling peritonitis, and there is no record of any laparotomy ever having been performed. In the report of the medical examination in 1932 the senior medical officer stated: "One man showed symptoms which might have been due to chronic appendicitis. He was advised to leave the island and be operated upon." He did not act on this advice, and when seen by me at the next examination five years later was alive and well and had no complaints.

During the examination of 1937 I formed the opinion that the physique of the islanders was vastly superior to that of the "civilized" world. There were no complaints or signs of anything resembling appendicitis. The only abdominal pain complained of appeared to be a seasonal gastro-enteritis, which coincided with the sea-bird egg season. At this time the islanders are accustomed to have not one "egg to their tea," but many. It would hardly seem accurate, therefore, to say that appendicitis is very common in a community in which there has never been a death from peritonitis, never been an operation for appendicitis, never been any complaints resembling it (except for the one case quoted above) over a period of more than 100 years.

With regard to the cellulose question, no cereal is grown on the island and potatoes take their place. Adequate and recently increasing supplies of onions, turnips, carrots, leeks, and cabbages are grown and eaten, and as constipation is unknown it would not appear that the islanders are suffering from any serious lack of cellulose.—I am, etc.,

H. E. B. CURJEL,

Surgeon Lieutenant Commander R.N.

Royal Naval Hospital, Simonstown,
South Africa, Feb. 24.

Infantile Pyloric Stenosis

SIR,—Dr. Leonard Findlay states in a letter published in the *Journal* of March 5 (p. 538) that "Mr. David Levi . . . would seem to have overlooked the fact that by the use of eumydrine or other antispasmodic, hospitalization of the infant . . . becomes unnecessary." This I would deny. Svensgaard's original instruction when treating patients with eumydrine was that the child should be rehydrated. He says that the child should be put on subcutaneous salines until diuresis demonstrates that the dehydration has been overcome. Does Dr. Findlay

propose carrying out these methods in the out-patient department or at home, or has he a new approach to treatment which he has not yet published? I have yet to meet the physician who treats all cases of pyloric stenosis as out-patients. My medical colleagues tell me that with eumydrine a prolonged period of hospitalization is usually necessary, and I know that this is the general experience. I cannot, of course, speak from my own practical knowledge of this method of treatment as I have never used it, but I have been called to rescue its failures. In the last thirteen weeks I have operated on twenty-eight patients suffering from pyloric stenosis, and in the course of a year I see a very large number of cases.

I have come to the conclusion that no deduction of any moment can be drawn from a small series of cases, such as the six patients quoted by Dr. Findlay. A similar series can be produced to show the value of thickened feeds, or of careful feeding and gastric lavage without any other form of medication. I felt that I had to answer Dr. Findlay's statement on hospitalization, which is inaccurate, but I will pass over his mention of "the radiological findings, which of all the signs of the disease are the most fallacious," as an expression of an opinion which is not universally accepted.—I am, etc.,

London, W.1, March 6. DAVID LEVI, M.S., F.R.C.S.

Diverticulitis of the Caecum

SIR,—I read with interest in the *Journal* of February 26 (p. 475) your summary of the paper on solitary diverticulitis of the caecum, read by Mr. Bennett-Jones to the Liverpool Medical Institution. The fact that he was able to bring four cases of this disease to the notice of the society is evidence that the disease is not so rare as previously recorded cases—seventeen in all—would suggest. Probably there are others like myself who have come across the condition and have omitted to publish their cases.

It will be readily appreciated that when a solitary diverticulum of the caecum becomes inflamed the condition is difficult to distinguish from acute appendicitis.

In July, 1934, I was called urgently to see a doctor, aged 35, suffering from severe abdominal pain. The pain, which had begun the previous day, was at first located in the mid-abdomen and later settled in the right iliac fossa. There was tenderness and rigidity over the lower abdomen, but these signs were most marked in the caecal region. He had been seen by three of his colleagues, and there was little doubt in all our minds about the diagnosis. At operation I found diffuse sero-purulent exudation due to a perforated caecal diverticulum. The diverticulum was situated on the anterior surface of the caecum, close to the ileo-caecal junction, was barely three-quarters of an inch in length, and had perforated near the tip. There was no inflammation of the appendix. Both the diverticulum and the appendix were removed, the abdomen was drained, and the patient made a good recovery.

When perforation of a diverticulum of the caecum is localized by surrounding structures the condition enters on a chronic phase and gives rise to more confusion in diagnosis—for example, appendix abscess, tuberculosis, carcinoma, etc. As Mr. Bennett-Jones remarks, diverticulitis is always considered when disease of the left side of the colon is under consideration, but rarely considered when dealing with the right side. In the light of after-events I am inclined to think that a case with which I had to deal six years ago and which at first was thought to be carcinoma or tuberculosis of the caecum was really one of diverticulitis.

The patient was a female aged 28 whose appendix had been removed a year previously through a small muscle-splitting incision in the right iliac fossa. The operation afforded little

of milk will not cure the tuberculosis, scarlet fever, and other conditions mentioned in the advertisement; it will not even help appreciably while unsafe butter is allowed to go unnoticed.—I am, etc.,

Merioneth, March 5.

EMER JONES.

Pneumonitis

SIR,—I wonder if the first of those American authors to coin the word "pneumonitis" thought that he was "saying a mouthful" and carrying our knowledge further. This alleged new entity, with ghostly appearances in the x-ray film but with no exactly discerned pathological basis, is to be pinned down to earth with what looks like a scientific label. But why not substitute the simpler term "inflammation of the lung"? That would at least discourage the clinician from deluding himself, as he looks at a radiograph darkly, into thinking that now he sees face to face some new disease. "Annotations have appeared in the *Lancet* (1937) and in the *British Medical Journal* (1937)," the article would then read: "and X. and Y. now recognize inflammation of the lung as a separate entity." *Parturient montes, nascetur ridiculus mus!* The physician who learns much from radiographs of the lungs can only interpret clinical pictures in terms of x-ray appearances if both these have already been integrated with and interpreted by a knowledge of the underlying pathology. Is there some new, hitherto unrecognized pathological process which produces these particular inflammations of the lung?—I am, etc.,

Liverpool, March 8.

ROBERT COOPE.

Pure English

SIR,—Dr. D. T. Barry. I think, does well to be dissatisfied with the word "sympathicolysis" (*Journal*, March 5, p. 544). "Sympathicolysis" is a very doubtful formation, but it might possibly be wrested to mean "dissolution of a partner in unnatural vice." It has the advantage of keeping its meaning "veiled," as Gibbon said, "in the obscurity of a learned language": on the other hand, it comes in queerly under the heading of "Pure English," and, moreover, it is not what Dr. Barry means.

Near it in your correspondence columns occurs that congenital defective "contraception": as to which it seems to me that if "sympathicolysis" has a meaning, though an unsavoury one, "contraception" has none at all. However, having escaped its appropriate fate of being strangled at birth, "contraception" is, I fear, a monster now too robust to perish. But there is a third specimen of more tender years which is possibly not beyond the resources of orthopaedics—"achresthic anaemia." This type of anaemia is defined as one in which the patient is unable to make use of the anti-anaemic factor, and though ἀχρηστικός usually means "incapable of being used," it has a rare active use and may mean "making use of." But why not "achrestic"? Whence the second aspirate? Is the well-known verse quoted by St. Paul responsible—*ῥεῖμασαν ἡφ' ἡμῶν ὁμιλίαι κακάς*, "Evil communications corrupt good manners," where the final *r* has received the aspirate from the ὁμιλίαι following it? Is it too much to hope that if there is another edition of Osler's *Principles and Practice of Medicine* "achrestic" may become "achrestic"? Osler had a conscience in these matters, even though he did always spell aneurysm with an "i."

Many years ago a wise man, possibly Sir A. Quiller-Couch, suggested that if the dead languages were lively enough to provide scientific terminology for modern ones that could not, it might be as well for the scientists to consult the scholars before committing themselves to print.

In fact we ought to treat the language of Hippocrates with respect: though if he, sitting beneath a ghostly plane tree in the place to which good physicians go, is still conscious of "The Art," he is probably smiling benignly. Galen at any rate could bring him up to date on the second century implications of "pathicus."—I am, etc.,

Barrow-in-Furness, March 7.

JOHN WARE.

Correct Footwear

SIR,—Looking into a shoe shop the other day I was struck by the type of some of the ladies' shoes. These had the toe-cap cut away on the medial side so as to expose the (painted) nail of the great toe. It seemed to me that a very slight modification of this fashion might be taken advantage of, and a shoe devised which would allow the great toe to develop in the direction which Nature intended and which in fact is normal in the barefooted races. To attain this object two conditions would be necessary: (1) the great toe would have to be completely exposed on the medial side as far back as the base of the proximal phalanx; and (2) the fashion in this type of shoe would have to be set by persons sufficiently influential to ensure a wide following for it. In respect of the latter, the medical profession, especially the women doctors, might discharge their duty and responsibility to the public and their own sex, as suggested by Dr. Margaret Emslie (*Journal*, March 5, p. 544), by themselves wearing such shoes, though a still more impressive argument might be advanced if the president and members of the British Orthopaedic Association could be induced to set the example! Speaking seriously, if the whole of the great toe could be allowed to grow without restraint in the first ten years of life, during which time the personal factor counts for little, many of the disabling deformities in this region might be avoided.—I am, etc.,

Belfast, March 7.

S. T. IRWIN.

Treatment of Plantar Warts

SIR,—The incidence of plantar warts in adolescent school children, mentioned by Dr. R. M. B. MacKenna in the *Journal* of March 5 (p. 509), raises the question of the best and most rapidly effective method of treatment. Treatment by radium and x rays both necessitate the services of an expert, and in spite of the advantage of painlessness a very large number of parents would be unable to afford such treatment. In addition, I have seen one case which had received x-ray treatment in which the warts were unaffected, though a dermatitis was present. Treatment by local escharotics and keratolytics is very tedious, many applications are necessary, the end point at which treatment should cease is by no means clear, and some sort of dressing is needed throughout, but it has some value in the "seedling" stage. In school practice I consider that excision, or more correctly "curettage," is by far the best and most effective treatment. Dr. MacKenna, in his article, tends rather to condemn the method with faint praise, and states that it may be "attempted" if physiotherapeutic measures are not available. The disadvantages of the method, as he points out, lie in the necessity for either a general anaesthetic or a very painful local anaesthetic injection.

In cases where one or two warts only are present infiltration with 1 per cent. novocain is nearly always possible. Adolescent children, especially girls, are wont to show a remarkable degree of fortitude in regard to these injections. The special pain of puncture and infiltra-

Acriflavine Emulsion

SIR,—Dr. J. Walker Tomb's letter (*Journal*, January 29, p. 256) describing an alternative formula for acriflavine emulsion raises some interesting points. The formula he suggested was as follows:

Acriflavine B.P. ...	...	...	...	1 gm.
Lime water B.P. ....	...	...	...	500 ml.
Olive oil B.P. ....	...	...	...	500 ml.

Professor L. P. Garrod and Mr. G. L. Keynes, in their article on the use and abuse of antiseptics (December 25, 1937, p. 1286), criticized the B.P.C. emulsion in regard to its high oil content. In the light of this criticism the above formula represents an improvement on that of the B.P.C. in that it contains less oil and more water. Dr. Walker Tomb mentions the enhanced action of acriflavine in an alkaline medium, and I presume he intends his emulsion to have an alkaline reaction. This will probably be so when using B.P. edible olive oil (acid value not more than 2.0), because it can be calculated that the alkalinity of lime water is neutralized by an equal volume of olive oil when the latter has an acid value of approximately 2.5. On the other hand, it should not be forgotten that for external preparations, such as oily liniments, the B.P. recognizes olive oils possessing acid values not exceeding 6.0. In view of this some confusion may arise, and it will depend largely upon the choice of oil as to whether the finished emulsion is alkaline, neutral, or acid in reaction. Moreover, if lime water emulsions of acriflavine became popular circumstances might arise when it would be very convenient to keep a "stock" ready made. This would create a further difficulty in the case of the formula under discussion, because such a "stock" mixture would eventually become acid, due to the progressive hydrolysis of the glycerides in the olive oil. May I therefore suggest a modification which would preserve the usefulness of the formula and at the same time free it from the disadvantages described—replace the olive oil by liquid paraffin containing enough oleic acid to form a soap with the calcium hydroxide of the lime water, but leaving an excess of the latter sufficient to give the finished product the desired alkalinity. In this way an emulsion is obtained which is simple to prepare, reasonably stable, and cheap. The formula is as follows:

Acriflavine ...	...	...	...	0.1 gm.
Solution of calcium hydroxide ...	...	...	...	60 ml.
Oleic acid ...	...	...	...	0.5 ml.
Liquid paraffin ...	...	...	...	40 ml.

The lime water, of course, should be freshly prepared. Although the proportion of oil is purposely as small as possible, more than sufficient is present to provide lubrication and to prevent dressings from sticking. The viscosity of the emulsion when made with B.P. liquid paraffin is fairly high, and if desired a more mobile and less expensive product can be obtained by using a good-quality oil of lower viscosity, such as is used in the preparation of nebulae for spraying the nose and throat. At this hospital good results have been obtained with an oil of specific gravity 0.850, 50 ml. of which at a temperature of 37.8° C. flow from a Redwood No. 1 viscometer in not less than 70 and not more than 75 seconds. The oil complies also with the limit tests for sulphur compounds and acidity described under the B.P. monograph for liquid paraffin. Although there is some tendency for the finished emulsion to separate on standing, homogeneity is quickly and easily re-established by shaking.—I am, etc.,

W. A. WOODARD,
Pharmacist.

Royal Southern Hospital,
Liverpool, March 5.

Raw or Pasteurized Milk

SIR,—The letter of Dr. Bernard Myers (*Journal*, March 5, p. 537), and the evidence he quotes regarding the danger of raw milk and the safety and nutritive value of pasteurized milk, should surely convince even the most complacent as to the urgent necessity for strong action being taken immediately by all those responsible for our milk supplies—including the Government. One of the chief reasons for delay is, I believe, the lack of uniformity of opinion in our hospitals and in the medical profession. Many hospitals provide their patients with ordinary raw milk, which is neither pasteurized nor sterilized by boiling, and they do not buy milk from a tuberculin-tested herd even in localities where such milk is easily obtainable. Many doctors still advise the consumption of raw milk with the object, they say, of developing immunity in the children who drink such milk. Some, the "whole-hoggers," advise all raw milk from the start. "Let the child take its chance," they say; "the sooner it develops immunity the better"—truly a policy of kill, cripple, or cure. Others adopt what they fondly imagine is a more scientific method. They start the child on milk from tuberculin-tested cows, and gradually replace such milk with increasing quantities of ordinary raw milk. One wonders how they estimate the dose of tubercle bacilli—presumably by the pint or half-pint!

In our campaign for pure and safe milk supplies do not let us forget, or fail to draw attention to, the danger of acquiring other diseases from infected milk. Many epidemics of scarlet fever and of typhoid have been traced to infected milk; and what of undulant fever? Many of our herds are infected with *Br. abortus*, the proportion of infected cows varying from 10 up to 50 or 60 per cent. and over. Consider the deaths of children under 2 years from infective enteritis or diarrhoea. According to the figures published in the epidemiology section of the *Journal*, sixty or seventy children are at present dying weekly from this disease in the 125 great towns in England and Wales alone. Nothing is more certain than that these figures will be enormously increased in the summer months. I believe I am right in expressing the opinion that many of these deaths and much misery and unhappiness could be prevented were these children to be given sterilized milk.

One word of criticism. Why does Dr. Myers write of "tuberculin-tested milk"? There is no such thing. One often hears milk from tuberculin-tested cows so described, and the designation "tubercle-free milk" is also often used. The tuberculin test is not infallible, and such loose phrases create in the consumer a false confidence and security. The only milk which can be correctly described as "tubercle-free" is that which has passed a thorough bacteriological examination.—I am, etc.,

Dundee, March 5.

F. R. BROWN.

Safe Milk and Safe Butter

SIR,—I have been interested in the Association's advertisements and most pleased to see publicity being given to such an important question. It is a pity that the advertisement has not been more carefully prepared. It contains one very grave mistake; it says: "About 2,000 deaths a year in Great Britain are due to bovine tuberculosis, a disease which is carried by unsafe milk." Bovine tuberculosis is caused by unsafe butter as well as by unsafe milk, and as the plea of the advertisement is to purify the milk and not to test the herds, I feel that this paragraph should be altered. Boiling, pasteurizing, etc.,

OBITUARY: SIR RAYMOND CRAWFURD

Obituary

SIR RAYMOND CRAWFURD, M.D., F.R.C.P.
Consulting Physician, King's College Hospital Registrar, Royal
College of Physicians of London

Sir Raymond Henry Payne Crawford, who died on March 9, was born November 9, 1865, the son of the Rev. C. W. Payne Crawford of East Grinstead. He was educated at Winchester and New College, Oxford, graduating B.A. in 1889, and in the same year entered the Medical School of King's College Hospital as its Warneford scholar. In the history of "King's" he is described as being by far the most brilliant student of his year, and he was awarded the junior and senior scholarships of the school in 1891 and 1894. He qualified for practice in 1894 with the M.B., Ch.B. of Oxford and the M.R.C.P. diploma. He then held resident posts at King's College Hospital, and after their completion he was appointed assistant physician to the Victoria Hospital for Children and to the Royal Free Hospital, which he served from 1896 to 1908. He lectured on materia medica and pharmacology at the London School of Medicine for Women and on pathology at the Royal Free Hospital.



In 1898 Crawford was elected assistant physician at King's College Hospital, and remained in active work there until 1930. In the course of time he became a prominent member of the teaching staff of the medical school, first as lecturer on materia medica and pharmacology, and later in clinical medicine and as director of medical studies. He exercised great influence for the good in the advancement of the hospital and school, and was mainly instrumental in getting the Burney Yeo bequest scholarship in 1914. He was an attractive teacher, and King's College prided itself on one of its pupils gaining the Murchison clinical scholarship—awarded in alternate years by the Royal College of Physicians of London and the Edinburgh University—in four successive examination years, when it was open to competition in London, 1922-8. He wrote many papers for medical literature, Graves's disease especially interesting him and being the subject of his M.D. thesis (1896). He also contributed articles on it to Quain's *Dictionary of Medicine* and to his hospital reports. In 1914, with Sir Farquhar Buzzard, he edited the fifth edition of Burney Yeo's *Manual of Medical Treatment*, its author being too ill to face the task. Buzzard revised the chapters on nervous diseases and Crawford the rest. Later editions were called for.

Raymond Crawford's first historical work appeared in 1909, and was on the *Last Days of Charles II.* In this he reviewed the eight existing descriptions of the illness by eye-witnesses. One of the most important was that of Sir Charles Scarborough, physician to the King. The original—in Latin—is in the possession of the Society of Antiquaries, and Crawford gives a complete copy of this with a translation. It was prepared by Scarborough chiefly to combat the rumour that the King had been poisoned.

Macaulay and others attributed the death to apoplexy. By an examination of all the reports side by side a striking common line of agreement was to be found in them, and led to the clear conclusion that the final illness was uraemic convulsions brought on by chronic nephritis, probably of gouty origin. Crawford's story is a bald statement of facts, confined to the medical aspect of the illness, and it is interesting to read of all the remedies used—bleeding, blistering, pills, and potions. There is also an account of the priest Hudleston's administration of the last rites of the Roman Catholic Church, and of the King's acceptance of its faith.

Crawford took an active part in the work of the Royal College of Physicians, of which he became a Fellow in 1901. He delivered the Fitzpatrick Lectures in 1911-12, and the Harveian Oration in 1919. He was one of its examiners and councillor in various years, and became Registrar in 1925. The Fitzpatrick Lectures on "The King's Evil" were published in an ampler form as a book with illustrations of a broadside of the ceremony and office of "healing," issued in 1679; of various kings presented to the sufferers from the evil. The term scrofula had various meanings at different times. It was scrofula had various meanings at different times. It was the form of "struma" that affected the neck and enlarged it to look like that of a sow—*scrofa* of Latin writers. Its meaning to-day is uncertain, unless, as Crawford says in his preface, we may fall back on the French *mor*: "On devient tuberculeux, mais on nait scrofuleux." It is a handsome presentation of the subject, but like other of his works sadly lacks an index.

The Harveian Oration was on the forerunners of Harvey in antiquity. The orator thought when he came to examine the outstanding accounts of the history of the discovery of the circulation that too little had been conceded to the master minds of antiquity, especially Aristotle's doctrine of the primacy of the heart. He found an interesting parallelism in the lives of Harvey and Aristotle and their court appointments, etc., and he reviews fully Aristotle's work and opinion on the heart and blood vessels. The researches of Erasistratus and Galen are also considered; all in an interesting and novel a manner as could be expected from about the two hundred and fiftieth Oration. Another historical work published in 1914 was on *Plague and Pestilence in Literature*. The words "and Art" might have been fairly added to the title, for the book contains many reproductions of pictures by various Continental artists of plague-stricken peoples and towns. The Great Plague of London comes in for some descriptions, but there is no illustration of it. The work is more a general than a medical account of plague, and does not deal with anything after the end of the eighteenth century.

Crawford took an active and enthusiastic part in the administration of Epsom College, and for several years was chairman of the council of governors. He received the honour of knighthood in 1933 for his distinguished services to medicine.

Sir Raymond Crawford had been a member of the British Medical Association since 1897, and at the Centenary Meeting in 1932 he acted as vice-president of the Section of History of Medicine. At the memorial service, held at St. Martin-in-the-Fields on March 15, the Association was represented by Dr. Geoffrey Marshall.

Sir Humphry Rolleston writes:
Educated at Winchester and New College, Oxford, Crawford retained their scholarly impress, and it was in such an atmosphere that we first met in 1891 at the house in

tion is apparently due to the denseness of the tissues concerned, and the sensitiveness of the plantar surface of the sole and toes. The initial injection may be made tolerable by the use of a No. 16 needle with a short bevel, sterilized by boiling in olive oil. The initial puncture is made slowly, injection being started very gently as soon as the bevel is hidden, and continued slowly until the base of the wart and all the area which can be reached through this puncture have been infiltrated. Further punctures are usually painless. Freezing with ethyl chloride before the initial puncture is not advised, since the small operation area is altered in appearance, and many warts are much more appreciable to touch than to sight.

If the warts are multiple, or for some reason local anaesthesia is impossible, a general anaesthetic becomes necessary. In these cases it is advisable to prepare before operation a plan indicating the number and exact position of the warts. Enucleation of the warts with a Volkmann's spoon, or, if small, with a meibomian cyst scoop, if carried out by the method originally described by J. L. Franklin (*Practitioner*, 1932, 129, 506) will give excellent results, and a local recurrence should be exceptional.

In cases dealt with under local anaesthesia after-pain may be mitigated by filling the wart cavity, after haemostasis has been effected, with anaesthetin, 15 per cent., in ammoniated mercury ointment. After general anaesthesia a light gauze dressing only is necessary. Except in cases of multiple warts, walking may be allowed as soon as it is certain that no reactionary haemorrhage will occur, and school work will not be interrupted for a single day, though games and routine walks should be forbidden till healing is sound. The cavities often heal very rapidly: after local anaesthesia in from ten to fourteen days; after general anaesthesia sometimes in less than a week. There is no special tendency to sepsis.—I am, etc.,

Rustington, Sussex, March 8.

W. E. WALLER.

Early Occurrence of High Blood Pressure

SIR,—In her paper on the early occurrence of high blood pressure in coarctation of the aorta (*Journal*, March 12, p. 564) Dr. E. Joan Rooke states that in 1933 the youngest case then on record was a boy of 14 who had coarctation of the aorta and a blood pressure of 150 mm. Hg. If Dr. Rooke will turn to the *Archives of Disease in Childhood* for December, 1929, she will find a full account, together with a description of the partial necropsy, of the case of a child aged 5 which I recorded with F. W. M. Lamb. In our paper there is an account of the study of the systolic blood pressure, which was consistently over 200 mm. on the left side and varied between 175 and 215 mm. on the right. In my case unsuspected diffuse arteriosclerosis was found, which was not limited to the vessels exposed to the high blood pressure. In addition there was a congenital abnormality of the left kidney with diffuse sclerosis. It was not clear what part these changes played in determining the high blood pressure, but inasmuch as the systolic pressure in the popliteal arteries was only 125 mm. it was probably not a great one.—I am, etc.,

Birmingham, March 12.

A. P. THOMSON.

SIR,—A statement in the *Journal* of March 12 (p. 564), issued from the Department of Clinical Research of University College Hospital by Miss E. Joan Rooke, seems to be open to criticism. She states that some murmurs heard on both sides of the sternum resulted (*sic*) from enlarged internal mammary arteries. It would be interesting to know what is meant by such a statement. We

are given both the "systolic" and "diastolic" pressures in the right arm, but only "the pressure" in the left arm. Was this the "systolic" or the "diastolic"? If it is the "systolic," what was the "diastolic"? The writer tells us that the demonstration of high blood pressure in the child is important because it occurs at a period of life when high pressure from other causes is extremely rare. Is this her experience, or is it given on any authority? My experience, in acute rheumatism especially, is that both the "systolic" and what I call the "basic" pressure are raised before an attack and tend to fall as the attack disappears.—I am, etc.,

Swansea, March 12.

G. ARBOUR STEPHENS, M.D.

Iron for Subnutrition

SIR,—Drs. E. Blackstock and J. M. Ritchie, in your issue of March 5 (p. 512), report their observations on a group of anaemic children selected from those attending a welfare centre. The diagnosis in each case was proved by complete blood examination, and there was a satisfactory response to iron therapy. These infants were selected because on clinical examination they were considered anaemic, and it is quite certain that in many centres they would not have had the benefit of treatment. I would emphasize, however, that much iron deficiency is overlooked when full reliance is placed on physical examination. The high incidence of iron deficiency has been stressed by many workers in recent years, and until adequate preventive measures are adopted I would urge that a haemoglobin estimation be carried out on all children attending pre-school centres.—I am, etc.,

London, W.1, March 10.

THOMAS COLVER.

George Buckmaster and William Wright

SIR,—The Executive Committee of the Council of the Royal Australasian College of Surgeons is grateful to Mr. Gordon Gordon-Taylor, F.R.C.S., for his expression of the sorrow which is felt in Australia and New Zealand at the death of Professor G. A. Buckmaster, D.M., F.R.C.S., Emeritus Professor of Physiology, University of Bristol. Professor Buckmaster was loved by all those members of the profession in both Australia and New Zealand who were privileged to meet him on the two occasions on which he visited these countries. His visits did much to cement the bonds of unity between the members of the surgical profession in Australia and New Zealand and their brothers in Great Britain.

Similar feelings exist in regard to the late Professor William Wright, who was Professor Buckmaster's colleague as Examiner in Anatomy in Melbourne in 1931. The deaths of these two men are deeply deplored by everybody in Australasia who knew them.—I am, etc.,

H. G. WHEELER,

Secretary, Royal Australasian College
of Surgeons.

Melbourne, Feb. 25.

X-Ray Film Developing Box

SIR,—I was pleased to see that Mr. Robert G. W. Ollerenshaw has paid tribute to the use of the x-ray film developing box during the operation on fractures of the neck of the femur by the introduction of a Smith-Petersen nail (*Journal*, March 12, p. 569). We orthopaedic surgeons in London are greatly indebted to Mr. D. W. Atkinson, the radiographer, who is, I understand, the inventor of this process of rapid development of the film, thereby very greatly diminishing the total amount of time taken over the operation.—I am, etc.,

B. WHITCHURCH HOWELL, F.R.C.S.

London, W.1, March 13.

MARCH 19, 1938

OBITUARY SIR ARTHUR DOWNES

Sir Arthur Downes was knighted in 1910 and received the Order of the Crown of Belgium. He took pride in recalling that his work published between 1877 and 1886 on the influence of light on bacteria and on protoplasm was the earliest research to reveal the destructive action of light on the micro-organisms of putrefaction and disease.

Sir Arthur MacNalty writes:

Last week witnessed the passing of two great gentlemen, Sir Raymond Crawford and Sir Arthur Downes. Their professional reputations were achieved in different branches of medicine: Sir Raymond was pre-eminently a physician and medical historian, Sir Arthur won distinction first in medical research and afterwards in the field of public health and as a medical administrator. Yet they had this in common: they were both men of good will and considerate to all whom they met. In these hurried and strenuous days people are sometimes impatient of attention to the feelings of others. Good manners may be attributed to artificiality. In these two men their courtesy was an index of their infinite kindness of heart.

Although there were links of old association between the Downes family and my own—my grandfather's Christian names were "Arthur Downes"—I first met Sir Arthur in 1908 when he was a member of the committee of the Brompton Hospital for Consumption, to which I was then resident medical officer. Not only was I impressed by his wise counsel in matters affecting the administration of the hospital, but his advice to the committee on medical subjects was equally sound and valuable. When I left the hospital our friendship continued, and, subsequently, as a medical inspector of the Local Government Board, from time to time I came once more into official relations with him. He had a profound knowledge of the Poor Law and of the nursing services, and in his usual quiet and unobtrusive fashion he rendered great service to the Department. He was a member of the Royal Commission on the Poor Law, and if his counsels had prevailed the Poor Law would have been reformed twenty years earlier. His work in public health in Shropshire and Essex respectively early marked him out for distinction. He wrote to me in 1935:

"What a vast change has come over public health administration since 1876 when I deputized as M.O.H. for the old Shropshire Combined District of some twenty-one rural or urban sanitary authorities and when I took my Cambridge D.P.H. (at first known as the S.Sc.Cert.Camb.) in 1877 or 1878. I rather think I must be the doyen of D.P.H."

"Curiously enough a 'tightness' in the finances of Cyprus (in Turkish days) deprived me of a chance of joining the medical side of the L.G.B.: I had been invited to apply by the elder Sir George Buchanan, but just when my opportunity came it became necessary to find a place for Cyprus who had greatly distinguished himself first as a M.O.H. in the north of England, then as a Sanitary Commissioner for Cyprus during British occupation). But, as I have said, chronic Turkish deficits 'axed' him. I had previously been invited by Simon to come to see him, but, being in the country, failed to avail myself of it. Of the immense improvement in the public health of England since those days there can be no question."

Downes's papers in the *Proceedings of the Royal Society* on the effect of light on bacteria and protoplasm, published many years ago, reveal him as a pioneer in medical research. He was the first to demonstrate the destructive action of light on the organisms of putrefaction and disease. So valuable was Sir Arthur's advice to the Local Government Board that his services were

retained beyond the usual age of retirement. When at length he left us he did so with the affection and regret of all his colleagues. Sir Arthur had a delightful sense of humour and was a charming host. He had many interests in life, such as the development of nursing of the sick poor and the care of lepers. But he was also well read in general literature and I have many letters from him which reveal his knowledge of archaeology and natural history.

On retirement he lived in France for several years, and finally fixed his habitation on the top of Mount Carmel in Palestine. But as he wrote to me recently: "For a man in his 86th year there cannot be much prospect of an 'abiding city' on earth." The words of Greville concerning Sir Philip Sidney are truly applicable to Arthur Downes, and I cannot sum up his character in better words: "Indeed, he was a true model of worth: . . . withal, such a lover of mankind and goodness that whoever had any real parts in him, found comfort, participation and protection to the utmost of his power."

RICHARD HUXLEY FISH, M.D., M.R.C.P.

We regret to record the sudden death on February 15, from subarachnoid haemorrhage, of Dr. R. Huxley Fish, at the untimely age of 32, when he had held the post of physician to Harefield Sanatorium for but a very few months. The only son of Dr. Cecil Fish, who died when he was a boy, Huxley Fish was educated at Bedales School and at Clare College, Cambridge, where he was a scholar. Dr. Fish gained first-class honours in the Natural Sciences Tripos in 1927, and proceeded to St. Thomas's Hospital, where he qualified in 1930; he took the M.R.C.P. in 1932, graduated M.B. of Cambridge in 1934 and M.D. in 1936, and took the diploma in child health in the same year. He was house-physician and children's house-physician, as well as holding other resident posts, at St. Thomas's Hospital, and then became assistant medical officer to the L.C.C. High Wood Hospital for Children at Colindale. Later he was senior assistant medical officer at Colindale Hospital until his appointment as physician under the Middlesex County Council. Dr. Fish had already made his mark in the specialty of tuberculosis, where he was recognized as perhaps the most distinguished of the younger men. He was possessed of a very unusual charm, devoted to him. He wrote on the treatment of chorea by induced pyrexia in this *Journal* in 1933, using intravenous injections of a triple typhoid vaccine with successful results. In 1937 an annotation appeared in our columns (May 1, p. 925) on his monograph in the *Archives of Disease in Childhood* (1937, 12, 1) on chronic miliary tuberculosis in children; this monograph confirmed the work of previous investigators that there is a chronic form of miliary tuberculosis which is not necessarily fatal, and in the treatment of which absolute rest is all-important. From the quality of his work, which showed him to be a careful and earnest physician, his early death is all the more to be regretted, for he left a mass of material ready to be polished into final form. He leaves a widow and three little sons, to whom goes out the sincere sympathy of all who knew him and had such high hopes for his future.

Dr. SARA E. WHITE, who died on February 10, aged 82, was born in Ireland of Quaker stock. She came to London to study at University College, and took the B.Sc. in 1891, with honours in physiology, in which subject she was for a time a demonstrator. She soon, however, decided to follow in the footsteps of her cousin,

Gordon Street of his relative, Dr. William Ogle, the superintendent of statistics at the General Register Office, translator and annotator of Aristotle's *On the Parts of Animals* (1882), and the third son of J. A. Ogle, Regius Professor of Medicine at Oxford from 1851 to 1857. Crawford was that admirable, though somewhat unusual, combination of the scholar-physician with the first-rate man of affairs, courteous, dignified, reticent, self-restrained, and thus reminiscent of a bygone day. At first his life was that of a young consultant in London, and he contributed to the *Transactions* of the old Pathological Society of London, and in 1909 brought out, with the present Regius Professor at Oxford, the fourth edition of Burney Yeo's *Manual of Medical Treatment*. But he was long handicapped by poor health, which for a time laid him entirely aside, and he gave up the ordinary Harley Street career. On recovery he devoted himself whole-heartedly to three institutions to their great benefit: at King's College Hospital, in the removal of which to Denmark Hill he had played an active part, he took a very practical interest in the school and the students, and the successes of his former house-physicians bear eloquent testimony to his influence. For years the moving spirit at Epsom College, he wrote fifteen hundred personal letters in his clear, characteristic script for an appeal. At the Royal College of Physicians of London he was, since 1925, the ideal Registrar, having previously held high office and delivered the Harveian Oration and the Fitzpatrick Lectures. His contributions to medical history, mainly carried through when physically laid aside, are of widely recognized value, and he was the third president, following Sir William Osler and Sir Norman Moore, of the Section of the History of Medicine at the Royal Society of Medicine, of which he also followed Sir Norman Moore as honorary librarian.

A correspondent writes:

It is no secret that the immediate predecessors of Raymond Crawford in the chairmanship of the Council of Epsom College had displayed neither the energy nor the capacity which he brought to that position; and that the reputation of the College had been definitely suffering in consequence. The thirteen years (1923-36) of his occupation of the chair were a period of reorganization and expansion in every direction: nothing was too small for him personally to inquire into, nothing great enough to frighten him. During this long period he strove incessantly for the improvement of the School and of the Foundation, with single-minded devotion and with outstanding success. For most men the work he did would have been a full-time occupation: but with Crawford it was but one of the many sides of his life. His handling of his Council was tact and discretion itself: if he had a failing as a chairman it may have been that he sometimes allowed undue prolixity in debate; but his quiet persuasiveness and imperturbable good temper made it impossible for anyone to quarrel with him, and his methods probably helped him to get his own way when a stiffer chairman might have failed. Now and then it happened that some reform on which he had set his heart did not commend itself at once to his Council. He would accept defeat without betraying the least annoyance—and then quietly set about a course of judicious lobbying among his opponents which would lead to success a few months later when the particular matter came up again. An instance of his ascendancy over his Council, or rather of the way in which it was built up, was afforded a few years ago, when at the close of a busy afternoon he addressed the members somewhat as follows: "Gentle-

men, I must apologize for bringing up a topic which is not on the agenda, and I hope you will forgive me if you think I have exceeded my functions. I have felt for some time that our Biology Laboratory is out of date, and should be scrapped: Chemistry and Physics are so well equipped now that we must provide equally for Biology, and I have taken the liberty of asking our architect to draw out some plans." The plans were then produced, and when someone asked the probable cost the answer was "About £6,000." On a further inquiry where this sum of money was to come from, the chairman paralysed all opposition by a laconic statement that he had already obtained promises to the extent of £3,200.

Great as were the improvements to the College buildings for which he was responsible, Crawford's keenness on educational progress was greater still: he was more than once known to complain half humorously that he always found it easier to induce his Council to spend money on laboratories than on learning (laboratories was not the word he used, but it is near enough). As recently as the end of February he made, a long speech to the College Council on current trends in secondary-school education packed full of practical wisdom and advice, which his colleagues were eager to accept. He had originally, when resigning the chairmanship, stipulated that he should leave the Council too, probably with a view to making things easier for his successor. It has been a real gain to the College that he was persuaded out of this resolve; he was a member of the Council for twenty-three years in all. When, after his resignation, he was presented by his past and present colleagues, quite contrary to his own wishes, with a piece of suitably inscribed silver plate, his speech in Big School to the assembled Council, masters, and boys was a model of what an oration in such circumstances should be—a masterpiece of simplicity and sincerity, phrased in flawless English.

[The photograph reproduced is by Elliott and Fry, Ltd.]

SIR ARTHUR DOWNES, M.D.

Late Senior Medical Inspector for Poor Law, Local Government Board

We regret to announce the sudden death of Sir Arthur Downes, on March 11, at his home on Mount Carmel, Haifa. He had been a member of the British Medical Association for just on half a century, and in his retirement became a member of the Palestine Branch.

Arthur Henry Downes, son of T. R. C. Downes, was born in Shropshire on October 11, 1851, and from Shrewsbury School went first to University College, London, and then to the University of Aberdeen, where he graduated M.B., C.M., with highest honours, in 1873, and proceeded M.D. two years later. He took the Cambridge D.P.H. in 1877, and soon afterwards entered the public health service, acting for a year as deputy medical officer in Shropshire and then as M.O.H. from 1879 to 1899 for the Essex combined areas. He was then appointed a medical inspector under the Local Government Board, and during thirty years' service was a member of the Royal Commission on Poor Law and Relief of Distress, and also a number of Departmental Committees, including those on workhouse dietaries, nursing in workhouses, workhouse accounts, feeding of prisoners, vagrancy, the Midwives Act, and the condition of the blind. He represented the Local Government Board on the Social Welfare Association for London and the Central Council for District Nursing. He was chairman of the first Committee on Homeless Poor in London, and after his retirement from work in Whitehall became a trustee of Lord Strathcona's charity for lepers.

M.B., B.Ch. degrees in 1894, and the F.R.C.S. in 1895. Mr. Cull's first association with the Sheffield Royal Infirmary was as house-surgeon. He then practised in partnership for some time, relinquishing general practice on his appointment to the visiting surgical staff at the Royal Infirmary. He was for some years lecturer in surgery at the University of Sheffield and an examiner in surgery for the University of Cambridge. From 1898 he had been medical referee for the Sheffield and Rotherham County Court Districts under the Workmen's Compensation Act. During the war he served with the Royal Field Artillery (T.) as surgeon major in France, and a few years after his return to civil life he was appointed a justice of the peace. At the Annual Meeting of the British Medical Association in Sheffield in 1908 he was vice-president of the Section of Surgery.

We regret to announce the death last month, at the age of 84, of Dr. SAMUEL E. MOSTYN HOOPS, in Victoria, British Columbia. After qualifying in Dublin in 1874 he practised for many years at Douglas, Isle of Man, where he was Commodore of the Douglas Bay Yacht Club in 1894, when the *Britannia* and other big yachts took part in the regatta. In 1897-8 he went on an overland expedition from Edmonton to the Klondyke, and never returned to the British Isles. For some years he practised at Soda Creek up the Cariboo Trail in British Columbia, and was coroner and medical officer in charge of the Red Indian Reserves over a wide area. Dr. Hoops was also well known as a breeder of cattle and horses on his ranch. At the age of 70 he moved to Sidney, near Victoria, Vancouver Island, where he was also coroner and in charge of Red Indian Reserves, and indulged his taste for yachting and fishing. He was for many years a member of the British Medical Association, and his son, Dr. A. L. Hoops, C.B.E., of Malacca, late Principal Civil Medical Officer for the Straits Settlements, has attended a number of Annual Meetings of the Association.

The death is announced of FÉLIX MESSIL of the Pasteur Institute in Paris. Holding no medical qualification, he contributed much to the knowledge of medicine by his studies as a biologist. He was born in 1868, and became attached to the Pasteur Institute in 1892. He worked under Metchnikoff and Laveran on the protozoa pathogenic to man, and he collaborated with Laveran in the publication of *Trypanosomes et Trypanosomiasis*. It is claimed for Messil that he inaugurated the chemotherapy of diseases of parasitic origin. At the Pasteur Institute he organized classes in protozoal pathology for colonial doctors. He was a member of the Académie des Sciences, Académie de Médecine, and Académie des Sciences Coloniales, and Commander of the Legion of Honour.

The American ophthalmologist JAMES A. SPALDING, whose death at the age of 91 occurred at Portland, Maine, on February 27, had studied at Harvard under Oliver Wendell Holmes, had attended Brown-Séquard's lectures on internal secretions, and had seen Henry Jacob Bigelow perform the first litholapaxy in the world in 1878. Though deaf from youth, Dr. Spalding had learnt eleven languages.

Dr. LILLIAN WELSH, for thirty years professor of physiology and hygiene at Goucher College, Baltimore, Maryland, and one of the first American women to practise medicine, died on February 23, aged 80.

The following well-known foreign medical men have recently died: Dr. EVERT CORNELIS VAN LEERSUM, formerly professor of medicine at Leiden and director of the Netherlands Institute of Nutrition at Amsterdam; Professor WILHELM HEUCK, an eminent dermatologist of Munich, aged 62; and Dr. HERMANN SCHMIDT, formerly director of the Charité Hospital in Berlin.

Medical Notes in Parliament

Both Houses of Parliament this week discussed European affairs. The House of Commons also debated the Air Estimates and civil aviation policy. The Navy Estimates were down for March 17.

The House of Lords on March 10 gave third readings to the Blind Persons Bill and the Population (Statistics) Bill. Both measures had already passed the House of Commons, and the House of Lords has not amended them.

The Workmen's Compensation (Amendment) Bill, as amended in Standing Committee, was read a third time in the House of Commons on March 9. It was read a first time in the Lords on March 10.

The Divorce and Nullity of Marriage (Scotland) Bill was read a first time in the House of Commons on March 14.

Dr. Howitt has been added to the Scottish Standing Committee for discussion of the Registration of Stillbirths (Scotland) Bill. This measure was down for discussion on March 17.

Variation in Benefits of Approved Societies

Mr. JAMES GRIFFITHS asked on March 10 if the Minister of Health was aware of the growing concern felt by a number of the smaller approved societies operating under the National Health Insurance Acts at the loss of membership to larger and richer societies, who were able to offer inducements to insured persons to transfer because of the wider range of additional benefits offered. Mr. Griffiths asked the Minister to inquire into the possibilities of co-ordinating the health insurance services so that all those who made equal contributions should secure equal benefits under the State insurance scheme. Sir KINGSLEY WOOD said he did not agree that the smaller approved societies were ordinarily at any disadvantage compared with the larger societies as regards the additional benefits which they could provide for their members. Insured persons had freedom of choice of society, and some would seek to transfer from societies with relatively unfavourable valuation results to others in a more favourable position. There was, however, statutory provision for the protection of the weaker societies against undue loss of membership by transfer. The position, in his opinion, did not call for the course suggested by Mr. Griffiths, which would involve the abolition of the approved society system.

Health of Recruits

Introducing the Army Estimates on March 10, Mr. HORE-BELISHA said the labours of the scientists employed by the War Office would be co-ordinated by a Director of Scientific Research. Suitability and merit would in the Army, as in outside professions, determine the selection of officers for the most responsible posts. Mr. Hore-Belisha did not mention the Army Medical Corps, but said the general establishment of officers would be reduced by 1,000, and that warrant officers would be given an opportunity of discharging some of the responsibilities now confined to the commissioned ranks. The proportion of rejections was high among the 60,000 would-be recruits who tried to join the Army annually. The service should be enlarged whereby recruits below the normal physical standard could be brought into better health. Out of every hundred boys passed through the Physical Development Depot, which was now at Canterbury, ninety-two passed into the Army as fully fitted soldiers. At least one more such depot would be opened in 1938. Not only recruits in these depots, but all others who, in the opinion of the medical officer, needed special nourishment would have an extra issue of half a pint of milk. The issue would be "neat." The Government intended to adapt all barrack accommodation to the latest standard, and had arranged for experts to review the present arrangement for cooks, bearing in mind the importance

Dr. Helen Webb, and graduated M.B.Lond. in 1896 at the mature age of 44. Dr. White did not take up general practice. While still a student she felt strongly the urge to work for a change in the general attitude towards the mental needs of patients. This was many years before there was any question of psychology having a place in the medical curriculum. Dr. White was a foundation member of the Society for the Reform of the Lunacy Laws, and published notes and letters in the *British Medical Journal* and the *Lancet*. She never spared herself in working to help the helpless. Some of her colleagues had the pleasure of sharing her success in obtaining the discharge of patients detained in mental hospitals after showing evidence of cure. She gave freely of her time, energy, and means towards the establishment of homes for cases of early mental breakdown at its very beginning, before certification should be considered. The cause which she thus espoused has not yet come into the purview of the medical student, and she felt keen disappointment at failing to secure the co-operation of the profession. She had not let any of her many friends know of her illness, and in the presence of only a few near relatives she was buried in the Friends Meeting House ground at Wanstead.

Dr. THOMAS WILLIAM FRANCIS GANN, who died in London on February 24 at the age of 71, was well known as an adventurous explorer and an authority on the archaeology of Central America. The only son of William and Rose Gann of Hayling Island, he received his medical education at the Middlesex Hospital, qualifying L.S.A. in 1889 and obtaining the diplomas M.R.C.S., L.R.C.P. the next year. In 1907 he took the Liverpool D.T.M., and was for some time Principal Medical Officer in British Honduras and a member of the Legislative Council. His life interest in Central America began with a journey there in charge of a medical expedition to relieve the sufferers from an earthquake in Guatemala, for which he was thanked by the Colonial Secretary; after this he entered the service of the Government of British Honduras at Belize. He made frequent journeys of exploration into the interior in order to search for ruins of the ancient Maya civilization. Among his many publications on this subject were *Maya Cities* in 1927 and *History of the Maya*, which followed this book two years afterwards. When in 1930 Dr. Gann married Miss Mary Wheeler of Jersey their honeymoon took the form of a trip through the Guatemalan jungle. He believed that immigrants from North-Eastern Asia in the late neolithic period had first discovered America. Dr. Gann was elected a Fellow of the American Geographical Society in 1927, and was a Fellow of the Maya Society and a lecturer at Liverpool University on Central American archaeology.

Dr. JOHN PAUL ROUGHTON, J.P., who was formerly acting medical officer of health for Kettering and surgeon to Kettering General Hospital, died suddenly on February during a Mediterranean cruise. Dr. Roughton received his medical education at St. Bartholomew's Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1886 and the D.P.H. two years later. He held the post for some time of assistant electrician at St. Bartholomew's. The eighth son of the late Dr. J. J. Roughton, first chairman of the Kettering Local Board, he eventually succeeded his father in the Kettering practice which had been founded by his great-great-grandfather in 1710, and was one of the surgeons to Kettering General Hospital from 1897 to 1926, when he was elected consulting surgeon. In 1911 he joined the British Medical Association, and was a representative on the Representative Body at the Annual Meeting of the Association at Aberdeen in 1914. In 1933 he retired from practice and went to live in Cambridge with his only surviving son, Dr. F. J. Roughton, thus ending a family succession of medical practitioners in Kettering which had continued unbroken for more

than two hundred years. His wife died in 1931; they had both been prominent in local medical and social organizations.

The death took place at his home in Edinburgh of Dr. J. OLIVER HAMILTON, at the age of 52, from the result of his war disability. He was educated at George Watson's College. He graduated M.B., Ch.B. in 1908 at Edinburgh University, and took his D.P.H. in 1928. In 1910 he joined the R.A.M.C. Reserve of Officers and saw service as a regimental medical officer during the early hardships of the retreat from Mons to the Marne. He was attached in 1915 to No. 10 General Hospital, B.E.F., Rouen, and when he retired from the service in 1917 he was in command of No. 4 Ambulance Train, B.E.F., France. He was the son of a well-known and beloved Border practitioner, John Rodger Hamilton, M.D., of Hawick, who was chairman of the Scottish Committee of the British Medical Association when hostilities broke out in 1914, and did much valuable service in helping to muster the medical services in Scotland. Oliver Hamilton was associated in practice with his father, and after his death continued the practice in Hawick, where he held many public appointments, medically and socially. He was a football enthusiast, and was president of the Hawick Rugby Association in 1914. He was much esteemed by his patients for his gifts of heart and mind and outstanding professional ability. In 1919 he was forced to seek a warmer and more congenial climate in the South of England. He was actively engaged doing bacteriological research in Bournemouth and district. After leaving there he took a public health appointment in Barbados, B.W.I., and on relinquishing it was appointed chief medical officer to the Burma Corporation Limited. During the past five years he travelled extensively in the Dominions and elsewhere in a quest for renewed health. He will long be remembered by those who knew him for his gay courage and dauntless endeavour to carry on in the face of continued ill-health. He was an agreeable colleague, and possessed a charm of manner that came from a wide culture and a charitable judgment of his fellow men.

Dr. RICHARD LIDDON MEADE-KING of Taunton died suddenly on February 25 in the home of a sick friend whom he was visiting. He was born in 1861, and studied medicine at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P. in 1892, the M.B., B.S. of Durham University in 1893, and the M.D. in 1895. Dr. Meade-King was honorary physician to the Taunton and Somerset Hospital from 1897 to 1924, when he was elected consulting physician, and was president of the hospital in 1931. He had been honorary secretary of the Somerset Archaeological Society, and was particularly interested in ornithology. He joined the British Medical Association in 1894, and was president of the West Somerset Branch in 1906-7.

Dr. JAMES ARTHUR RICHARD LEE of Mexborough, who died on March 2 aged 66, had practised in that town for twenty-seven years, and was recently chairman of the Doncaster Division of the British Medical Association. He began his career as a pharmacist, and then studied medicine at Sheffield University, obtaining the M.R.C.S. and L.R.C.P. diplomas in 1910. Dr. Lee took a prominent part in local affairs, and had been a Justice of the Peace since 1928. He was honorary surgeon to the Montagu Hospital, Mexborough, and as secretary of the medical staff of that institution played a leading part in the recent dispute with the board of management. His three sons are all members of the medical profession.

Mr. ARCHIBALD WILLIAM CUFF, F.R.C.S., one of Sheffield's best-known surgeons, died on March 9, after a long illness, at the age of 69. A native of Staffordshire, he studied medicine at Cambridge and St. Thomas's Hospital, taking the English Conjoint diplomas in 1893, the

Accommodation for the Sick on Troop Transports—On March 15 Mr. DE LA BIRE asked the Secretary of State for War, in connexion with the improved accommodation on transports for trooping, what steps were being taken to provide improved accommodation for the sick. Mr. HORE-BELLISHA said that the hospital accommodation in a transport provided both for invalids from stations abroad and for cases of sickness arising on the voyage. In the newer transports and the two under construction the cubic space for each individual had been increased. Improved types of bed and cot and better ventilation and lighting arrangements had been installed. The dispensaries were larger, and facilities for microscopic work had been provided. Several other kinds of improvement had been adopted, such as refrigerators instead of ice chests, proper cot-lifting units, and so on. The women's wards were similarly improved, and a separate medical inspection room for women had been provided. In the older transports higher standards of comfort and equipment had been provided as far as the accommodation would allow.

Universities and Colleges

UNIVERSITY OF OXFORD

Wilton Ernest Henley, B.M., second assistant in the Medical Unit at St. Mary's Hospital, formerly Rhodes Scholar of New College, has been elected to a travelling Fellowship on the Foundation of Dr. John Radcliffe at University College.

UNIVERSITY OF CAMBRIDGE

At a congregation held on March 11 the following medical degrees were conferred:

M.D.—S. McDonald, K. M. A. Perry, J. Smart, V. H. Riddell.
M.Chir.—W. F. Nicholson.
M.B., B.Chir.—A. L. Cochrane, *G. R. Rawlings, *J. K. Moore, R. L. Townsend, D. Rubin.

* By proxy.

During February the title of the degree of M.B. was conferred by diploma on B. J. Travers of Newnham College.

UNIVERSITY OF LONDON

Dr. Phyllis Margaret Kerridge has been appointed a teacher of physiology at University College in the Faculty of Science.

The date of the M.D. (Branch V) examination for internal and external students has been changed to the first Monday in July, for examinations in and after July, 1938.

Lord Horder has been appointed representative of the University at the International Congress on Rheumatism and Hydrology, to be held at Oxford from March 26 to 31, and Mr. P. H. Mitchiner a member of the University Extension and Tutorial Classes Council for the remainder of the year 1937-8.

Dr. J. A. Drake has resigned the post of teacher of dermatology at King's College Hospital Medical School.

I. P. J. MacNaughton, M.B., F.R.C.S., has been awarded a grant of £120 to enable him to study the methods of Dr. W. J. McNally of Montreal for not less than three months during 1938.

Revision of Building Plans

Changes have been decided upon in the plans for the University buildings to be erected to the north of the existing new buildings in Bloomsbury. Under the revised plan the view of the great Tower as seen from the north will be preserved, and Torrington Square will become the University garden. The original layout made provision for one continuous group of buildings covering the centre of the site from north to south and embracing a number of separate institutions each with its own internal organization. The architectural scheme consisted of a central spine from north to south, with cross-ribs from east to west, these ribs being joined by a continuous façade fronting on Malet Street. The plan included a number of enclosed courtyards, but it was found later that the requirements were more agreeably met by enclosing alternate courts only. The main units of the first section of the new building, comprising the Senate House, the University Library and Tower and the Institute of Education, School of Slavonic Studies, and Institute of Historical Research, balance each

other effectively. It has been decided to arrange future units of the University group round Torrington Square. The first buildings to be erected under the revised plan will be Birkbeck College and the School of Oriental Studies, occupying the southern end of the space available for building on the east and west sides of Torrington Square. The modifications in the architectural scheme are being submitted to the London County Council, the Holborn Borough Council, and other interested bodies.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the College was held on March 10, with the president, Sir Cuthbert Wallace, Bt., in the chair.

Diplomas

A Diploma of Membership was granted to Robert Cox of Westminster Hospital.

Diplomas of Fellowship were granted to the following candidates:

I. E. Zieve, J. A. Dhacka, D. M. Jones, J. H. Mayer, R. G. Talwalkar, E. Vernon, Margaret M. Ferguson, R. H. Karmarker, M. N. Khanna, T. D. V. Krishnan, R. S. Lawson, J. F. Shepherd, M. Sofer Schreiber, S. P. Srivastava.

Diplomas in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Physicians, to the following candidates:

G. H. Appel, A. H. Booth, D. K. Bose, G. H. Buck, E. W. B. Griffiths, S. P. Gupta, A. G. Hiremath, J. Jeels, J. B. S. Karki, H. O. Little, J. Macaskill, N. C. Mandalia, J. D. Martin-Jones, T. R. Pahwa, J. B. Patrick, H. Penman, C. V. D. Rose, E. N. Rosen, R. Stuart, R. A. Syed, S. Wigoder.

Mr. C. P. G. Wakeley was re-elected a Member of the Court of Examiners.

The University of Hyderabad was recognized for the study of anatomy and physiology for the Primary Fellowship examination.

Mr. P. B. Ashcroft, F.R.C.S., was re-elected Streatfeild Research Scholar.

A vote of condolence was passed on the death of Sir Raymond Crawford, registrar of the Royal College of Physicians of London.

INTER-COLLEGIATE SCHOLARSHIPS BOARD

The London Inter-Collegiate Scholarships Board announces that an examination for twelve medical scholarships and exhibitions of an aggregate total value of £1,443 will commence on May 9. They are tenable at University College and University College Hospital Medical School, King's College and King's College Hospital Medical School, the London (Royal Free Hospital) School of Medicine for Women, the London Hospital Medical College, and St. George's Hospital Medical School. Full particulars and entry forms may be obtained from the secretary of the Board, Mr. S. C. Ranner, M.A., at King's College Hospital Medical School, Denmark Hill, S.E.5.

The Services

HONORARY SURGEON TO THE VICEROY

Colonel A. F. Babonau, C.I.E., O.B.E., I.M.S., has been appointed Honorary Surgeon to the Viceroy and Governor-General of India, vice Colonel S. G. S. Houghton, C.I.E., O.B.E., I.M.S.

DEATHS IN THE SERVICES

Captain HORACE HARVARD KIDDLE, who had served in both the Indian Medical Service and the Royal Army Medical Corps, died in London on March 4, aged 60. He was born on October 30, 1877, was educated at St. Thomas's Hospital, and took the M.R.C.S., L.R.C.P. in 1902. He entered the Indian Medical Service as lieutenant on September 1, 1902, became captain after three years' service, and on December 18, 1907, exchanged into the Royal Army Medical Corps, changing places with the late Lieutenant-Colonel (then Captain) W. H. Odium, I.M.S. He was placed on temporary half-pay, on account of ill-health, on September 1, 1911, and retired on June 25, 1913. Since his retirement he had been in practice in London. While in the Indian Medical Service he held the post of chemical examiner and bacteriologist to the Government of Burma.

of food in health. The ration of butter would be issued at stations abroad as well as at home. Men discharged as unfit on medical grounds would be given twenty-eight days' furlough on full pay.

After debate the necessary Votes for the Army were carried through committee.

Diseases in Cattle

On a Supplementary Vote for the Ministry of Agriculture and Fisheries, which was agreed to on March 9, Mr. H. RAMSBOTHAM said that because of outbreaks of foot-and-mouth disease additional expenditure was needed in connexion with the Diseases of Animals Account. There had been a saving in respect of tuberculosis in cattle. During the first six months of 1937-8 there had been only seventeen outbreaks of foot-and-mouth, costing £35,000, but since then 267 other outbreaks costing £455,000. The outbreak which began in the middle of October was of a severe character. Its source was Central Europe. It was apparently reintroduced into France from North Africa. At the peak stage, when Great Britain had eighty-seven outbreaks, there were 45,085 in France, 22,419 in Belgium, and 21,604 in Germany. Since then in this and other countries there had been a satisfactory decrease. In January Great Britain had seventy-five outbreaks, in February twenty-six, and in March up to the 8th, one. The heaviest infection was at the time of the autumn mass migration of birds to the eastern and southern counties. It was highly probable that the birds were mechanical carriers of the virus. This country, by expenditure of £500,000 and destruction of 50,000 animals, had been saved a disaster. The Foot-and-Mouth Disease Research Committee had recently been strengthened. It consisted of scientists in the medical and veterinary professions under the chairmanship of Sir Joseph Arkwright. It was attending to the problem of immunization, which was complicated because there were several types of virus in this disease. Immunity might be secured against one type which would not give immunity against another. The committee had outlined experiments to see whether birds were susceptible to the disease or capable of mechanically transmitting the virus. The question of a serum, as employed in Germany, had been studied, but experiments had not been very successful.

SIR STAFFORD CRIPPS asked why less had been spent in dealing with tuberculosis in cattle, although the House was anxious that the purification of the milk supply should proceed rapidly.

Mr. W. S. MORRISON said the Foot-and-Mouth Disease Research Committee was ready to consider any suggestion. There was a complete international exchange of information on research, which was collected by a central office in Paris. He agreed that the policy of clearing the herds of disease was the most satisfactory way of securing a supply of clean milk. There was no slackening of efforts on that score, and the assault on the disease by a central State veterinary service would begin on April 1. About fifteen months ago a serum against foot-and-mouth disease had been received from Germany which was efficient in the mild attacks but could not be recommended as an alternative to slaughter. It was largely employed on the Continent in the recent outbreak, but the disease was completely victorious over the supposed immunity.

The Supplementary Estimate was approved.

Problems of Ventilation on the London Underground

In the House of Commons, on March 8, Sir RALPH GLYN moved the second reading of the London Passenger Transport Board Bill. He said that owing to the increased number of coaches attached to the ordinary trains run on the London Passenger Transport Board system and to the fact that the tunnels had been extended in many cases the ventilation had become of great importance. It was the duty of the Board to see that there was adequate and proper ventilation throughout the tube system. If the Bill was not given a second reading that work would be delayed. It had been found in practice that the ordinary extractor fans did not accomplish the work as satisfactorily as was expected, and

it was essential to acquire property and sink shafts in order to have clear ventilation to the upper air.

Last May there was presented to the House a report which was the result of an inquiry into the whole question of the factors that governed the omnibus stoppage of last year. At that inquiry a good deal of emphasis was laid on the fatigue and undue strain that the men suffered. It was essential, if the Board was to do their duty by its employees, that they should give effect to the recommendations in the report with regard to the provision of facilities for meals for their employees. The Bill carried out those recommendations.

After a long discussion, in which a motion was made for the rejection of the Bill, the debate was adjourned by 186 votes to 131.

Diabetes and Entry into the Civil Service.—Colonel COLVILLE states that there is no regulation debaring those suffering from diabetes from entry to the civil service. The existence of the disease is, however, a factor which has to be considered in the medical examination which is undergone by candidates for entry to or establishment in the public service. Each case is decided on its merits by the appropriate authority in the light of the medical report. Since it has to be considered not only whether the candidate is at present fit for the duties of the post he seeks but also whether he will remain so till the age of retirement, this decision must often be adverse in spite of the efficacious treatment available.

Osteopathic Research.—Mr. GROVES asked whether the Scottish Osteopathic Research Institute was licensed to perform vivisections, and where the experiments on rats were performed that were referred to in the first report of that Institute. Sir SAMUEL HOARE replied, on March 8, that the Scottish Osteopathic Research Institute was not a registered place under the Cruelty to Animals Act, 1876. The experiments in question were performed at the Institute of Animal Genetics, a registered department of the University of Edinburgh.

Marriage Allowances to Officers of the Navy.—On March 14 Mr. SHAKESPEARE informed Sir M. Sueter that the award of marriage allowance to officers of the Royal Navy and Royal Marines had been approved. A more detailed announcement must await the Navy Estimates later in the week.

Cod-liver Oil Imports.—Captain WALLACE, replying to Mr. R. Gibson on March 14, said that the total imports into the United Kingdom of cod-liver oil consigned from Norway amounted to 1,894 tons during 1929 and to 383 tons during 1937. Since the duty of 1s. 4d. a gallon was imposed on foreign cod-liver oil under the Ottawa Agreements Act, 1932, imports from Newfoundland had increased, and there had been a substantial development of United Kingdom production.

Grants for Veterinary Research.—On March 15 Mr. LLOYD informed Mr. Anstruther Gray that the Racecourse Betting Control Board had made a grant of £1,000 for investigation into grass sickness at the Institute of the Animal Diseases Research Association at Moredun, near Edinburgh, and a further grant of £750 had been approved. A grant of £625 had been made to research into disabling diseases of horses at the Royal (Dick) Veterinary College, Edinburgh, and a further grant of £650 had been approved. A grant of £500 had been made to the building fund of the Royal (Dick) Veterinary College and a further grant of £500 had been approved. It was proposed to make a grant of £500 to the Glasgow Veterinary College.

Dispensing of Insurance Prescriptions in West Lothian.—Mr. ELLIOT, replying to Mr. Mathers on March 15, said that the West Lothian Insurance Committee had recently decided that it was no longer necessary to require an insurance practitioner to dispense medicines for his insured patients in the Livingston Station area, West Lothian. As by statute it was open to any insured person affected by this decision to refer it for determination to the Department of Health for Scotland, it would not be proper for him to make any statement on the subject at present.

EPIDEMIOLOGICAL NOTES

Incidence of Principal Infectious Diseases in England and Wales during February

In the four weeks ending February 26, 1938, there were notified in England and Wales: 9,471 (121 per cent.) cases of scarlet fever; 6,749 (132 per cent.) of diphtheria; 4,559 (63 per cent.) of primary pneumonia; 12 (108 per cent.) of enteric fever. The figures in parentheses denote the increase or decrease per cent. of the expected numbers, deduced from the median values of the corresponding weeks of the years 1929-37. It is seen that with the exception of pneumonia there has been an appreciable increase of the principal infectious diseases in England and Wales during February, compared with that of the last nine years; this increase, with the emergence of measles in epidemic form in many areas, has severely taxed the hospital accommodation of many sanitary authorities.

Diphtheria and Scarlet Fever

In England and Wales notifications of diphtheria were 1,556, compared with 1,565 last week, while in London, Scotland, Eire, and Northern Ireland appreciable increases were recorded. There was an increase of deaths in England and Wales, 50 (34): in London, 8 (3); in Scotland, 7 (5); while in Eire deaths were the same as last week. 4. The figures in parentheses denote the deaths for the previous week. In England and Wales the notifications of scarlet fever have dropped from 2,429 to 2,367, the London figures being 198 and 182 respectively. On the other hand, increases were observed in Scotland 472 (459), in Eire 111 (90), Northern Ireland 97 (87). In England and Wales there were 8 (2) deaths, in Scotland there was 1 (1) death, and in Northern Ireland 1 (0). The figures in parentheses denote deaths in the previous week.

Measles

In the 125 Great Towns there were 44 deaths from measles, compared with 50 in the previous week: of these, 14 (13) occurred in London, 4 (3) in Birkenhead, 1 (2) in Manchester, 3 (1) in Liverpool. In London the epidemic appears to be increasing in magnitude; 2,165 cases of measles were reported in the L.C.C. elementary schools, compared with 1,801 in the previous week: the average daily admissions to the L.C.C. fever hospitals were 86, compared with 68 in the previous week; and the number of cases of measles under treatment on Friday, March 4, in the L.C.C. fever hospitals was 1,542, compared with 1,361 on the previous Friday. On the same day there were in these hospitals 1,277 cases of diphtheria, 819 of scarlet fever, and 277 of whooping-cough. The notifications of measles in London boroughs for the week under review are: Battersea 187, Bermondsey 45, Finsbury 25, Fulham 110, Greenwich 74, Lambeth 353, Shoreditch 16, Southwark 137, Stepney, 37. In Scotland 1,747 cases were notified, compared with 1,653 in the previous week, the figures for Glasgow being 1,247 (16), Edinburgh 66 (3), Paisley 94, Dundee 162, Aberdeen 48. The figures in parentheses denote the deaths. In Northern Ireland there were 237 cases, compared with 295 in the previous week: the figures for Belfast were 217 against 281, while the deaths were 12, compared with 17 in the previous week. During the week one death from measles was recorded in Dublin.

Infantile Paralysis

The epidemic of infantile paralysis in Victoria, Australia, which has lasted for eight months and which has been five times greater than any former outbreak, is now regarded as over, although sporadic cases may be expected for some time. During this period 1,984 cases were notified and there were 99 deaths (case mortality just under 5 per cent.).

Typhus in Morocco

In Morocco during the week ended February 26 298 cases of typhus were notified, of which 68 were in Marrakesh and 17 in Casablanca. During the same week there were 60 cases in Egypt, of which 5 occurred in frontier districts, 1 in Alexandria, and the rest widely scattered in the different provinces. In Tunisia there were 59 cases, of which 2 occurred at Bizerta and 1 at Tunis. In the previous week 24 cases were reported in Algeria, of which 5 were in Algiers and 2 in Oran. In the week ended February 5 20 cases were reported in the United States: South Carolina 1, Georgia 6, Florida 6, Alabama 3, Texas 4.

Medical News

The Trueman Wood Memorial Lecture will be delivered by Lord Horder before the Royal Society of Arts, John Street, Adelphi, W.C., on Wednesday, March 23, at 8.30 p.m. His subject is "Public Health: The Hygiene of a Quiet Mind." Applications for tickets should be made to the secretary of the society.

Count Castellani will read a paper on "Hygienic Measures and Hospital Organization of the Italian Expeditionary Forces during the Ethiopian War, 1935-6" before the Royal Society of Arts, John Street, Adelphi, W.C., on Wednesday, March 30, at 8.15 p.m. The chair will be taken by Sir Humphry Rolleston. Applications for tickets should be made to the secretary of the society.

A meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday, March 25. At 5 p.m. there will be a business meeting, and at 6 p.m. Dr. J. C. Bridge will speak on "First Aid in Factories" and Mr. P. H. Michener on "Minor Surgery applied to Industrial Medical Services." On Saturday, March 26, at 10 a.m., at St. Thomas's Hospital, Mr. Mitchiner will give a practical demonstration of minor surgery and casualty surgical methods.

Ulaws (University of London Animal Welfare Society) has arranged a meeting for Tuesday, March 22, at 5.15 p.m., in the Beveridge Hall, Montague Place, W.C., for a discussion on the survey and regulation of British fauna, entitled "Man's Relation to Nature and his Response." The principal speakers are Lord Tavistock and Professor F. A. E. Crew. The regulation of economically or aesthetically beneficial or harmful species, field sports, epizootics, importation, and commercial exploitation will be examined in conjunction, and with reference to humane requirements. Applications for tickets should be made to the honorary secretary, Ulaws, 42, Torrington Square, W.C.1.

During the present week-end the Incorporated Society of Chiropractors is holding its annual convention in London at the Langham Hotel. To-day, Friday, March 18, at 5 p.m., Professor J. H. Burn, M.D., gives a lecture on "The Disinfection of the Skin and of Superficial Wounds," and on Saturday medical films will be shown by Mr. H. A. T. Fairbank, Sir Harold Gillies, Mr. R. Watson Jones, and Dr. Erwin Straus of Berlin. The guests at the annual dinner include Sir Cuthbert Wallace, President of the Royal College of Surgeons, Sir Charles Gordon-Watson, and Dr. T. Carnwath of the Ministry of Health.

A meeting of the Medical Section of the British Psychological Society will be held at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, March 23, at 8.30 p.m., when a paper will be read by Dr. Margaret Lowenfeld on "The World Pictures of Children: A Method of Recording and Studying Them."

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, March 24, at 8.30 p.m., when a paper will be read by Dr. S. W. Fisher on "Medico-legal Aspects of Coal Mining."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 5, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (ii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	50	7	10	1	2	25	2	12	2	1		
Deaths		1	2				1	5				
Diphtheria	1,556	172	289	75	38	1,087	146	212	33	35	1,114	164
Deaths	50	8	7	4	—	35	3	6	1	1		
Dysentery	155	44	73	—	—	15	2	23	—	—		
Deaths												
Encephalitis lethargica, acute	3	—	1	—	—	1	—	3	—	—		
Deaths		2					1					
Enteric (typhoid and paratyphoid) fever	16	1	1	5	2	41	7	5	5	1	29	—
Deaths	—	—	1	—	—	—	—	—	—	—		
Erysipelas			81	7	8			72	11	5		
Deaths		1					2					
Infective enteritis or diarrhoea under 2 years	56	19	5	9	1	58	19	9	3	5		
Deaths												
Measles			1,747		237*			137		2		
Deaths	44	14	21	1	13	10	—	1	3	—		
Ophthalmia neonatorum	118	13	41	—	—	85	11	17	—	—		
Deaths												
Pneumonia, influenzal†	1,294	107	8	8	9	1,256	85	40	32	3	1,697	146
Deaths (from Influenza)	57	6	4	1	1	181	16	27	7	1		
Pneumonia, primary		19	280	13	22		15	254	4	13		
Deaths				32					24			
Polio-encephalitis, acute	1	—	—	—	—	1	1	—	—	—		
Deaths		—					—					
Poliomyelitis, acute	6	1	—	—	—	2	1	1	—	—		
Deaths		—					—					
Puerperal fever	5†	5	23	2	2	38	3	26	3	1		
Deaths		—					—					
Puerperal pyrexia	188	19	30	—	2	122	17	24	—	5		
Deaths												
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Scarlet fever	2,367	182	472	111	97	1,652	161	368	81	27	1,762	233
Deaths	8	—	1	—	1	4	1	—	3	—		
Small-pox	2	—	—	—	—	—	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths												
Whooping-cough			80	—	16			646	—	7		
Deaths	26	2	1	1	2	21	4	22	10	1		
Deaths (0-1 year)	420	70	79	53	27	445	75	104	42	23		
Infant mortality rate (per 1,000 live births)	70	58				71	62					
Deaths (excluding stillbirths)	5,449	1,108	791	253	167	5,440	1,009	879	264	178		
Annual death rate (per 1,000 persons living)	13.4	14.0	14.4	17.1	14.8	13.5	12.6	17.0	18.0	17.0		
Live births	6,823	1,249	925	389	253	6,514	1,294	878	340	247		
Annual rate per 1,000 persons living	16.8	15.7	18.9	26.3	22.4	16.2	16.1	17.9	23.2	23.6		
Stillbirths	267	28	—	—	—	281	42	—	—	—		
Rate per 1,000 total births (including stillborn)	38	22				41	31					

(i) 122 great towns in 1937.
(ii) 9 " " " "

* 217 cases in Belfast alone.

† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

217 Recent Pulmonary Cavitation Treated Conservatively

S. COLD (*Hospitalstidende*, December 28, 1937, p. 1357) has investigated the after-histories of forty-eight patients who had been given conservative treatment for early cavitation of the lungs and who had been under observation for seven years or more. In every case the disease was of quite recent origin when this treatment was first instituted, and the diagnosis of cavities depended on a combination of clinical and radiological examinations. After seven years twenty of the forty-eight were dead and four had been obliged to undergo collapse treatment because the disease had progressed. After the seven-year interval five others had either died or relapsed. Thus there remained good results in nineteen, most of these ex-patients having become fully fit for work. The prognosis did not seem to be affected by the cavitation being left-sided or right-sided, nor by its position within a lung, but it seemed to be worse for the patients with known sources of infection than for others, presumably because the infection had been more massive in the former. There was a slight difference in favour of the patients treated with sanocrysin. Among the nineteen patients in whose sputa tubercle bacilli were not demonstrable on the completion of treatment there were as many as fifteen results counted as good, whereas among the twenty-six patients whose sputa still contained bacilli after more than a year there were only two results ultimately considered good. All the cases in which fever had lasted for more than two months did badly. The sedimentation test proved of little value to such a long-range prognosis. In another series of twenty-nine cases in which the cavitation was chronic between 75 and 80 per cent. of the ultimate results were bad, presumably because the comparatively stiff walls of the cavities had hindered healing. The author does not present his study of recent cavitation as an argument in favour of conservative treatment in preference to operative treatment, but he commends his findings as a corrective to the opinions of those who may be tempted to give the credit for every recovery to the special treatment they have employed.

218 Detection of Vitamin B₁ Deficiency

G. ALSTED and V. LUNN (*Ugeskr. Laeg.*, December 23, 1937, p. 1382) have minutely investigated dietetic records in Professor Meulengracht's hospital in Copenhagen with a view to discovering masked forms of vitamin B₁ deficiency among hospital patients. Well-defined vitamin B₁ deficiency seems to be comparatively rare in Denmark, and it has therefore been concluded that the customary diet of that country was adequate in this respect. Doubts have arisen on this score since it was shown that the requirement of vitamin B₁ is not uniform but dependent on, and rising considerably with, the calorie requirements. As there is at present a marked and growing tendency to raise the calorie consumption with foods containing no vitamin B₁, the suspicion arises that vitamin B₁ insufficiency may ensue. The authors have pursued this hypothesis in connexion with alcoholic patients, who are notoriously subject to polyneuritis, which is conceivably due to vitamin B₁ deficiency rather than to the direct toxic action of alcohol on the nervous system. They record in detail three cases of "alcoholic" polyneuritis and they employ a special form of registration of dietetic histories. With the help of Cowgill's formula they show that in spite of heavy alcohol consumption for several years no polyneuritis developed so long as the intake of vitamin B₁ was adequate. But shortly after drastic dietetic restrictions were enforced and the supply of vitamin B₁ thereby became defective, polyneuritis developed. The

cardiac insufficiency observed in one of these cases was probably also an evidence of vitamin B₁ deficiency. As in these cases the signs of polyneuritis appeared after years of abuse of alcohol and at a time when there was no great increase in its consumption, the authors identify them with vitamin B₁ deficiency rather than with any direct toxic action by the alcohol.

Reinfection with Syphilis

E. BISE (*Rev. méd. Suisse rom.*, December 25, 1937, p. 904) states that the occasional occurrence of reinfection with syphilis, although formerly denied, must now be admitted. According to the literature this happens in 0.16 to 0.28 per cent. of cases. Bise reports an instance which fulfilled most of the requirements that have been laid down for proof of reinfection. Both sores were diagnosed by the same observer and yielded spirochaetes. The first infection was incontestable, because the patient person who had caused at the same time in the patient and four friends similar balanopreputial lesions was traced, and was found to have secondary manifestations of syphilis. The treatment was bismuth in oil, neosalvarsan and 25 c.c.m. of bismuth in oil. The second sore appeared two and a half years later, in a different site—namely, the glans—after twenty-eight months' absence of clinical and serological signs. The incubation period and the signs generally were typical. Two requirements only remained unfulfilled: the source of the second infection could not be traced, and it was not deemed right to await the confirmatory appearance of a secondary rash.

Paroxysmal Tachycardia

A. MCG. HARVEY (*Ann. intern. Med.*, July, 1937, p. 57) has investigated five cases of paroxysmal tachycardia electrocardiographically, using an oesophageal lead. The pharynx was first anaesthetized, and the electrode then passed down the oesophagus until it lay behind the auricles, its exact position being determined either by measurement of the lead or by screening under x rays. The electrocardiograms thus obtained are compared with those procured with the usual leads. It is shown that by this technique the auricular complex is more easily recognized during an attack of tachycardia. The P-waves appear much more prominent, and the true nature of the arrhythmia is more readily recognized. Three of the cases under review were shown to be of supraventricular origin, one of ventricular origin, and one was undetermined. In one of the cases in which the tachycardia was of supraventricular type the patient was taught to arrest an attack by light pressure over the right carotid sinus; in a second case the attack could be curtailed by pressure on the eyeballs.

Hyperinsulinism

E. ZISKIND and W. BAYLEY (*J. Lab. clin. Med.*, December, 1937, p. 231) report a case of hyperinsulinism due to adenomata of the pancreas. The patient, a woman aged 38, developed a condition of marked restlessness amounting at times to a state resembling acute mania. She had had numerous similar attacks within the previous five years. After the attacks she usually became comatose, and it was ultimately discovered that she could be roused from the coma by the intravenous injection of glucose solution. Blood-sugar tests were then made, and it was found that the attacks were due to hypoglycaemia: her fasting blood sugar was in the region of 44 mg. per 100 c.c.m. Her abdomen was opened and the pancreas explored, but no tumour was felt, and the abdomen was closed without resection of the pancreas. As the attacks continued the abdomen was explored again and two-thirds of the pancreas and the spleen were removed. The resected portion of the pancreas contained two adenomata

On the occasion of the fiftieth anniversary of its foundation the Obstetrical and Gynaecological Society of Vienna held a special meeting on February 16, when Dr. I. Fischer read a paper on the Society's activity during fifty years and Dr. O. Frankl a paper on Semmelweis.

Dr. Edith Summerskill has been adopted by the Labour Party as its candidate for Parliament in the by-election at West Fulham, caused by the death of Sir Cyril Cobb.

On Wednesday, March 30, Lord Horder will take the chair at an unusual luncheon, which is being given by the Children's Minimum Council. The menu will be based on the diet recommended by the B.M.A. Nutrition Committee in 1933 as the minimum necessary for health and suitable for unemployed families. The Children's Minimum Council was founded soon after the report of the Nutrition Committee was published, and much of its propaganda has been centred upon it. It urges that the allowances for the unemployed should be at least sufficient to cover the food requirements of the B.M.A. scale, and has worked, with some success, for a more generous provision of free meals and milk for children and nursing and expectant mothers in all families where the expenditure available for food is below this scale. The luncheon, which is taking place at the London School of Economics, is intended to give medical men, Members of Parliament, and leading sociologists an opportunity of sampling the "minimum diet" for themselves. A limited number of invitations is being issued. Any doctors who would care to attend the lunch should apply as soon as possible to the Children's Minimum Council, 72, Horseferry Road, S.W.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: Associate, Edinburgh; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: Bacillus, Dublin; telephone 62550 Dublin).

QUERIES AND ANSWERS

Urticaria

"C. DE G." writes: I would be thankful for advice as to the treatment of urticaria in a boy of 5. The usual causes have been inquired into and the usual remedies, dieting, drugs, change of clothing, etc., tried without avail. The condition has existed for about a year.

"Geographical Tongue"

"A. P." writes: Can any reader tell me the cause of geographical tongue and the most effective treatment? I have had several cases in the past two years, and found no lotion or mouth-wash of any avail. Apart from being somewhat alarming to the parents the disease seems to have no serious effect on the health of the child.

James Yearsley: An Inquiry

Mr. CECIL P. G. WAKELEY writes: I have read with interest the article in your issue of February 26 on "James Yearsley and the Metropolitan Ear, Nose and Throat Hospital," which I see is in its centenary year. The writer of this article refers to Yearsley as "the originator and proprietor (though not the editor) of the *Medical Circular*," which journal was amalgamated with the *Medical Press* in 1866 to form the present journal, the *Medical Press and Circular*, which will achieve its centenary in January, 1939. I should therefore be much interested to know on what the writer of the article bases the statement that Yearsley both owned and founded the *Medical Circular*. The first editor was George Ross, M.D., but no evidence has so far been discovered, I believe, as to the exact relationship, financial and otherwise, between Yearsley and Ross; in fact but little is known of the history of the *Medical Circular* in its early years and indeed throughout its existence. I would therefore be glad if you could publish this letter in case it may catch the eye of someone who could, for instance, put either me as editor or the present proprietors of the *Medical Press and Circular* in touch with the descendants of George Ross or James Yearsley. George Ross, by the way, was born at Stonehouse, in Devon, in 1815 and died as medical officer of health of St. Giles District, London, in 1875. The *Medical Circular* and *General Medical Advertiser* (to give it its full title), by the way, was not founded till January, 1852—that is, six years after the founding of the *Medical Directory*.

** We have referred this inquiry to our contributor R. S. S., who writes:

The *Dictionary of National Biography* article on James Yearsley (1900, 63, 311), which is signed by the familiar and usually accurate initials, "D.A. P.," states that Yearsley "was the originator and proprietor of the *Medical Circular* from 1852 until it was consolidated with the 'Dublin Medical Press' in January, 1866." J. F. Clarke (of the *Lancet*), who was a contemporary of Yearsley, says in his *Autobiographical Recollections of the Medical Profession* (London, 1874, 376): "Yearsley was part proprietor of a medical journal which at that time exerted some influence on the profession. In the conduct of this journal he was associated with a gentleman of great ability and one of the most brilliant writers of the day. [This refers to Dr. George Ross.] . . . That the *Medical Circular* did not attain the high position to which it was entitled from the ability and energy with which it was conducted was mainly due, I believe, to the really Quixotic character—or perhaps, to speak more correctly, the obstinate conduct—of Yearsley." James Yearsley has a number of descendants living; the most accessible member of his family is Mr. Macleod Yearsley, the aural surgeon, of London.

The "Emergency Bag"

The bandage mentioned in Dr. C. C. H. Chavasse's note (February 26, p. 496), when describing the contents of his emergency bag, is a "cellona" plaster bandage, manufactured by T. J. Smith and Nephew, Ltd.

LETTERS, NOTES, ETC.

Disclaimers

COUNT CASTELLANI OF KISYMAIO, K.C.M.G., M.D., F.R.C.P., writes: My attention has been called to certain articles published in various lay daily papers, after my recent return from America, some paragraphs of which might be interpreted as praising my private professional work. I wish to state that I strongly object to these notices and that I have had nothing to do with them or, as a matter of fact, any other notices that have appeared previously. I have never granted any interviews and the articles have been published absolutely without my knowledge.

Miss CONSTANCE OTTLEY, F.R.C.S., of Hove, wishes to state that the publicity given in the lay press to her article in the *Journal* of March 5 was without her knowledge or consent.

Corrigendum

In a leading article on the function of vitamin C which appeared in the *Journal* of March 12 at page 571 reference was made to "redoxon" as "Merck's ascorbic acid." Redoxon is a trade name for ascorbic acid as supplied by Roche Products Ltd.

226 Treatment of Delayed Union of Fractures and of Pseudarthrosis

M. BOPPE and J. FRESSAIS (*J. méd. Bordeaux*, December 18, 1937, p. 577) discuss the advisability of treating cases of delayed union and pseudarthrosis by means of multiple perforations of the bony ends, and give the results they have obtained in nine cases so treated. It has been found that perforation has a vasodilator action causing an intense local hyperaemia and the formation of callus. This method of treatment was tried experimentally on rabbits, and later in nine cases, which are fully described. The perforations were made according to the technique of Beck, by means of an electric drill—ten or twelve in each fragment of bone. In cases of superficial bones such as the tibia or radius operation may be carried out by the subcutaneous route under local anaesthesia, but for deep-seated bones complete exposure must be obtained in order to avoid the nerves and vessels. Immobilization is essential until complete consolidation has taken place. Treatment by this method is only successful when the fragments are almost in contact: in one instance, where the fragments were near but at an angle, osteotomy was performed after drilling. In cases of open fracture with chronic suppuration perforation is contraindicated until healing has occurred. In five cases drilling was carried out for delayed union, and in four instances for pseudarthrosis. In the first group union was achieved in six weeks to two months, and in the second group a successful result was obtained within three and a half months in all but one instance.

227 Conservative Treatment of Fractures

K. MERMINGAS (*Zbl. Chir.*, November 27, 1937, p. 2722) considers repeated radiographic examinations of a broken bone unnecessary, and at times even disturbing for the patient and relatives. The old criteria of healed fracture—namely, strong callus, restitution of the extremity in all directions, mobility of the joints, and good condition of the muscles—still hold good. The repeated radiographic controls of the fracture showing possibly some overlap of the fragments or lack of alignment only disturb the peace of mind of the physician, and of the patient and his relatives. This sometimes leads to a superfluous or even harmful attempt at reposition of the fracture, or even to unnecessary operative interference. The author therefore omits all radiographic control after the fracture has been diagnosed and properly reduced. He avoids all manipulation during the first ten to twelve days following the fracture, during which time the callus is being formed. He illustrates his point of view by a number of radiographs taken immediately after the fracture and some months or years afterwards. The advantages of his mode of treatment, in his view, are: (1) avoidance of surgical shock and of respiratory and cardiac complications; (2) shortening of the duration of the extension; (3) prevention of the danger of pseudarthrosis.

228 Regional Jejunitis

C. GOTTLIEB and S. ALPERT (*Amer. J. Roentgen.*, December, 1937, p. 881) report a case of regional jejunitis which presented the following syndrome: severe epigastric pain, vomiting, evidence of gastro-intestinal bleeding, fever, mild leucocytosis, absence of radiographic evidence of a gastric or duodenal lesion, and radiographic evidence of stasis and irregular defects in the upper part of the small intestine. At operation inflammatory changes were found without evidence of fibrosis or stenosis. The variable radiographic findings were due partly to deformity caused by the inflammatory changes, but more to the resulting disturbances of motility.

Therapeutics

229

Actinomycosis

E. NEUBER (*Wien. klin. Wschr.*, January 7 and 14, 1938, pp. 12 and 48) discusses the diagnosis and treatment of actinomycosis. He believes in the efficacy of gold together with specific vaccine therapy even in very severe cases where all other therapy has failed, provided the defensive forces of the patient are adequate. The treatment is of no avail in patients whose resistance is exhausted. Necropsy in such cases revealed severe extensive parenchymatous and amyloid degeneration of the vital organs, which explains why several of these patients were even made worse by the gold and vaccine treatment. The state of the patient's resistance can be determined by means of the specific intracutaneous allergic reaction evolved by the author in 1931. Patients with a negative reaction are at first submitted to gold therapy. Only when the reaction becomes positive are they fit for the specific vaccine therapy. Lately the author has been using gold therapy even in cases in which the specific allergic reaction was positive. This seemed to enhance the effect of the subsequent vaccine therapy. The initial dose of the vaccine depends on the intensity of the specific allergic reaction. It should correspond to the strength of the allergic reagent which still gives a positive reaction in the patient but gives no reaction in a healthy individual. A course of vaccine therapy usually consists of ten to fifteen injections given at intervals of five to seven days, the dose being gradually increased. Strong focal reactions should be avoided, as they may lead to death in cases where the actinomycosis affects a vital organ. Autogenous vaccines seem to give the best results, but when their production is not practicable a polyvalent vaccine is used. In cases in which the first course of gold and vaccine therapy has not brought about the desired result a second course may be given after eight to ten weeks. In six cases good results have been obtained from convalescent serum, but the opportunities of treating patients with such serum are obviously restricted.

230

Vasomotor Rhinitis

H. BJÖRCKMAN (*Nord. med. Tidskr.*, January 1, 1937, p. 12) discusses the comparative merits of tuberculin and some non-specific protein in the treatment of vasomotor rhinitis by gradual desensitization, and concludes that the former method is dangerous, as it may provoke a violent specific reaction. Between 1933 and 1936 the author has treated some sixty cases of vasomotor rhinitis with a vegetable protein. In fifty of these cases he has ascertained by a questionnaire the late results of his treatment: his patients' ages ranged from 15 to 60. Other allergic phenomena included asthma in thirteen cases, and urticaria, eczema, pruritus, Quincke's oedema, etc., in several others. The accessory nasal sinuses were diseased in eleven cases. The desensitization was effected by the subcutaneous injection of 0.05 to 0.1 c.cm. of the "novoprotein." The injections were given twice a week, and the doses cautiously increased, the highest dose being usually 1 c.cm. repeated a few times at intervals of a week. The initial dose for exceptionally sensitive patients suffering also from asthma was 0.01 c.cm., and in the course of ten injections this would be raised to 0.5 c.cm. When there was a specific reaction on the day after an injection the dose of the next injection was reduced, and in such hypersensitive cases the final dose was no more than 0.2 to 0.3 c.cm. One patient who became nearly symptom-free, and who has remained so for two years; could never tolerate more than 0.05 c.cm. in the course of sixteen injections. This and similar cases have convinced the author that, with patience, as good results can be achieved with the hypersensitive as with other cases. The analysis of his late results showed that permanent recovery or improvement could be claimed in thirty-two of the fifty cases.

each about 2 cm. in diameter. The patient died thirty-two hours after the operation. The pathologist's diagnosis was adenoma of the islets of Langerhans with probable low-grade malignancy. In a section of the pancreas (not through the tumour nodules) the majority of the islets were from two to four times the normal size. The importance of considering hypoglycaemia in the diagnosis of temporary cerebral disturbances is emphasized. An attempt was made in this case to discover how much glucose was required to maintain the blood sugar at a normal level. It was found that 155 mg. of glucose per kilogramme of body weight per hour were necessary to maintain the blood sugar at a level of 90 mg. per 100 c.cm. The injection of 20 units of insulin intravenously increased the amount of glucose required to a figure of 385 mg. per kilogramme of body weight per hour.

222 Acute Epidemic Myalgia

W. THIELE (*Dtsch. med. Wschr.*, January 1, 1938, p. 7) reports from Rostock a small outbreak of acute epidemic myalgia. The severity of the symptoms was in marked contrast to the speed with which they cleared up in response to treatment or, in some cases, without it. In every case the onset was sudden, and in this respect the disease presented the clinical picture of an acute infection caused by a "chill." Several groups of muscles were the seat of violent pain, and in every case the muscles of the shoulders, of the upper part of the back, and of the thorax were involved. The abdominal muscles were also involved in two patients. This sudden and most violent pain limited the movements of nearly all the patients to a greater or less degree. In two cases the respiration was obviously interfered with, the respiratory symptoms dominating the clinical picture. Indeed the respiration was so rapid and superficial in these cases that the appearance they presented seemed almost pathognomonic of some disease of the lungs or pleurae. Though no temperatures above 100.4° F. were recorded, it should be noted that none of the patients were admitted to hospital till several days after the onset of the symptoms. The accumulation of remarkably similar cases within a small area and in rapid succession was very suggestive of an infectious disease, yet the cases remained sporadic. Discussing the differential diagnosis, the author first mentions ordinary myalgia. A clinical and radiological examination should eliminate the diagnosis of some intrathoracic complaint even when the respiration is embarrassed. The involvement of the abdominal muscles may lead to the mistaken diagnosis of some abdominal condition.

Surgery

223 Cancer of Tongue, Lip, and Cheek

H. E. MARTIN (*Surg. Gynec. Obstet.*, December, 1937, p. 793) reviews the results of treatment as seen at the end of a five-year period in 672 cases of cancer of the tongue, lip, or cheek. The cases were consecutive and unselected. In the series there were 322 cases of cancer of the tongue, 251 of the lip, and 99 of the cheek. After having allowed for those patients who died from some other disease without recurrence or who were not traced it was seen that 215 in the first group, fifty-eight in the second group, and fifty-nine in the third had died from cancer. This left a total of seventy-four patients who were known to be well at the end of five years after treatment for cancer of the tongue—that is, 26 per cent.; 130 who had suffered from cancer of the lip alive and free from disease—69 per cent.; and twenty-eight (28 per cent.) were alive and well in the third group—cancer of the cheek. It was seen that cancer of the tongue increased in frequency with age, and nearly half the cases occurred in patients over 60. The proportion of five-year cures decreased with age from 39 per cent. in the group under

40 to 16 per cent. in the group over 60. Out of the total of 322 cases of cancer of the tongue no fewer than 276 were in males, with only 18 per cent. of five-year cures. The growth was most common in the middle third of the tongue, being found there in 180 cases. An epidermoid carcinoma, Grade 2, was the most frequent type of growth, and occurred in 177 instances. There were sixty-nine cases of associated leucoplakia, and seventy of associated syphilis. Treatment given consisted of radium, x rays, or surgery, either alone or in various combinations. It is suggested that some uniform method of reporting end-results in cancer should be adopted.

224 Monteggia's Lesion

A. DI PRAMPERO (*Chir. Organi Mov.*, December, 1937, p. 108) records his observations at the Rizzoli Institute of Bologna on eighteen cases of the lesion described by Monteggia in 1824—dislocation of the head of the radius associated with fracture of the ulna. Four patients were below the age of 10 years, nine between 10 and 30, and five over 30; seventeen were males and only one a female. In twelve the right arm was affected, and in six the left. The symptoms consisted of swelling of the forearm and elbow in all the recent cases, shortening of the forearm, and limitation of passive movements owing to pain, especially flexion beyond 90 degrees and supination. The following complications were observed: lesions of the skin in two cases, fracture of the shaft of the humerus in one case, of the condyle in one case, of the olecranon in one case, and a musculo-spiral paralysis which was complete in two cases and incomplete in two. Nine of the cases were treated by reduction under an anaesthetic, followed by immobilization of the limb for fifteen to twenty days, according to the patient's age, with physiotherapy, including massage and electrical treatment. In seven an operation was necessary, and in two no special treatment was undertaken.

225 Chronic Constrictive Pericarditis

C. LAUBRY and A. MALINSKY (*Arch. Mal. Cœur*, November, 1937, p. 841) discuss the aetiology, pathology, symptomatology, and treatment of chronic constrictive pericarditis, which is the cause of the characteristic clinical condition referred to as Pick's syndrome. The aetiology is obscure. There is no proof that rheumatism has any causal connexion, but tuberculosis may be responsible in a limited number of cases. Essentially the condition consists of a thickening and calcification of the pericardium, mainly affecting the site of entry of the venae cavae. The heart usually is not enlarged; in long-standing cases it is small and atrophied. The liver is congested. The ventricles do not fill to their full extent, as their capacity for expansion is diminished by the inextensible pericardium. The venous stasis affects mainly the systemic circulation. The pulmonary circulation is not greatly affected, so that dyspnoea is not a prominent symptom. The signs of stasis are: (1) ascites; (2) oedema of the legs; (3) distension of the veins of the thoraco-abdominal parietes and legs; (4) occasionally oedema and venous distension of the face and arms; (5) cyanosis. The association of marked cyanosis with the absence of orthopnoea is an important diagnostic point. Arterial tension is low and pulsus paradoxus may be present. Radiological examination is of value, and is usually decisive. The evolution of the disease is slow. Medical treatment is only of palliative value, but paracentesis of the abdomen and thorax, the administration of diuretics, and the restriction of salt are useful. The only curative treatment is Delorme's operation of resection of the pericardium: the operative mortality is about 25 per cent. In successful cases the results are excellent, and the patient is restored to normal health and activity. Two cases of the condition are fully reported in the article. Both patients refused operation.

syringes, mounted on a stand and connected by a three-way tap to an infusion cannula. The eunarcen syringe is fitted with a "drop-by-drop" device. By this means coramine may be given to prevent respiratory failure, and shocked or toxic cases may receive 5 per cent. glucose or saline, with circulatory stimulants, such as strophanthin. Experience with this method has been very satisfactory; electrocardiographic investigation of eighty-five cases has shown no serious abnormality, and there has been no evidence of liver damage or of disturbed carbohydrate metabolism. The maximum dose of eunarcen has been 25 c.cm.; aged, ill, or toxic patients require much less, and have stood severe and prolonged operations surprisingly well.

236 Intravenous Morphine

C. J. BETLACH (*Proc. Mayo Clin.*, November 17, 1937, p. 733) describes the intravenous administration of morphine sulphate, which has been extensively used at the Mayo Clinic as an adjunct to regional analgesia and in peroral endoscopy. The method may also be used in any case in which rapid action is desired—for example, as a pre-anaesthetic medication in emergencies. The amount used has varied from 1/24 to 1/4 grain: tablets of 1/6 or 1/4 grain may be dissolved in 1.5 or 2 c.cm. of sterile water, or ampoules of solution may be used. After about 1/24 grain is injected a pause of thirty seconds allows one to judge the response and to note possible idiosyncrasy. The injection is then slowly continued until the desired result is obtained. The advantages of the intravenous route are that the full effect is at once attained, while the dose may be accurately controlled. The duration of the effect, in spite of its rapidity, is about the same as when the morphine is given hypodermically.

237 Spinal Anaesthesia

L. MASSION (*Sculpel*, Liège, December 18, 1937, p. 1738) describes in detail Sebrecht's method, which he claims is undoubtedly the best for all operations below the diaphragm. For patients over 15 he uses Howard Jones's percaine solution, and he admits only two contraindications—namely, cerebrospinal disease and sepsis at the site of injection. Sedol is injected one hour before, and in cases of hypertension, particularly in the aged, or in severe hypotension, an intramuscular injection of ephedrine is given immediately before the anaesthetic. The puncture is made sitting, or lying with the affected side uppermost; the site should not be higher than the third or fourth lumbar space; 5 c.cm. of percaine are injected and the needle is left in place, with its stylet reinserted. For unilateral operations the patient remains lying on the sound side, for bilateral he is cautiously turned face down. For upper abdominal operations, which require skin anaesthesia up to the nipples, the table is kept level; for lower abdominal operations, in which analgesia should reach the epigastrium, it is tilted slightly head down. At five-minute intervals skin sensibility is tested, and a further 5 c.cm. of solution are injected until adequate anaesthesia is obtained. The operation may be begun thirty-five minutes after the first puncture. The amount of percaine employed varies from 5 to 110 c.cm. and averages 15 c.cm. for lower and 20 to 30 c.cm. for upper abdominal operations. It should be greatly reduced in pregnant women, who are unduly sensitive to it, and also in all toxic cases. During anaesthesia the pulse, respiration, and mental condition must be closely watched. Minor degrees of syncope occurring early are remedied by deep breathing, sponging the face, and reassuring the patient. In more serious difficulties ephedrine should be given intravenously and intramuscularly. Severe collapse must be treated promptly with intravenous or intracardiac adrenaline, artificial respiration with oxygen, cardiazol, and lobeline. If the anaesthesia is not quite adequate, a slow and careful

intravenous injection of sedol will calm and comfort the patient. If the failure is more complete a small dose of evipan or eunarcen will ensure a good result. The patient is kept horizontal for the first twenty-four hours, and after high abdominal operations the foot of the bed is raised for the first few hours. Sequelae, including headache, are now very rare. The latter may be treated with aspirin or belladonna, or 20 to 40 c.cm. of distilled water or 10 per cent. saline injected intravenously.

Obstetrics and Gynaecology

238 Uterine Sarcoma

T. DE SOUZA (*Ann. bras. Gynec.*, December, 1937, p. 544) reports three more cases of sarcoma of the uterus. He reported three cases in 1935, after which he saw no others for two years or more until the present series, all of which were seen within the last eight months. The first was that of a woman of 38 who was admitted for uterine haemorrhage after two months' amenorrhoea. This was diagnosed as due to an abortion, which diagnosis was confirmed after examination of the curettings. Bleeding persisted, however, in spite of treatment, and finally subtotal hysterectomy was performed. Histological examination of the uterus showed a round-celled sarcoma. The second case was that of a coloured woman of 34 who was admitted with an enormous solid tumour (larger than a twin pregnancy) of the abdomen. A laparotomy was performed in May, 1937, but it was impossible to remove the tumour. A small piece was taken for examination, and the provisional diagnosis of sarcoma was confirmed. An interesting point about this patient is that the tumour must have attained its enormous size in less than sixteen months, for a myoma of the left broad ligament had been removed at the end of January, 1936. After the second operation the sections of the first tumour were re-examined and the diagnosis of myoma verified, but a section was made of a part of the tumour which had not previously been examined, and this showed some characteristic sarcoma cells, thus establishing the presence of a sarcoma within a myoma, a condition which the author claims to have described for the first time. The third case was that of a woman of 28 with chronic appendicitis, retroversion of the uterus, and a cervical polyp. The polyp was removed by torsion, and on histological examination was found quite unexpectedly to be a round-celled sarcoma.

239 The Tension of the Fontanelles

H. BRAUN (*Zbl. Gynäk.*, January 1, 1938, p. 15) alludes to measurements of the tension in the anterior fontanelle made in healthy newborn infants by Rendelli and Nizza, using Schiotz's ocular tonometer. He describes a modified and more sensitive instrument, and records measurements made in infants suffering from intracranial birth injury. Allowance must be made for the increased tension due to crying or straining, and for the size of the fontanelle. For small fontanelles, under 18 mm. in diameter, the average tension in millimetres of water is 40 to 65; diameters of 18 to 20 mm. correspond to a tension of 50 to 65 mm. of water, and larger fontanelles give average readings of 70 to 90 mm. of water. Braun finds that little clinical value attends single measurements of pressure, but by taking repeated daily readings has found three main types of pressure curve. The normal curve, occurring after most spontaneous labours or easy interventions, is approximately horizontal. A curve showing pronounced ups-and-downs and lying above the normal values for the size of the fontanelle, was found after difficult spontaneous or operative labours in many cases, and, taken together with the history and the infant's behaviour, is believed to be often significant of multiple small intra-

Anaesthesia

231 Respiratory Failure During Ether Anaesthesia

J. BERGER and G. DELAHAYE (*Presse méd.*, December 15, 1937, p. 1795) discuss the nature and regulation of the respiratory rhythm during ether anaesthesia, and comment on the occurrence of various degrees of apnoea. This is seen most often in dehydrated, wasted, and cachectic types, in neuropathic persons, particularly women, and in those who have had preliminary medication with opiates, barbiturates, or both. The authors show the difficulty of estimating by tests the patient's response to pre-medication and the error of adopting an arbitrary routine dosage. They point out that the psychic factor is one of the most important, for it is not itself subject to tests, and it may render invalid the results of other investigations. Though in practice apnoea may be successfully treated with carbon dioxide, the use of the latter is not without dangers and drawbacks. The authors consider that the advantages of pre-medication have been exaggerated, as have the dangers of etherization. They suggest that atropine should be more widely used, both for its effect on the vagus and for preventing hypersecretion, though it has certain disadvantages—for example, accelerating the heart and increasing the resistance to anaesthetics.

232 Cyclopropane Anaesthesia

H. KILLIAN and K. KUHLMANN (*Zbl. Chir.*, December 11, 1937, p. 2817) report further upon cyclopropane anaesthesia, having anaesthetized a series of seventy cases with gas manufactured in Germany. Their opinion is very favourable, and their observations generally correspond with those of American and English workers. Apart from a few cases of cardiac irregularity, caused by excessive concentration of the gas and quickly remedied by increased oxygen, they have found no undesirable effects upon the circulation. The blood pressure is normal or slightly raised, the pulse slightly accelerated. There have been no complications or sequelae, except occasional slight vomiting. The manifest advantages of the gas are the rapid and comfortable induction and recovery, and the high percentage of oxygen which may be given with it. The authors feel that cyclopropane alone may not give adequate relaxation for abdominal surgery but that it is useful in combination with local anaesthesia. They have found it of value in the surgery of infants and young children, where ordinary methods may be difficult or dangerous. They have used a circuit breathing apparatus, with carbon dioxide absorption; the gas concentration is usually 15 to 20 per cent. They are confident that German chemists will soon produce the gas at a price low enough to allow of its general adoption.

233 Peridural Anaesthesia

E. KRAAS (*Schmerz Narkose-anaesth.*, December, 1937, p. 163) describes in detail the anatomy of the peridural space and the method of peridural anaesthesia. The space is enclosed by the two layers of dura mater, the outer of which is closely adherent to the wall of the spinal canal. The width of the space is greater dorsally than ventrally, and varies at different levels; it is narrow in the cervical region, wider from the second to the seventh dorsal vertebra, narrow again down to the tenth dorsal vertebra, and much expanded down to the second lumbar vertebra. It is filled with soft fat and connective tissue, in which lie the nerves, vessels, and ganglia. The venous plexuses lie chiefly ventrally and laterally; the middle line posteriorly is relatively free from vessels, and is therefore chosen for injection. There is no connexion between the epidural space, in which there is a negative pressure, and the subdural space, in which the pressure is positive. The utmost care must be taken to avoid pene-

trating the subdural space or injecting the solution into a vein. The injection is made in the middle line with a fine, short-bevelled spinal needle. When about 3 cm. deep the stylet is removed and a syringe filled with sterile saline connected. While the needle is cautiously pushed deeper, firm pressure is kept on the piston, which cannot move until the dura is pierced. The sudden release of pressure indicates that the point has entered the epidural space, while the issuing fluid protects the vessels from possible injury. The syringe is then detached to verify that no cerebrospinal fluid escapes, and a trial injection of 10 c.cm. of 1 per cent. novocain is made. If after ten minutes there is no lumbar anaesthesia it is certain the needle has not entered the subarachnoid space and the anaesthesia may be completed. Various solutions may be used—the author, for example, prefers a solution of 3:1,000 panto-cain; 0.1 c.cm. of ephetonin is given subcutaneously after injection. The anaesthesia is established in fifteen minutes and lasts usually for three hours. The area anaesthetized depends upon both the amount injected and the level of injection; the anaesthetic solution spreads equally upwards and downwards, therefore the injection is centred in the zone which it is desired to anaesthetize. The author uses from 15 to 20 c.cm. of the 3:1,000 panto-cain. For operations upon the lower limbs or perineum the injection is made between the first and second lumbar vertebrae, for lower abdominal operations between the tenth and eleventh dorsal vertebrae, and for upper abdominal operations between the eighth and ninth dorsal vertebrae. The advantages of the method are the absence of collapse, of any serious fall of blood pressure, and of headache, etc., while the cerebrospinal fluid is unaffected; also a sharply defined zone of analgesia is obtained. The chief drawbacks are the difficulty of the procedure and the long time required—namely, half an hour.

234 Evipan Anaesthesia

E. POULIQUEN (*Mém. Acad. Chir.*, 63, 30, 1217) writes with enthusiasm of anaesthesia with intravenous evipan sodium after a personal experience of 2,300 cases since 1933. He has used it mainly in single doses for brief or trivial operations, and also as a preliminary or supplement to other forms of anaesthesia, general or local. In about a hundred cases, including six of gastrectomy, he has obtained prolonged anaesthesia by repeated doses with satisfactory results, but this method is more complicated and requires skilled assistance. He considers that evipan is safe, but allowance must be made for individual susceptibility, particularly in the aged and in the presence of sepsis. He has had two deaths, one from asphyxia due to vomiting in a case of intestinal obstruction, the other from coma following great restlessness on recovery of consciousness in an alcoholic. In addition, a few cases have been seriously shocked, and some, especially young people, have been restless. He finds a particular sphere of usefulness for intravenous anaesthesia in the surgery of accidents and fractures, notably where these cases have to be transported for long distances or under difficult conditions—for example, on board ship. He is of the opinion that the method would be of great service in war.

235 Prolonged Anaesthesia with Intravenous Eunarcon

F. SCHRÖDER and O. BÜCKMANN (*Münch. med. Wschr.*, December 10, 1937, p. 1984) observe that although the safety and reliability of short anaesthesia with evipan and eunarcon have been established for some years favourable reports upon prolonged intravenous anaesthesia have been confined to evipan. Their experience with the latter in twenty cases was unsatisfactory; relaxation was poor, prolonged after-sleep or severe excitement often occurred, and large amounts of ether were sometimes used. Examination of the urine after anaesthesia also showed evidence of liver damage. Much better results have been obtained with eunarcon given by their special apparatus. This consists of three interchangeable and sterilizable Record

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cranial bleedings. The third type of curve, definitely pathological, shows a continued high level for some days, followed by a sudden fall: it may be associated with epileptiform attacks, irritability, somnolence, pyrexia, disinclination for suckling, or other signs of severer degrees of intracranial damage, such as gross haemorrhage. Asphyxial appearances due to birth injury, but not those due to pressure on the cord, are associated with abnormal curves. Braun concludes that measurement of the tension of the fontanelle has a definite value, taken with the clinical signs, in the diagnosis of cerebral injury. He points out also that in a country in which eugenic sterilization for mental disease is practised a record that the patient soon after birth had an increased fontanelle tension may be of importance later.

Pathology

240 Fate of Bone Tissue in Bone Grafts

G. BAHLS (*Beitr. klin. Chir.*, 1937, **166**, 4, 535) points out that there is no unanimity regarding the fate of bone cells in bone grafts. Some authors state that they have a short life, others that they may live for a considerable time but eventually die, others still that most of them live and become connected with the new bone formation. Bahls grafted bone in ten dogs, and examined the grafts carefully at intervals of fourteen days to twenty-one weeks. He found that bone grafts did not remain alive *in toto* even under the most favourable conditions. In all cases the graft was gradually absorbed and replaced by new bone tissue. Most of the bone cells were found to be alive and unchanged even after twelve weeks. He is of the opinion that a bone graft is successful in direct ratio to the length of life of its bone cells. Examination of grafts in human beings showed that (1) grafts may be completely fused with the newly formed bone; (2) that part of the graft may be absorbed; (3) that all but the ends may be absorbed; (4) that a span of bone graft may heal with all its original tissues intact.

241 Serological Reaction in Cancer

M. ARON (*Presse méd.*, October 6, 1937, p. 1403) describes a precipitation or flocculation reaction given by the serum of cancer patients. The antigen is derived from the precipitate obtained by adding 95 per cent. alcohol to urine from cancer cases uncomplicated by tuberculosis or other infections, acute or chronic. The precipitate, as free as possible from albumin and phosphates, is taken up in physiological saline, made alkaline to precipitate phosphates, and filtered; the reaction of the solution is then adjusted to pH 6.8. One portion of this solution is heated to 70° C. and used for the flocculation tests; another portion, heated to 90° C. for thirty minutes, is used for control tests. Dry antigen or concentrated solutions may be prepared for storage. After heating to 57° C. for twenty minutes serum is mixed in varying amounts with test and control antigens and incubated at 38° for sixteen to eighteen hours. As the reactions may not or may only just have begun, the tubes are then left at room temperature and read again twenty-four hours after setting up, when a definite result is obtained, although maximum flocculation is only seen after thirty-six to forty hours. An opalescence or a precipitate in the reaction tubes with clear controls indicates a positive result; the result is negative when all the reaction and control tubes are clear or equally turbid. Cancerous serum appears, therefore, to have two properties: formation of floccules with the active antigen and prevention of floccule formation with the heated antigen. The author concludes that the reaction may form the basis of a diagnostic test for cancer, but because of a few uncertain results out of some hundreds of tests he does not regard its specificity

as absolutely proved. He thinks the reaction is a special case of a general type of reaction given in various diseases. He emphasizes the difficulties of the method and the extreme care necessary in regard to the cleanliness of all apparatus and in the selection of the antigen.

242

Vitamin B in Bread

L. S. FREDERICIA and M. SCHOUSBOE (*Nord. med. Tidskr.*, December 18, 1937, p. 2054) have conducted experiments at the Danish State Vitamin Laboratory in response to a request made in 1936 by the Government health authorities for information as to the content of vitamin B in bread made of rye and wheat. The amount of vitamin B₁ and B₂ in various kinds of Danish bread was estimated by the rat-growth method as modified by H. Krieger Lassen. The term "vitamin B₂" was applied to all the vitamins in yeast belonging to the B group with the exception of B₁ and perhaps B₆. The quantity of vitamin B₁ was given in international units, and that of B₂ in the units employed by Krieger Lassen. The vitamin content was recorded per 100 grammes of fresh bread containing about 40 per cent. moisture. It was found that baking had no appreciable influence on the content of vitamin B₁ and B₂ in bread. Whole-meal wheat bread, milled to 97 per cent., was found to contain 82 to 87 international units of vitamin B₁, and common white wheat bread, milled to 55 per cent., contained 24 to 27 international units of vitamin B₁. Wheat bread of meal milled to 69 per cent. contained 35 international units. Coarse rye bread, milled to 100 per cent., and fine light rye bread, milled to 80 per cent., contained 50 to 55 international units of vitamin B₁. Wheat middlings and rye middlings contained respectively 591 and 252 international units of vitamin B₁; they were, therefore, well suited to increase the vitamin content of bread. After giving the corresponding figures for vitamin B₂ the authors conclude that the vitamin B₁ requirement of the Danish population seems only to be partly met by the bread at present available.

243

Pneumonia due to *B. friedländeri*

J. BULLOWA, J. CHESSE, and N. FRIEDMAN (*Arch. intern. Med.*, November, 1937, p. 735) state that *B. friedländeri* is the sole causative agent in a definite but relatively small proportion of pulmonary infections. Forty-one patients with pneumonia due to this organism were studied at the Harlem Hospital during the seven-year period from 1929 to 1936. The bacillus was recovered either from the blood or by pulmonary suction as well as from the sputum. Signs and symptoms were usually similar to those of pneumonia due to the pneumococcus, but occasionally a patient presented no physical signs in spite of extensive involvement revealed by x-ray or post-mortem examination. In two-thirds of the cases the sputum was like that of pneumococcal lobar pneumonia, but the remaining third had sputum said to be typical of *B. friedländeri* pneumonia, being thick, gelatinous, and diffusely bloody, and expectorated copiously but with difficulty. Some had free haemoptysis, some a thin sputum like currant jelly. The shortest duration of illness from onset to death was thirty hours, and the average five and a half days. (Patients with pneumococcus II pneumonia treated during the same period showed an average duration from onset to death of nine days.) The death rate of the entire group was 83 per cent. The highest mortality rate (94 per cent.) occurred in patients infected with *B. friedländeri* A who were not given serum. Of six patients with a *B. friedländeri* infection who were given specific serum, three died—a mortality rate of 50 per cent. The authors recognize that their cases are too few for definite conclusions to be drawn as to the value of serotherapy, but they suggest that, in view of the fulminating nature and high mortality of this type of pneumonia, serum should be administered early in the course of the disease, as soon as the easily recognized *B. friedländeri* is found and typed.



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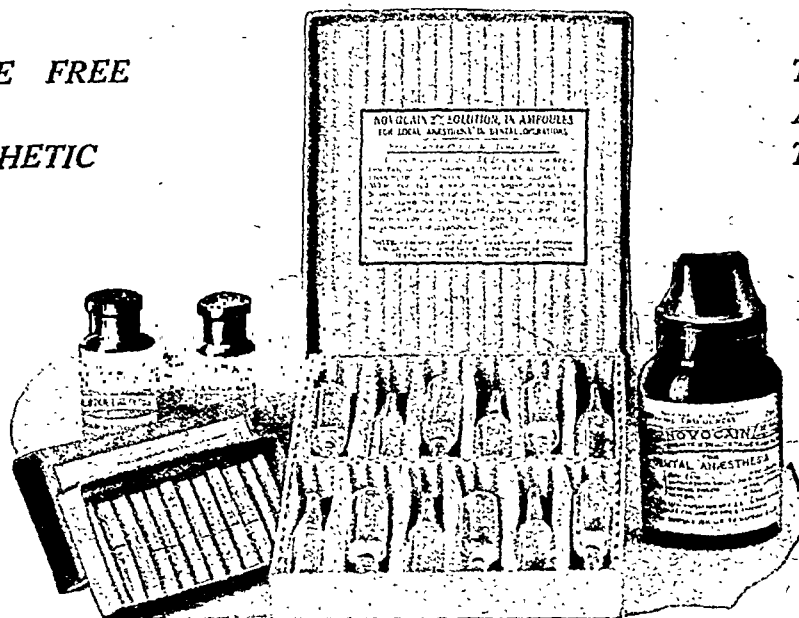
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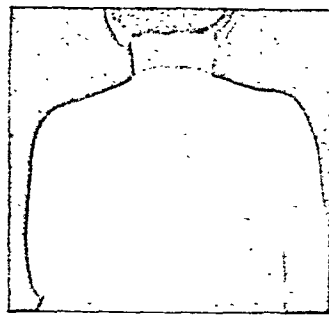
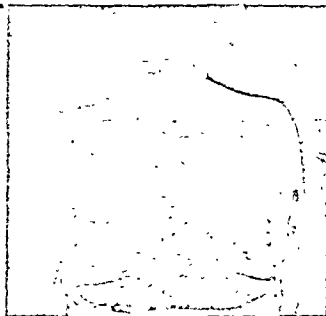
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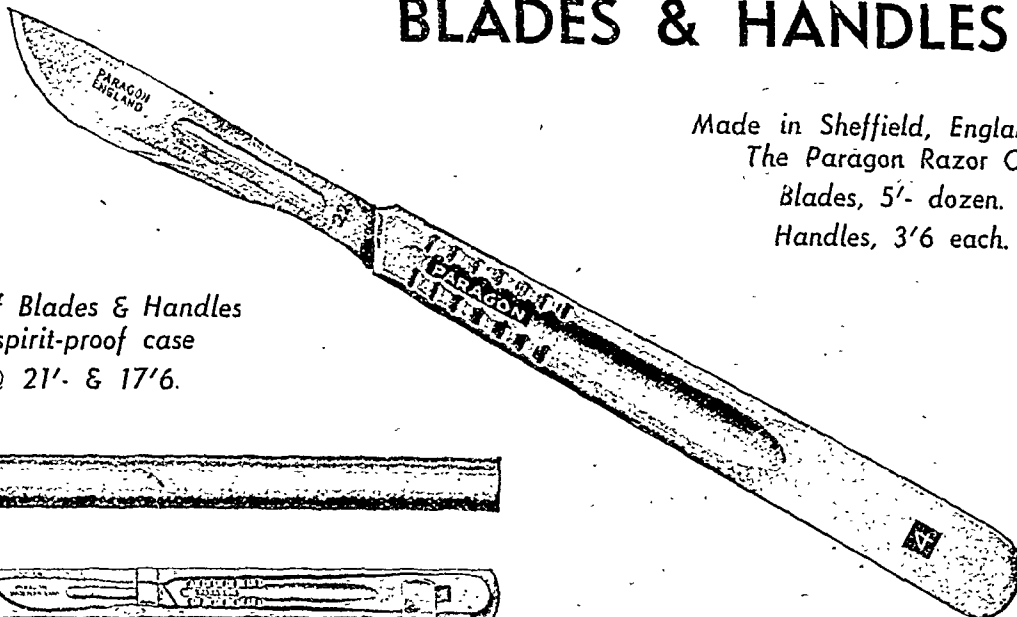
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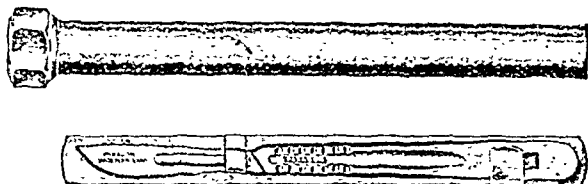


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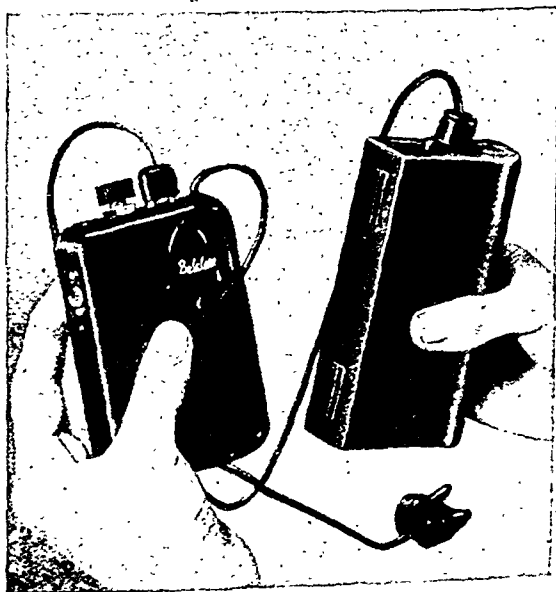
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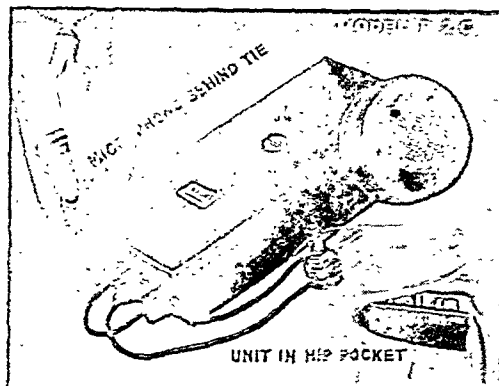
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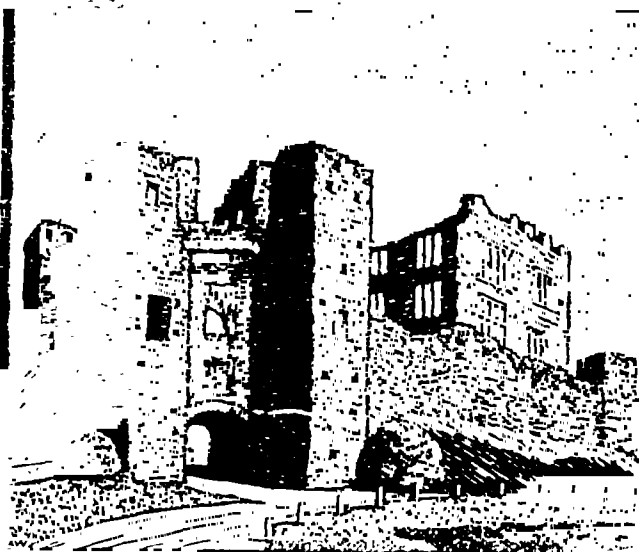
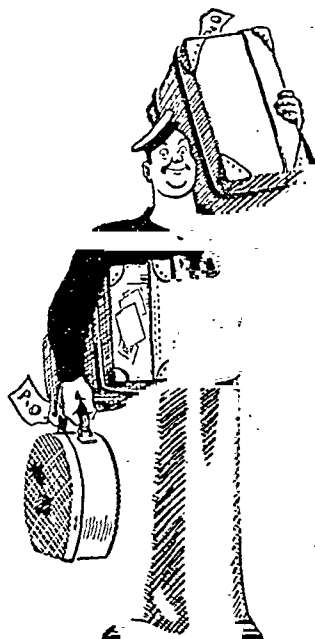
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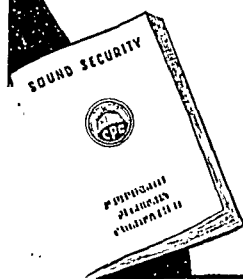
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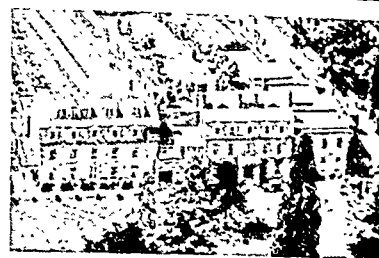
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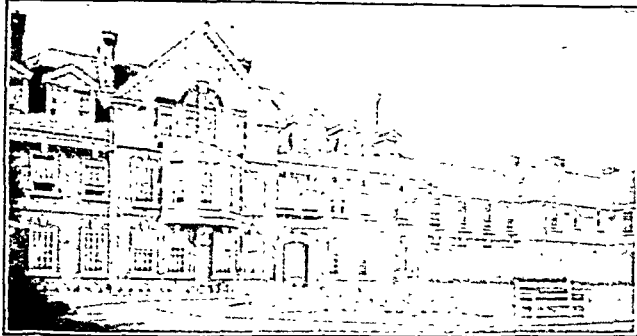
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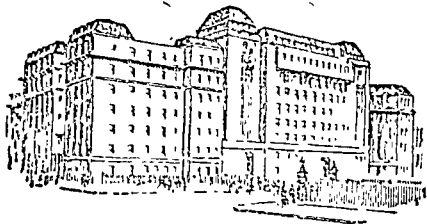
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The SUMMER SESSION, 1938, will be commenced on THURSDAY, APRIL 21st.

At the Medical School, King's College, Newcastle upon Tyne, students can complete the entire course of professional study required for the above degrees, diplomas, and licence; also for the Examinations of the Royal Colleges of Physicians and Surgeons and other Examining Bodies.

Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 700 beds, and there are facilities for the study of the various special subjects. General and Special Post-graduate Courses are held.

Practical Midwifery can be studied at the Princess Mary Maternity Hospital, which contains 90 beds, with an annual indoor and outdoor attendance on 3,000 cases. Lectures are given on Psychological Medicine in the Medical School, and clinical instruction at the Mental Hospital, Newcastle. Clinical instruction in Infectious Diseases is given by the Medical Officer of Health in the City Hospital at Walkergate.

The Dental Department includes a dental hospital equipped on the most modern lines, with abundant material for clinical teaching and facilities for training in practical dental mechanics.

Particulars may be obtained from the Dean of Medicine, Medical School, Northumberland Road, Newcastle upon Tyne, 1.

BRITISH POSTGRADUATE MEDICAL SCHOOL

DEPARTMENT OF PATHOLOGY

A COURSE OF FOUR LECTURES

on

RECENT WORK ON VIRUSES

will be given by

DR C. H. ANDREWES, M.D., F.R.C.P.,

on

APRIL 6th, 13th, 20th, 27th, 1938,

at 4.30 p.m.

DEPARTMENT OF MEDICINE

A COURSE OF SIX LECTURES

on

DISEASES OF SMALL AND LARGE INTESTINE

will be given by

SIR EDMUND SPRIGGS, K.C.V.O., M.D., F.R.C.P.,

on

MARCH 28th, APRIL 4th, 11th, 19th, 25th,
MAY 2nd, 1938,

at 2.30 p.m.

These lectures are for regular students of the School, but a limited number of tickets are available, without fee, to medical practitioners. Applications for tickets should be addressed to the Dean, British Postgraduate Medical School, Ducane Road, W.12.

DEPARTMENT OF PATHOLOGY

A Laboratory Course on Chemical Pathology conducted by Dr. Earl J. King, M.A., Ph.D., will commence on April 19th, 1938. This Course is whole-time and will last for six weeks. Fee £9 9s.

This Course is part of the Course for the Diploma in Clinical Pathology and only a limited number of students can be accepted.

Early application for enrolment should be made to The Dean, British Postgraduate Medical School, Ducane Road, London, W.12.

THE HOSPITAL FOR DISEASES OF THE SKIN.

(Established 1841)

71, BLACKFRIARS ROAD, LONDON, S.E.1

Telephone: WATERLOO 6001

New patients can be seen at 2 o'clock from Monday to Friday both inclusive, also from 5.30 to 6.30 on Tuesday and Friday evenings. Necessitous cases admitted free; others on payment of a small contribution.

LIGHT THERAPY TREATMENT. X-RAY DEPARTMENT.

Classes held twice a year for post-graduates by arrangement with the Fellowship of Medicine.

All enquiries should be addressed to The Secretary.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in July, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

At the end of three years' service, officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for post-graduate study, to specialise, to take higher examinations and to obtain further qualifications.

Copies of the regulations for entry and conditions of Service, including rates of pay, allowances and retired pay may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than 31st May, 1938.

DERBYSHIRE COUNTY COUNCIL. WOMAN ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Derbyshire County Council require the services of a fully qualified whole-time woman Assistant Maternity and Child Welfare Medical Officer, experienced in Ante-Natal work, Midwifery and Children's Diseases, to hold (under the direction of the County Medical Officer of Health) consultations at the Ante-Natal and Maternity and Child Welfare Centres of the Derbyshire County Council and (under the like direction) to perform such other duties as appertain to the office.

The salary will be £600 per annum, rising by £25 per annum to £650 per annum.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, not later than April 4th, 1938.

W. M. ASH,

New County Medical Officer of Health.

St. Mary's Gate, Derby.
March 10th, 1938.

BOROUGH OF DUKINFIELD. TEMPORARY PART-TIME APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

Applications are invited for the temporary part-time appointment of Medical Officer of Health for the Borough of Dukinfield.

The officer appointed will be required also to carry out the duties of School Medical Officer. The salary paid will be at the rate of £400 per annum.

The appointment will be a temporary one until September 25th, 1938, or until terminated by one month's notice in writing by either side, whichever is the earlier.

Consenting will be a disqualification. Further particulars and forms of application may be obtained from the undersigned, to whom forms of application must be returned before March 26th, 1938.

Town Hall, Dukinfield.
March 11th, 1938.

ERNEST BARLOW,

Town Clerk.

COUNTY BOROUGH OF TYNEMOUTH PUBLIC ASSISTANCE COMMITTEE PRESTON HOSPITAL, North Shields. (430 Beds.)

ASSISTANT MEDICAL OFFICER (WOMAN) NON-RESIDENT.

The Council of the County Borough of Tynemouth invites applications from qualified and registered Medical Practitioners for the appointment of a woman Assistant Medical Officer at the above Hospital for a period of six months, extendable to a maximum period of twelve months, as from April 1st, 1938.

The salary will be £200 per annum, plus emoluments to the value of £110 per annum. The Officer appointed will be required to refund to the Council all fees received by her.

The appointment will be subject to one month's notice on either side.

The Officer appointed will be required to submit a satisfactory Medical Certificate, to devote the whole of her time to her official duties, and to act under the direction of the Medical Officer.

Applications, stating age, experience and qualifications, accompanied by not more than three recent testimonials, and endorsed "Assistant Medical Officer," must be delivered to the undersigned not later than March 23rd, 1938.

Further information may be obtained from the Medical Officer, Preston Hospital, North Shields. Candidates, either directly, or indirectly, will be a disqualification.

FRED G. EGNER,

14, Northumberland Square, Tynemouth.
North Shields.
March 5th, 1938.

COUNTY BOROUGH OF PRESTON. SHAROE GREEN HOSPITAL. (250 Beds.)

JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER (FEMALE).

Applications are invited from fully qualified and registered Practitioners for the above appointment. Salary at the rate of £100 per annum, with full board and residence. The appointment will be for a period of six months and can be renewed for a period not exceeding six months.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should reach the Medical Superintendent not later than first post on March 26th, 1938.

CITY AND COUNTY OF BRISTOL. BARROW HOSPITAL.

SECOND ASSISTANT MEDICAL OFFICER (MALE).

Applications are invited for the position of Second Assistant Medical Officer (male) at the above-named Hospital.

The salary offered is £200 per annum, rising by four annual increments of £25 to £250 per annum, plus full residential emoluments valued for superannuation purposes at £150 per annum; in addition £50 per annum will be paid for the D.F.M.

Candidates should be of British nationality, under 35 years of age and unmarried. Preference will be given to candidates with previous general and mental hospital experience.

The Hospital is a complete modern unit situated 15 miles from Bristol, with a full consultant staff and every facility for treatment and research.

Applications, accompanied by two testimonials, a statement of particulars and experience and a photograph should be sent to the Medical Superintendent, Bristol Mental Hospital, Fildrass, Bristol, not later than April 1st, 1938.

JOSIAH GREEN,

Clerk to the Visiting Committee.

The Council House,
Bristol, 1.
March 12th, 1938.

LANCASHIRE COUNTY COUNCIL. BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.

Applications are invited from duly qualified and registered medical practitioners for the post of ASSISTANT VISITING ORTHOPAEDIC SURGEON at the above Hospital, which amounts to £250 per annum.

Candidates must have had special training and experience in orthopaedic surgery, and must possess the diploma of F.R.C.S. (Eng.). The successful candidate will be required to visit the Hospital twice weekly. The appointment will be for a period of three years, terminable by one calendar month's notice on either side.

Applications, with copies of two recent testimonials, should be sent not later than April 2nd, 1938, to Dr. F. Hall, School Medical and Child Welfare Department, County Offices, Preston.

GEORGE EATHERTON,

Clerk of the County Council.

COUNTY COUNCIL OF DURHAM. ASSISTANT WELFARE MEDICAL OFFICER.

The County Health Committee invite applications for an Assistant Welfare Medical Officer (woman) at a commencing salary of £500 per annum, rising by annual increments of £25 to £700 per annum. Travelling allowance will be paid by the County Council in accordance with a scale to be approved from time to time.

The appointment will be held subject to three calendar months' notice on either side, and to the following conditions:

(1) The Officer appointed must be a registered medical practitioner between the ages of 25 and 55 years, must devote the whole of her time to the duties of the office, and must not engage in private practice.

(2) She should either have had a previous appointment as Medical Officer of an ante-natal clinic, with the approval of the Minister of Health, or have had at least three years' experience in the practice of her profession and special experience of practical midwifery and ante-natal work. The holding of a diploma in Public Health will be deemed an additional qualification for the post.

(3) She will be subject to the directions of the County Medical Officer of Health.

(4) She will be required to reside in Durham City, or such other place as required by the Council.

(5) She must be prepared, if called upon, to act as locum tenens to other members of the medical staff of the County Medical Officer of Health.

(6) The appointment will terminate on marriage.

(7) The candidate appointed will be required to pass the County Council's medical examination, and will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922.

Applications, endorsed "Assistant Welfare Medical Officer," with copies of not more than three recent testimonials, must be addressed to the County Medical Officer of Health, Shire Hall, Durham, and must be received by him not later than Monday, March 28th, 1938.

Shire Hall, J. K. HOPE,
Durham, Clerk of the County Council.
March 5th, 1938.

COUNTY COUNCIL OF DURHAM. APPOINTMENT OF TEMPORARY ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited for the post of Temporary Assistant Medical Officer of Health (male), at a commencing salary of £600 per annum. The appointment is subject to one month's notice on either side, and will terminate at the end of two years. Travelling and subsistence allowances will be paid in accordance with the Council's scale.

Applicants must be registered medical practitioners under the age of 55 years, and should if possible possess a qualification in Public Health and have held a post in an Infectious Diseases Hospital. Experience in the examination and certification of mentally defective children and adults will be an additional recommendation.

The officer appointed will be required to devote the whole of his time to the duties of the office, and will not be allowed to engage in private practice. He will also be required to undertake such other Public Health duties as may be allotted to him by the County Medical Officer of Health, under whose direction he will work.

Applications, stating age, qualifications and experience, and accompanied by copies of not more than three recent testimonials, should be forwarded to the County Medical Officer of Health, Shire Hall, Durham, not later than first post on Monday, March 28th, 1938.

Shire Hall, J. K. HOPE,
Durham, Clerk of the County Council.
March 5th, 1938.

BOROUGH OF ACCRINGTON. DEPUTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER.

Applications for the above post are invited from registered medical practitioners of either sex. Candidates should have had sound post-graduate experience in general clinical work, including the diseases of children, and preference will be given to a person possessing a Diploma in Public Health or an equivalent registrable qualification.

The officer appointed will be required to carry out duties in all branches of the Public Health and School Medical Services, including both clinical and administrative work. He, or she, will work under the direction of the Medical Officer of Health and will act as that officer's Deputy.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to a maximum of £700 per annum. The post will be designated for superannuation purposes.

Forms of application and particulars of the appointment and its terms and conditions may be obtained from the undersigned, to whom the completed form must be returned not later than Monday, March 28th, 1938.

Town Hall, Accrington, Town Clerk.
March 9th, 1938.

COUNTY OF DORSET. APPOINTMENT OF COUNTY PATHOLOGIST.

The Dorset County Council invite applications from registered medical practitioners for the appointment of a County Pathologist, at a commencing salary of £750 per annum, rising to £950 by biennial increments of £50.

Applicants must have specialized in Pathology and Biochemistry, and have had considerable experience in a Pathological Department.

The Officer appointed will be required to devote his whole time to the duties of his office, and will be in charge of the work of the County Laboratory, Dorchester, acting under the administrative control of the County Medical Officer.

The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass the necessary medical examination.

Applications, on a prescribed form, which may be obtained from me on receipt of a stamped addressed foolscap envelope, must be forwarded so as to be received not later than Monday, April 4th, 1938.

Canvassing, either directly or indirectly, will be a disqualification.

County Offices, C. P. BRUTTON,
Dorchester, Clerk of the County Council.
March 4th, 1938.

COUNTY BOROUGH OF GRIMSBY. Corporation Hospital and Sanatorium.

RESIDENT MEDICAL OFFICER.

Applications are invited for the post of RESIDENT MEDICAL OFFICER (male) at the above Hospital, which has 98 beds for pulmonary and surgical tuberculosis and 72 for infectious diseases.

Candidates must be unmarried and have previous resident hospital experience. Salary £350 per annum, rising by annual increments of £25 to £450 per annum, plus board, residence and laundry. The appointment is to be for one year in the first instance. The post is a designated one under the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application may be obtained from the Medical Officer of Health, 184, Victoria Street, Grimsby, and should be returned to me endorsed "Resident Medical Officer," not later than Thursday, March 31st, 1938.

JOHN W. JACKSON,
Municipal Buildings, Town Clerk.
170 Victoria Street, Grimsby.

KENT COUNTY COUNCIL. RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the post of Resident Assistant Medical Officer at the County Hospital, Farnborough (880 beds).

The salary for the appointment is £250 a year, with residential emoluments which are valued at £120 a year.

The appointment is a whole-time one and will be for a period of one year only, and not renewable.

Forms of application can be obtained from the Public Assistance Officer, Tonbridge Road, Maidstone, to whom applications must be sent by 10 a.m. on Monday, March 28th, 1938.

Sessions House, W. L. PLATTS,
Maidstone, Clerk of the County Council.
March 12th, 1938.

CITY OF LINCOLN. RESIDENT MEDICAL OFFICER.

Applications are invited for the appointment of Resident Medical Officer, male, unmarried, at the City Hospital and Sanatorium, for a period of 12 months, from registered medical practitioners.

Salary £300 per annum, with board, lodging and laundry. Applications must be made on the prescribed forms not later than March 24th, 1938.

Forms of application and further particulars of the appointment may be obtained from the undersigned.

City Health Department, M. L. BERY,
Beaumont Fee, Medical Officer of Health,
Lincoln.

BOROUGH OF BARKING. ASSISTANT MEDICAL OFFICER (MALE).

Applications are invited, before April 4th, 1938, from qualified medical practitioners, with experience in public health work and a registrable qualification in public health, for the designated appointment of Assistant Medical Officer of Health and Assistant School Medical Officer.

Salary scale £600-£25-£700.
Particulars of duties and application form may be obtained from the undersigned.

Town Hall, S. A. JEWERS,
Barking, Essex, Town Clerk.
March 12th, 1938.

ADMINISTRATIVE COUNTY OF ESSEX. APPOINTMENT OF ASSISTANT SPECIALIST OPHTHALMIC SURGEON.

The County Council of the Administrative County of Essex invite applications for the above appointment from Registered Medical Practitioners, not over 45 years of age, with special experience in all branches of ophthalmology and preferably holding the Diploma in Ophthalmic medicine, to act under the County Medical Officer of Health.

The salary will be at the rate of £700 per annum, and will rise, subject to satisfactory service, by annual increments of £25, to £800 per annum.

The person appointed will, at the discretion of the Council, either be provided with a car or will be paid a travelling allowance in accordance with the County Scale for the time being in force.

The person appointed will be required to devote his whole time to the service of the Council, and to perform such duties and to furnish such advice and assistance appertaining to his office as may be required, and to reside in such district of the County as the Council may decide. The appointment will be held by the successful candidate during the pleasure of the Council, and will be determinable by the Officer by three months' notice in writing.

The person appointed will be required to pass a medical examination and to contribute 5 per cent. of his salary to the fund established by the County Council under the Local Government and Other Officers' Superannuation Act, 1922.

The appointment will be subject to the Council's Sick Pay Rules and Regulations, a copy of which will be forwarded on application.

Applications on the prescribed form, obtainable from the undersigned, and accompanied by copies of not more than three testimonials, which will not be returned, should be addressed to me and delivered at the County Hall, Chelmsford, not later than 10 a.m. on Friday, March 25th, 1938.

E. S. HOLCROFT,
Clerk of the County Council.
County Hall, Chelmsford.
March 7th, 1938.

COUNTY BOROUGH OF BLACKBURN. LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of Assistant Medical Officer of Health and Assistant School Medical Officer to act under the direction and supervision of the Medical Officer of Health, who is also School Medical Officer.

The maximum salary will be £700 per annum. The commencing salary will not be less than £600 per annum, and will be fixed according to the qualifications and experience of the successful applicant, and will rise by annual increments of £25 to the maximum of £700.

The person appointed must have had at least three years' postgraduate experience in the practice of her profession and special experience of midwifery and ante-natal work. Special post-graduate experience in the treatment of venereal diseases and of diseases of children, and the possession of a registrable degree or diploma in Public Health will be deemed additional qualifications.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than Wednesday, March 23rd, 1938, endorsed "Assistant Medical Officer of Health."

Canvassing, directly or indirectly, will be a disqualification.

Town Hall, CHAS. S. ROBINSON,
Blackburn, Town Clerk.
March 7th, 1938.

COUNTY BOROUGH OF BRIGHTON. BRIGHTON MUNICIPAL HOSPITAL.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited for the above appointment. Candidates must be single men, who have held resident appointments in a General Hospital.

The officer appointed will work under the direction of the Medical Superintendent, and will devote his whole time to official duties, which are primarily for obstetrical work.

The appointment is a whole-time one, and is for one year only.

Salary £300 per annum, together with residential allowances, valued for the purposes of superannuation at £150 per annum.

The post is designated under the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application, conditions of appointment and list of duties may be obtained from the undersigned, which forms, duly completed, and accompanied by copies of testimonials, must be returned to the Medical Superintendent not later than Wednesday, March 30th.

Canvassing the Committee, either personally or by letter, will be considered a disqualification for appointment.

Brighton Municipal Hospital, S. J. FIRTH,
Elm Grove, Medical Superintendent.
Brighton, 7,
March, 1938.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL,
Gray's Inn Road, W.C.1.

REGISTRAR AND CLINICAL TUTOR

Applications are invited for the post of Registrar and Clinical Tutor who will be required to give the whole of his time to the office. The successful candidate should hold one of the higher qualifications in Surgery.

Salary at the rate of £400 per annum payable jointly by the Hospital and Post-graduate School. Further particulars of the appointment may be obtained from the undersigned, to whom applications, accompanied by copies of three recent testimonials, should be sent on or before April 15th next.

JOHN H. YOUNG,
Secretary-Superintendent

HOSPITAL FOR EPILEPSY AND PARALYSIS
Maida Vale W.

RESIDENT MEDICAL OFFICER required

May 1st.

Applications are invited for the post of Resident Medical Officer. The salary is at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications accompanied by copies of three recent testimonials should reach me by March 15th.

The accommodation at the Hospital does not permit of women graduates holding these appointments.

H. W. BURLEIGH,
Secretary and General Superintendent

ELIZABETH GARRETT ANDERSON HOSPITAL,
Eaton Road, N.W.1

OPHTHALMIC DEPARTMENT—Out-patients

Applications are invited from fully qualified medical women for the post of CLINICAL ASSISTANT—Thursday evening clinic—Honarium £50 per annum.

Further particulars of the post may be obtained from the undersigned, to whom applications, with copies of three testimonials, should be sent not later than March 31st, 1938.

JEAN R. MURRAY,
Secretary

EVELINA HOSPITAL FOR SICK CHILDREN,
Southark, S.E.

Applications are invited for the post of HOUSE SURGEON (male), for six months from April 12th (first two months in the Casualty and Out-patient Department). Salary at the rate of £120 per annum, with full board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained, not later than 1st post on Tuesday, March 22nd.

W. H. SIDNELL,
House Governor.

ST GEORGE'S HOSPITAL, S.W.1.

Applications are invited for the appointment of ASSISTANT PHYSICIAN at the above Hospital. He must be a Graduate in Medicine and Surgery of a British University, and a Fellow or Member of the Royal College of Physicians, London, and registered according to the Medical Act, 1933. In addition to his general medical duties, he will be in charge of a Clinic for Diseases of the Chest in which branch of medicine he should have had previous experience.

Applications accompanied by testimonials of recent date should be sent to the Secretary on or before March 31st, 1938.

JAMES M. CHURCHFIELD,
Secretary

March 2nd, 1938.

ST GEORGE'S HOSPITAL S.W.1

Applications are invited for the appointment of PHYSICIAN to take charge of the Children's Department at the above Hospital. He must be a Graduate in Medicine and Surgery of a British University, and a Fellow or Member of the Royal College of Physicians, London, and Registered according to the Medical Act, 1933.

Applications accompanied by testimonials of recent date should be sent to the Secretary on or before March 31st, 1938.

JAMES M. CHURCHFIELD,
Secretary

March 2nd, 1938.

SOUTH EASTERN HOSPITAL FOR CHILDREN

Sidnam S.E.26 (100 Beds)

Recognized by the Executive Board for Post-graduate Study for the Diploma of Child Health

Applications are invited for the post of RESIDENT MEDICAL OFFICER. The appointment is for six months commencing April 1st. Honarium £150 per annum, with board residence and laundry.

Applications by letter or in person, with qualifications and experience, with copies of three testimonials, should be received by the Hon. Medical Secretary at the Hospital by March 23rd.

THE BAILEYSEA GENERAL HOSPITAL,
Bailesea Park S.W.11

Applications are invited for the post of HONORARY RADIOLOGIST. Candidates must possess a medical qualification and a recognized Diploma in Radiology, and have had previous Hospital experience.

Applications accompanied by two recent testimonials, should reach the Secretary not later than April 14th, 1938.

LONDON HOSPITAL, E.1

Applications are invited for the post of ANAESTHETIST to the DEPARTMENT of NEUROSURGERY. Salary £250 p.a. Applications, with copies of testimonials, should be sent by April 2nd, to the House Governor, from whom further particulars may be obtained.

ARTHUR G. ELLIOTT,
House Governor.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL,
Shooters Hill, London, S.E.15

General Hospital—112 Beds

(a) RESIDENT MEDICAL OFFICER
(b) HOUSE SURGEON.

The Board of Management invites applications from suitably qualified male candidates for the following posts:

(a) Resident Medical Officer. This appointment, which will be the second senior of five residents, will be for one year with effect from April 1st, 1938, and renewable for a further twelve months, if approved by the Board of Management. The salary will be £150 per annum, plus board, residence and laundry, and the duties will include (i) Medical Registrar and (ii) Resident Pathologist. (b) House Surgeon for six months from May 1st, 1938. Remuneration at the rate of £100 per annum, plus board, residence and laundry. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of 8 beds. Short-listed candidates selected for interview will be required to meet the Appointments Committee (at the Hospital) on Thursday, March 31st, 1938, at 4.45 p.m. The closing date for receipt of applications (to be submitted on the prescribed form obtainable from the Secretary) is Monday, March 24th, 1938.

R. S. G. HUTCHINGS,
Secretary

ST. BARTHOLOMEW'S HOSPITAL.
PART-TIME CHIEF ASSISTANT IN THE
X-RAY DIAGNOSTIC DEPARTMENT

Applications are invited for the post of part-time Chief Assistant in the X-ray Diagnostic Department. Candidates must be registered medical practitioners and possess a Diploma in Medical Radiology. The officer appointed will be required to attend in the Department on four half-days a week.

Appointment will be made for a period to expire at the end of 1939, with eligibility for re-election.

Applications, with testimonials (copies only), should be left with the undersigned not later than Monday, March 22nd, 1938.

C. C. CARUS-WILSON,
March 11th, 1938. Acting Clerk to the Governors.

WESTMINSTER HOSPITAL, S.W.1.

A vacancy has been declared this day in the office of ASSISTANT PHYSICIAN to this Hospital. Gentlemen desirous of becoming candidates must be Fellows or Members of the Royal College of Physicians of London. Each candidate will be required to transmit a certificate of his age, and to submit three copies of his application, with testimonials, to the undersigned not later than Friday, April 1st, 1938, and to attend the meeting of the House Committee at 4.15 p.m. on Tuesday, April 5th, 1938. The appointment is an open one.

By Order of the House Committee.
CHARLES M. POWER,
March 8th, 1938. Secretary

THE HOSPITAL FOR SICK CHILDREN, GT. ORMOND ST., LONDON, W.C.1

APPOINTMENTS TO BE MADE PREPARATORY TO THE OCCUPATION OF THE NEW HOSPITAL

A RESIDENT MEDICAL SUPERINTENDENT

who is to be the Senior Resident Officer, is required on the 1st May, 1938. Salary £250 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

The duties will include the medical administration of the Hospital and medical supervision of the Nursing and Domestic Staffs.

Candidates must be unmarried, possess a legal qualification to practise, and have held a responsible resident appointment at a General Hospital. Special experience in infectious diseases is desirable.

Candidates for the above appointments must attend at the Hospital to appear before the Joint Committee at 4.45 p.m. on Wednesday, 6th April, 1938. Further particulars and forms of application, which must be completed and returned by noon on Monday, 4th April, 1938, are obtainable from the undersigned.

March, 1938.

Two HOUSE PHYSICIANS and Two HOUSE SURGEONS

are required on the 1st April, 1938.

These appointments are tenable for six months. Salaries at the rate of £50 per annum.

Candidates must be unmarried, possess a legal qualification to practise, and have held a responsible resident appointment at a General Hospital.

AN OUT-PATIENT AURAL REGISTRAR (part-time)

is required on the 1st May, 1938. Salary £175 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

Candidates must possess a legal qualification to practise and have held a responsible resident appointment at a General Hospital.

HERBERT F. RUTHERFORD, Secretary.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade I).—Salary £350-£425, with board, lodging and washing.

(a) **BETHNAL GREEN HOSPITAL**, Cambridge Road, E.2.—Duties mainly surgical.

(b) **ST. PETER'S HOSPITAL**, Fulbourne Street, Whitechapel, E.1.—Medical and part surgical duties.

ASSISTANT MEDICAL OFFICERS (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(c) **FULHAM HOSPITAL**, St. Dunstan's Road, Hammersmith, W.6.—Duties mainly medical, children and anaesthetics.

(d) **HIGHGATE HOSPITAL**, Dartmouth Park Hill, N.19.—Duties mainly medical.

(e) **NORWOOD HOSPITAL FOR CHILDREN**, Elder Road, West Norwood, S.E.27.—Duties mainly medical. Children's experience desirable. Only women candidates eligible.

(f) **PRINCESS MARY'S CONVALESCENT HOME**, Cliftonville, Margate.—General duties in a female convalescent hospital.

(g) **QUEEN MARY'S HOSPITAL**, Sidcup, Kent.—General duties in a male convalescent hospital.

(h) **ST. CHARLES' HOSPITAL**, St. Charles' Square, Ladbroke Grove, W.10.—Duties mainly medical. Children's experience desirable.

(i) **ST. GILES' HOSPITAL**, St. Giles' Road, Camberwell, S.E.5.—Duties in children's ward, ante-natal clinic, and anaesthetics.

(k) **ST. PETER'S HOSPITAL**, Fulbourne Street, Whitechapel, E.1.—Duties mainly medical.

*No accommodation for a woman.

Application forms obtainable (stamped, addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 24, County Hall, S.E.1, returnable by April 4th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

MEDICAL STAFF (men or women) required at the Maudsley Hospital, Denmark Hill, S.E.5 (for treatment of neuroses and curable mental disorders). Candidates must be under 40 years of age and be registered to practise both in medicine and surgery in England.

(1) **SECOND ASSISTANT MEDICAL OFFICER**. Salary £625, rising to £700, a year. Charges made for board, lodging, etc. (at present £2 9s. weekly) if required to be resident. Marriage terminates contract of service in case of women. Candidates must have held residential position in general hospital for six months or have had comparable general experience and must hold diploma or degree in psychological medicine.

(2) **PART-TIME MEDICAL OFFICERS**. Salary £300 a year of 48 weeks, for five sessions of three hours each week. Psychotherapy in out-patients' department. Married women eligible.

Separate application forms for each appointment obtainable by sending stamped addressed foolscap envelope to Chief Officer (B/A), Mental Hospitals Department, Shell-Mex House, Strand, W.C.2, and returnable by April 1st. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited for two full-time permanent positions of **ASSISTANT MEDICAL OFFICER**, chiefly in connexion with Council's school medical work. Special experience of the medical examination of children is essential. Salary £600 by £25 to £750.

Forms of application (stamped, addressed foolscap envelope necessary) obtainable from Medical Officer of Health (S.D.5), County Hall, Westminster Bridge, S.E.1, returnable by March 31st. Canvassing disqualifies.

COUNTY BOROUGH OF HUDDERSFIELD.**APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH**

Applications are invited from registered Medical Practitioners (ladies) who have had special experience in ante-natal work and in the care of infants. Salary £500-£570, initial salary according to experience.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination before being appointed to the position.

Applications, stating age, full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, Public Health Department, Huddersfield, along with copies of two recent testimonials, so as to reach him not later than Friday, April 1st, 1938.

Town Hall, Huddersfield.
March, 1938.
SAMUEL PROCTER,
Town Clerk.

LONDON COUNTY COUNCIL.
CONSULTANT AND SPECIALIST SERVICES.

Applications invited for appointment to undermentioned positions in hospitals' service:

(1) **FULL-TIME RADIOLOGIST** (one position) at undermentioned group of hospitals:

Fulham Hospital, W.6.
St. Luke's Hospital, S.W.3.
St. Mary Abbots Hospital, W.8.
St. Stephen's Hospital, S.W.10.

Salary, £900-£50-£1,100. Hours of duty, 35 a week.
(2) **PART-TIME OBSTETRICIAN AND GYNAECOLOGIST** (one position) for Fulham and St. Mary Abbots Hospitals. Salary, £800. Officer responsible, subject to the general administrative supervision and control of the medical superintendents, for whole of obstetric and gynaecological work at these hospitals, will be required to live within a reasonable distance of hospitals, to visit them daily and as required.

(3) **PART-TIME ANAESTHETISTS** for duty at Council's general hospitals for sessions varying from one to six a week. Salary £125 for one routine session a week and £75 a year for each session a week in addition. Additional remuneration at rate of £2 12s. 6d. a visit for emergency visits made in excess of number of routine sessions. Candidates will be invited to apply for appointment to a panel for attendance as required at outlying tuberculosis hospitals. Rates of remuneration, £4 4s. for a visit of less than 3 hours, £5 5s. for a visit of more than 3 but less than 4 hours, £6 6s. for a visit of 4 hours or more.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health (Staff Division 6), County Hall, Westminster Bridge, S.E.1, returnable by March 28th. Women eligible. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing to undermentioned position. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

SENIOR ASSISTANT MEDICAL OFFICER (Grade II).—Salary £500-£25-£600, with board, lodging and washing.

GROVE PARK HOSPITAL, Lee, S.E.12. Experience in the treatment of pulmonary tuberculosis essential, administrative experience desirable.

Application forms obtainable (stamped addressed foolscap envelope necessary) from Medical Officer of Health, Staff Division, 24, County Hall, S.E.1, returnable by April 4th. Canvassing disqualifies.

CITY AND COUNTY OF BRISTOL.**ASSISTANT MEDICAL OFFICER OF HEALTH.**

The Council invite applications for a whole-time male **ASSISTANT MEDICAL OFFICER OF HEALTH**. Age not exceeding 40 years. Salary £500 per annum, rising by annual increments of £50 to £700. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The Diploma of Public Health is essential.

Candidates having experience in refraction work, and who are recognized by the Board of Education as Certifying Officers under Section 55 of the Education Act, 1921, and Section 31 of the Mental Deficiency Act, 1913, will be given special consideration.

Particulars of the duties of the Assistant Medical Officer may be obtained from the undersigned.

Applications, which must be on the form provided for this purpose, should be accompanied by not more than three recent testimonials, and must be received by the undersigned not later than Saturday, April 2nd, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Canvassing will disqualify.

JOSIAH GREEN,
Town Clerk.
Council House, Bristol, 1.
March 15th, 1938.

CORPORATION OF GREENOCK.
RANKIN MEMORIAL HOSPITALS, GREENOCK.

(28 Maternity Beds and 28 Children's Beds.)

Applications are invited for the position of **RESIDENT MEDICAL OFFICER** in the above Hospital.

Candidates must have recent hospital experience in midwifery work and special experience of children's diseases will be considered an additional qualification.

Salary will be at the rate of £400-£450 by annual increments of £25 with board, residence and laundry, subject to a 5 per cent. deduction under the Corporation's Superannuation Scheme. Medical examination is obligatory.

Applications, stating age and experience, along with copies of three recent testimonials, should be lodged with the Medical Officer of Health, 4, Terrace Road, Greenock, on or before March 29th, 1938.

SURREY COUNTY COUNCIL.

BOTLEYS PARK COLONY (CERTIFIED INSTITUTION FOR MENTAL DEFECTIVES),
Near Chertsey, Surrey.

APPOINTMENT OF DEPUTY MEDICAL SUPERINTENDENT.

Applications are invited from registered medical practitioners (male) for the whole-time appointment of Resident Deputy Medical Superintendent at the above-mentioned Certified Institution. The first section of the Colony, which is now in course of erection, will provide accommodation for 1,200 patients and the necessary resident staff, and will eventually provide 1,500 patient beds. In addition, there is accommodation for another 300 patients in an immediately adjacent Institution, which is under the same administration as the main colony.

Commencing salary £720, rising by annual increments of £25 to a maximum of £820 per annum, with emoluments valued for superannuation purposes at £30 per annum.

Applicants, who must be in possession of the Diploma of Psychological Medicine, should have had practical experience in a large Mental Institution, preferably for Mental Defectives. Age not to exceed 40 years.

The appointment will be subject to the provisions of the Asylums and Certified Institutions (Officers' Pensions) Act, 1913, and to the Council's Staffing Regulations. The person appointed will be required to undergo a medical examination, and to commence his duties on June 1st, 1938.

Applications, stating age and whether married or single, accompanied by copies of three recent testimonials, must reach the undersigned not later than Monday, April 4th, 1938. The envelope should be marked "Botleys Park Deputy Medical Superintendent."

DUDLEY AUKLAND,
Clerk of the Council
Mental Hospitals Department,
County Hall, Kingston-upon-Thames.
March 8th, 1938.

COUNTY COUNCIL OF MIDDLESEX.**TUBERCULOSIS MEDICAL OFFICER.**

Applications are invited for the above appointment on the pensionable staff. Salary £750 per annum, rising by annual increments of £50 to £1,000, together with out-of-pocket travelling expenses.

Candidates must be registered Medical Practitioners who have held resident appointment in a general hospital for at least six months, and have had special practical experience in the diagnosis and treatment of tuberculosis in sanatoria or otherwise.

The officer appointed will be required to devote his whole time to his official duties, to work under the administrative control of the County Medical Officer of Health, and to reside in such district as may be required.

The duties will include the charge of tuberculosis dispensaries, the general arrangement for the treatment of tuberculosis patients otherwise than in sanatoria, and such other duties as the Council may direct.

The appointment, which will be subject to medical examination, will be held during the pleasure of the Council and is terminable by three months' notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than March 26th. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Tuberculosis Officer." Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z."
Clerk of the County Council.
Middlesex Guildhall,
Westminster, S.W.1.
February 25th, 1938.

COUNTY BOROUGH OF WOLVERHAMPTON.
NEW CROSS HOSPITAL.
(350 Beds.)**ASSISTANT MEDICAL OFFICER (RESIDENT).**

Applications are invited for appointment as Assistant Medical Officer at the above Hospital, which contains Medical, Surgical, Maternity, and Children's and Isolation Departments, and is modernly equipped. Candidates must be unmarried. Experience in anaesthetics, a knowledge of Clinical Pathology and previous Hospital experience will be deemed additional assets.

Salary will be at the rate of £200 per annum, with apartments, board, attendance, etc.

The appointment will be limited to a term not exceeding one year.

Further information as to the duties, etc., may be obtained from the Medical Officer of the Hospital.

Applications, stating age, qualifications, and nationality, together with copies of recent testimonials, should be addressed to
A. G. ALDRIDGE,
Public Assistance Officer,
Stafford Street,
Wolverhampton.

ANCOATS HOSPITAL, MANCHESTER. 4 **RESIDENT SURGICAL OFFICER**

Applications are invited for the above post. The appointment is for twelve months. Salary £200 per annum, with board, apartments, laundry, etc. Candidates holding the F.R.C.S. diploma will be preferred.

Applications, stating age, qualifications, and experience, with copies of three recent testimonials, to be forwarded to the undersigned on or before March 30th next.

By Order of the Board,
HERBERT J. DAFFORNE,
General Staff and Secretary

DUNDEE MENTAL HOSPITAL **WESTGILL.**

Applications are invited for the post of **JUNIOR ASSISTANT MEDICAL OFFICER** (male) to the above hospital. Salary £350 per annum, with board, lodging and laundry, subject to deduction under the Asylum Officers' Superannuation Act.

The hospital is the teaching centre for St. Andrew's University, and opportunity is afforded for research and study in Psychiatry.

Applications, stating age and experience, with copies of three recent testimonials, to be forwarded to the Medical Superintendent on or before Wednesday, April 6th.

A. ALLAN BELL,
Medical Superintendent

EAR AND THROAT HOSPITAL **BIRMINGHAM, 3**

THIRD HOUSE SURGEON wanted (male). Must be qualified, and with clinical experience. Salary at the rate of £120 per annum, with board, lodging and laundry, and an allowance of £50 per annum in lieu of board and laundry.

Appointment for six months, to commence April 1st. Candidates are eligible for election to Senior posts. Facilities for training for D.L.O. Applications and testimonials to be forwarded to the undersigned.

W. H. LOMAS,
Secretary

GENERAL INFIRMARY, SALISBURY (Voluntary Hospital, 20 Beds, now in course of extension to 215)

HOUSE SURGEON (male) required to commence duty at once.

The appointment is for six months, with the right of applying for reappointment for a further period of six months. Candidates must be unmarried, fully qualified, and registered.

The Hospital is recognised under F.R.C.S. regulations.

Salary £125 per annum, with board and residence. Applications, with copies of testimonials, to be sent to the House Governor and Secretary from whom a copy of the rules may be obtained.

HULL ROYAL INFIRMARY

Applications are invited for the post of **SECOND HOUSE PHYSICIAN** (male), vacant April 30th. Salary at the rate of £150 per annum, plus board, residence and laundry. The post is recognised by the University of London for the M.D. Branch 1 (Medicine) Examination.

The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving age, experience, and testimonials, together with copies of recent testimonials, should be addressed to the undersigned.

R. J. CARLESS,
March 14th, 1938. House Governor.

ROYAL SUSSEX COUNTY HOSPITAL, **Brighton.** (272 Beds, Six R.M.O.s.)

CASUALTY HOUSE SURGEON (male) required May 1st, 1938. Salary £120 p.a. with board, residence and laundry. Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and when elected under thirty years of age.

Applications, with copies of recent testimonials, to be forwarded to the undersigned.

L. L. W. LANGCASTER-GAYE,
Secretary-Superintendent.

EAST SUFFOLK AND IPSWICH HOSPITAL. (350 Beds, 5 Residents)

Wanted, April 1st, **CASUALTY OFFICER** (British, male). Salary at the rate of £144 per annum, with board, apartments and laundry.

Applications, together with copies of three recent testimonials, to be sent to the undersigned immediately.

ARTHUR GRIFFITHS,
The Hospital, Ipswich. Secretary.
March 19th, 1938

KENT AND SUSSEX HOSPITAL, **Tunbridge Wells. (210 Beds.)**

Applications are invited for the appointment of **SENIOR HOUSE SURGEON** (male). Salary £150 per annum. Board and residence and laundry in the Hospital.

The Hospital includes the following Departments: Medical, Surgical, Ear, Nose and Throat, Ophthalmic, Gynaecological, X-ray and Radiotherapy, Maternity, Pathological, Venereal Diseases, etc.

Successful candidate will be required to take up duty on 7th of Saturday, April 9th, 1938.

Applications, stating qualifications, together with certificates of registration and copies of not more than three recent testimonials, should be sent to the undersigned by March 15th.

TOM B. HARRISON,
March 14th, 1938. Superintendent-Secretary

NORTH STAFFORDSHIRE ROYAL INFIRMARY **Stoke-on-Trent. (360 Beds.)**

RESIDENT ANAESTHETIST

The Committee invite applications for the above post. Salary at the rate of £170 per annum, with board and residence and laundry. This appointment, which is recognised by the Royal College of Surgeons in the Diploma in Anaesthetics, will be made for six months renewable. Previous hospital Anaesthetic experience essential.

Applications, stating age and experience, with copies of two recent testimonials, to be sent to the undersigned immediately.

By Order,
W. STEVENSON,
March 16th, 1938. Secretary and House Governor

SOUTHEND-ON-SEA GENERAL HOSPITAL. (224 Beds, 25 Residents)

H. A. SPENCER, D.L.O., F.R.C.S. (Ed.)

Applications are invited for the post of **HOUSE PHYSICIAN** and **HOUSE SURGEON**, to commence work in one special Department.

Duties to commence on April 1st, 1938. The appointments are for six months each. Salary at the rate of £120 p.a. with board, residence and laundry. Candidates must be Registered (male) Practitioners.

Applications, together with copies of two recent testimonials, should be sent to the undersigned not later than March 23rd, 1938.

P. H. CONSTABLE,
Secretary

STOCKTON AND THORNABY HOSPITAL **Stockton-on-Tees. (140 Beds.)**

SENIOR HOUSE SURGEON (male) required for a period of at least six months. Duties to commence on or about April 15th, 1938. Salary £125 per annum with board, residence and laundry. Candidates must be duly qualified and unmarried.

Applications, stating age, nationality and experience, together with copies of three testimonials, to be sent to the undersigned.

J. WILKINSON, Secretary

THE CONSUMPTION SANATORIA

ORPHAN HOMES OF SCOTLAND AND SANATORIUM, BRIDGE OF WEIR.

FEMALE ASSISTANT MEDICAL OFFICER wanted to commence duty on May 1st. 1200 children in Homes. 100 female beds in Sanatorium.

Salary at £260 per annum, during first six months with rooms, board and laundry. Renewable at £250 p.a. annum thereafter by mutual consent.

Apply to Medical Superintendent, enclosing testimonials, and stating age and previous experience.

THE GLASGOW EYE INFIRMARY.

The Directors invite applications from registered medical practitioners for the post of **RESIDENT HOUSE SURGEON**. Salary £150 per annum, with apartments and board.

Applications, with copies of testimonials, should be lodged with the undersigned by March 25th, 1938. 140, West George Street, **T. C. CALDWELL,**
Glasgow, C.2. Secretary.

March 14th, 1938.

HEREFORDSHIRE GENERAL HOSPITAL. **Hereford. (152 Beds.)**

Immediate applications are invited for the post of **HOUSE SURGEON** (male) in charge of Casualty and Ear, Nose and Throat Departments. Salary at the rate of £160 per annum, with board, residence and laundry.

Applications, stating age and qualifications, together with copies of three recent testimonials, should be sent to the undersigned.

T. W. UPTON, Secretary.

ROYAL HALIFAX INFIRMARY.

Hospital recognised by the Royal College of Surgeons (England).

Applications are invited for the following appointments:—

RESIDENT SURGICAL OFFICER. Salary £250 per annum.

FIRST HOUSE SURGEON. Salary £200 per annum.

SECOND HOUSE SURGEON. Salary £175 per annum.

THIRD HOUSE SURGEON. Salary £150 per annum.

with residence, board and laundry. The salaries include all services required in connection with the Paying Patients' Block.

The appointment of Resident Surgical Officer will be for one year, commencing May 1st, 1938. The other appointments will be for six months, from May 1st, 1938.

The Hospital contains Maternity and Paying Patients' Blocks. Also a Pathological Department, a large Eye, Ear, Nose and Throat Department, Radiological Department and Research Clinic.

Particulars of the duties may be obtained from the undersigned, to whom applications, stating age and nationality, together with testimonials, should be sent on or before March 21st, 1938.

A. MIDGLEY,
March 7th, 1938. Secretary.

THE ROYAL NORTHERN INFIRMARY, INVERNESS.

MEDICAL SUPERINTENDENT

Applications are invited for the post of Medical Superintendent. Applicants must be members of the Medical Profession and have experience in Hospital Administration. Salary £570. Particulars relative to the duties of the office can be had from the undersigned, with whom ten copies of letter of application, stating age and experience, together with ten copies of testimonials, must be lodged not later than April 2nd, 1938.

ROBERT GILBERT,
Honorary Secretary

THE ROYAL INFIRMARY, BRADFORD.

FIVE HOUSE SURGEONS (males) wanted for May 1st. Six months' appointments. Candidates must be single and legally qualified.

Salary £150 per annum, with board, residence and washing.

There are 345 beds and 19 Resident Officers. Applications, stating age, qualifications and previous experience, with copies of recent testimonials, should be sent to the undersigned by April 2nd.

H. TRUSSON,
March 11th, 1938. House Governor and Secretary

NOTTINGHAM GENERAL HOSPITAL. (319 Beds.)

A **HOUSE PHYSICIAN** (male) is required at the above Institution. The appointment is for six months, with salary at the rate of £150 a year with board, residence and laundry.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to the undersigned at once. Duties to commence on April 1st, 1938.

PETER M. MCCOLL,
House Governor and Secretary.

THE JESSOP HOSPITAL FOR WOMEN, **Sheffield.**

The Board of Management invite applications for the post of **CLINICAL ASSISTANT** (Honorary) to the Ante-Natal Department. Candidates must be fully qualified general practitioners. The officer appointed will be required to assist in the Ante-Natal Clinic during one or two sessions weekly.

Applications, with not more than three testimonials, to be sent to the undersigned immediately.

DAVID OSWALD,
Superintendent and Secretary.

WHITEHAVEN AND WEST CUMBERLAND HOSPITAL.

HOUSE SURGEON required for middle of April. Six months' appointment at the rate of £150 per annum with board, lodging and residence. Two House Surgeons in residence, 90 Beds.

Applications, with copies of three recent testimonials, to be sent addressed to the Secretary.

MANCHESTER ROYAL EYE HOSPITAL.

HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc.

Applications (with copies of testimonials), endorsed "House Surgeon" to be addressed to the Chairman of the Board of Management.

H. R. NORTH,
Gen. Surg. and Secretary.

ALL SAINTS' HOSPITAL (FOR GENITO-URINARY DISEASES), Austral Street, West Square, Southwark, S.E.11.

Applications are invited for the post of HONORARY SURGICAL REGISTRAR, and candidates are requested to send particulars of their experience, qualifications, and copies of recent testimonials, to me before March 26th.

The appointment is tenable for a period of twelve months from April 1st, 1938, with renewal up to a maximum of two years subject to the discretion of the Board of Management. Applicants should be Fellows of the Royal College of Surgeons, and not be engaged in general practice.

D. H. EADE, Secretary.

PADDINGTON GREEN CHILDREN'S HOSPITAL (Incorporated), London, W.2.

HOUSE PHYSICIAN.
HOUSE SURGEON.

These appointments will become vacant on May 1st, 1938. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, to the undersigned not later than Friday, April 8th, 1938. Salary of each at the rate of £150 per annum, with board and residence. Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of six months.

JAMES A. HAMLIN,
Secretary.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

Applications are invited for the post of OUTPATIENT OFFICER, to attend on Wednesdays and Saturdays (mornings) each week. Candidates must be registered medical practitioners.

Salary at the rate of £100 per annum. The Out-Patient Officer will be appointed for a period of one year, and will be eligible for reappointment. Copies of regulations can be obtained on application.

Applications, with testimonials, stating age and qualifications, together with photograph, must be received by the undersigned not later than March 28th, 1938.

A. J. M. TARRANT, Secretary.

KING EDWARD MEMORIAL HOSPITAL, EALING. (145 Beds.)

Applications are invited for the post of HOUSE SURGEON (male) to act in the Eye, Gynaecological and Ear, Nose and Throat Departments. Six months' appointment from May 1st, 1938, with possibility of re-election for a further period. Salary £150 per annum with usual residential emoluments.

Applications, stating age, experience and qualifications and accompanied by copies of two recent testimonials, to be sent to the undersigned not later than Tuesday, April 5th, 1938.

R. A. MICKELWRIGHT,
House Governor.

CHARING CROSS HOSPITAL. CANCER AND RADIUM REGISTRAR.

The Council invite applications from candidates who must be registered Medical Practitioners (male) for the post of Cancer and Radium Registrar. Honorarium £100 per annum. Applications, together with copies of three testimonials, must be submitted not later than first post on Monday, March 28th, 1938.

GEORGE J. JONES,
Secretary.

Charing Cross Hospital, Strand, W.C.2.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, 60, Grove End Road, N.W.3.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male). The post is recognized for the degree of M.S. London University. The appointment will be for six months from May 1st, 1938. Salary at the rate of £75 per annum, with full board. Applications, together with copies of three testimonials, should reach the undersigned on or before Friday, April 1st.

F. DUDLEY HOBBS, B.A.,
Secretary.

LONDON HOSPITAL, E.1.

There is a vacancy for the post of CLINICAL ASSISTANT in the X-Ray Department. Candidates must be fully qualified medically. Experience in Radiology is essential. The honorarium of the post is £100 per annum.

Applications, with testimonials, should be sent to the House Governor and should arrive not later than Saturday, April 9th.

ARTHUR G. ELLIOTT,
House Governor.

SALOP COUNTY COUNCIL. Medical Inspection of School Children and Maternity and Child Welfare Schemes

ASSISTANT MEDICAL OFFICER.

Applications are invited from registered medical practitioners for the post of ASSISTANT MEDICAL OFFICER to work under the above Schemes, at a commencing salary, according to experience—scale £500 per annum, rising by annual increments of £25 to a maximum of £700 (with travelling and out-of-pocket expenses), subject to a deduction of 5 per cent. for superannuation under the Local Government and Other Officers' Superannuation Act, 1922. The successful candidate will be required to pass a medical examination.

Preference will be given to candidates with a Public Health qualification, and experience in refraction work is desirable.

Applications, accompanied by a copy of three recent testimonials, should be received not later than April 13th, 1938, by the County Medical Officer, County Health Offices, Shrewsbury, from whom the necessary forms and conditions of service can be obtained.

W. L. EDGE,

Clerk of the Council.

Shirehall, Shrewsbury, March 14th, 1938.

THE PRINCESS BEATRICE HOSPITAL, Earl's Court, London, S.W.5.

HONORARY CLINICAL ASSISTANTS.

Applications are invited for the following appointments as Honorary Clinical Assistants to the Out-Patients' Department:—

Medical (6): 3 Tuesday, 2 p.m.; 3 Friday, 2 p.m.
Obstetric (1): Monday, 9 a.m., and Wednesday, 2 p.m.

Gynaecological (1): Monday, 9 a.m., and Wednesday, 2 p.m.

Skin (2): Thursday, 9 a.m.

Ear, Nose and Throat (1): Friday, 9 a.m.

Ophthalmic (2): Monday, 2 p.m.

X-ray and Electro-Therapeutic (1): Thursday, 2 p.m.

Dental (1): Wednesday, 9 a.m.

Applications, giving qualifications, age, etc., together with copies of not more than three recent testimonials, should be sent to the Secretary-Manager, The Princess Beatrice Hospital, 194, Finborough Road, S.W.10, not later than 9 a.m., March 31st, 1938.

THE ROYAL INFIRMARY, SHEFFIELD. (500 Beds.)

The Board of Management invite applications for the post of HOUSE SURGEON TO THE EAR, NOSE AND THROAT DEPARTMENT. The salary attached to this post is £80 per annum, increasing after six months' service to £100 per annum, with board and residence.

The appointment will be tenable until April 30th, 1938. The successful candidate will be eligible for re-election to this or one of the other fourteen House appointments.

Applications, with copies of testimonials, to be sent to the General Superintendent and Secretary, March 14th, 1938.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1.

The Committee of Management invite applications for the appointment of SIXTH MEDICAL OFFICER for the Ante-Natal Department. Candidates must be Graduates in Medicine of a University of the British Empire, or (a) Fellows or Members of the Royal College of Physicians of London, or (b) Fellows of the Royal College of Surgeons of England. Applications should be sent before April 12th to the Secretary, from whom further particulars may be obtained.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.1.

Applications are invited from duly qualified and registered medical men or women for the following post:

RESIDENT CASUALTY OFFICER.

Duties to commence May 1st, 1938, for five months. Salary £150 per annum. Candidates must have held previous resident hospital appointments. Application form may be had from the undersigned, and should be duly filled in and returned on or before April 9th, 1938.

RICHARD T. BARTLEY, Secretary.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2. (Bus, Tram and Rail, Cambridge Heath, L. and N.E. Railway.)

A vacancy for a HOUSE PHYSICIAN (male) will occur on May 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence, and laundry provided.

Applications, with copies of testimonials (three), should be sent to the Secretary on or before Saturday, April 2nd.

LANCASHIRE COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL AND DARNTON HOUSE INSTITUTION, Ashton-under-Lyne, near Manchester.

(1) APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.

Salary £250 per annum, together with the usual residential emoluments. The person appointed will be required to take up duty on June 1st, 1938.

(2) APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER.

Salary £225 per annum, together with the usual residential emoluments. The person appointed will be required to take up duty on May 2nd, 1938.

Applications are invited from Registered Medical Practitioners for the above appointments at the Lake Hospital and Darnton House Institution, Ashton-under-Lyne, comprising 300 and 525 beds respectively.

The Hospital is recognised as a complete Training School for Nurses.

Candidates must be unmarried. Preference will be given to candidates having previous hospital experience, especially in midwifery, and in the administration of anaesthetics.

The appointments will, in the first instance, be for a period of six months, the successful candidates being eligible for reappointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Friday, April 1st, 1938.

GEORGE EHTHERTON,

Clerk of the County Council.

County Offices, Preston.
March 14th, 1938.

NORFOLK COUNTY COUNCIL. MENTAL DEFICIENCY ACTS COMMITTEE.

LITTLE PLUMSTEAD HALL COLONY.

APPOINTMENT OF RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from duly registered practitioners for the post of Resident Assistant Medical Officer. The salary for the post is £425 per annum, rising by three annual increments of £25 to £500 per annum, with house, light, fuel, laundry, and permission to purchase from stores, and travelling allowances in accordance with the Council's scale. The emoluments are valued at £100 per annum for superannuation purposes. A house is being erected, but it may be necessary for the selected candidate to reside outside the Colony for a period.

Experience in the diseases of children and in a children's hospital is deemed essential. Applications, giving particulars of academic qualifications and details of professional experience, and accompanied by copies of not less than two recent testimonials, should be forwarded to the Medical Superintendent, Little Plumstead Colony, near Norwich, not later than Thursday, March 24th, 1938.

The selected candidate will be required to undergo a medical examination and to make contributions as specified in the Asylums and Certified Institutions Officers' (Pensions) Act, 1918.

County Offices, H. C. DAVIES,
Thorpe Road, Clerk of the County Council.
Norwich, March 9th, 1938.

S. T. MARY'S HOSPITAL, W. 2. MEDICAL REGISTRAR.

Applications are invited for the above post. Candidates for the appointment must be registered Medical Practitioners, and Fellows, Members, or Licentiates of the Royal College of Physicians, or Graduates in Medicine of a University in the British Empire. The successful candidate will be expected to take up his duties on May 4th.

The salary is £200 per annum, with luncheon and tea provided.

Copies of the regulations for the Medical Registrar may be obtained on application at the Secretary's office.

Applications, with copies of testimonials, should reach the undersigned on or before Monday, March 28th.

W. PARKES,
House Governor.

THE NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, London, N.W.1.

Applications are invited for the following post: CASUALTY OFFICER (male). Salary £125 per annum, board, residence and laundry allowance.

The appointment is for a period of six months as from April 1st. Preference will be given to those who have held resident posts.

Candidates must submit applications, stating age, etc., with copies of not more than three testimonials, by Monday, March 28th, addressed to the Secretary.

APPOINTMENTS—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumshuegh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District	Town or District
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd.)	CONTRACT PRACTICE—(contd.)
ABERTYSSWG MEDICAL AID SOCIETY (Medical Officer)	MID-RHONDDA MEDICAL AID SOCIETY. (Assistant Medical Officer)	OAKDALE, MON. (Medical Officer for Medical Aid Association)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme)	SEATH AND DISTRICT (Medical Aid Association)	PUBLIC HEALTH
LLWYNNYPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme)	OGMORE VALLEY, GLAMORGAN. (Workmen's Medical Aid Society). (Workmen's Medical Scheme)	SALOP MENTAL HOSPITAL, SHREWSBURY (Assistant Medical Officer, Male)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch	Town or District	Hon. Sec. of Division or Branch
NEW SOUTH WALES (All Friends' Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie St., Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association Medical Society, Hall, Albert St., East Melbourne, Victoria	WESTERN AUSTRALIA (Contract and Lodge Practices)	Hon. Sec. Western Australian Branch, British Medical Association, "Shell House", 205, St. George's Terrace, Perth, Western Australia
QUEENSLAND (Brisbane Associate Friendly Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.				

March 16, 1938.

By order of the Council.

G. C. ANDERSON, Secretary.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE

Sankey, Keir
(100 Beds for Children with Bone and Joint Tuberculosis and other Orthopaedic Conditions.)

Applications are invited for the post of **SECOND RESIDENT MEDICAL OFFICER**. Candidates must be unmarried and fully qualified, and should preferably hold the Diploma of F.R.C.S.(Eng.). The successful candidate will be required to take up duty on May 1st. The appointment is for six months, with eligibility for re-election. Commencing salary £250 to £300 yearly, according to qualifications and experience. Board and lodging will be provided.

Applications, stating age and giving full particulars of qualifications and previous surgical experience, with copies of two testimonials, should be sent not later than March 21st to the undersigned at the London Offices, 107, Southampton Row, London, W.C.1, from whom further particulars of the duties and conditions of the appointment can be obtained.

STANLEY SMITH,
Secretary.

March 11th, 1938.

WORCESTER COUNTY AND CITY MENTAL HOSPITAL

Powick, Near Worcester.

Applications are invited for the post of **ASSISTANT MEDICAL OFFICER**. Applicants must be male, single, under 35 years of age, and duly qualified in medicine and surgery. Commencing salary £350, rising by annual increments of £25 to a maximum salary of £450 per annum, together with furnished apartments, board, laundry, and attendance. A further £50 per annum will be paid if the selected candidate holds or obtains a Diploma in Psychological Medicine. Experience in Asylums will be a recommendation. The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

Applications, stating age, and full particulars of qualifications and experience, accompanied by copies of three recent testimonials, to be forwarded to the Medical Superintendent not later than Saturday, March 26th, 1938.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE

Applications are invited for the following posts:
(a) **HOUSE PHYSICIAN**, vacant on May 1st.
(b) **HOUSE SURGEON** to the Special Departments, with care of beds for ear, nose and throat, eye, gynaecological and maternity cases, vacant on May 1st.

Each appointment is tenable for a period of six months, but is terminable at an earlier date by one month's written notice on either side. The salary of each officer will be at the rate of £130 per annum, with board, residence and laundry.

Candidates (males), who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four testimonials, to the undersigned, on or before Wednesday, March 23rd, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

Applications are invited for the post of **RESIDENT ANAESTHETIST AND EMERGENCY OFFICER** (male). The appointment will be for three months from April 1st, 1938. Salary at the rate of £130 per annum, with board, residence and laundry. Candidates, who must be unmarried and duly registered, are requested to forward their applications, stating age, qualifications, etc., together with copies of not more than four recent testimonials, to the undersigned, on or before Wednesday, March 23rd, 1938.

J. A. BEARDSALL,
Secretary-Superintendent.

COSHAM MEMORIAL HOSPITAL

Kingswood, Bristol

A vacancy will occur at the end of March for a **JUNIOR RESIDENT MEDICAL OFFICER**. Salary £100 per annum, with board and laundry; to remain for six months in the first instance. Applicants (males) should be of British nationality, fully qualified and registered. Applications, with copies of recent testimonials, to be sent to the Secretary.

BRIGHTON COUNTY BOROUGH MENTAL HOSPITAL

Haywards Heath, Sussex.

APPOINTMENT OF THIRD ASSISTANT MEDICAL OFFICER.

The Visiting Committee are prepared to receive applications from medical men for the above post. No married quarters are provided. The salary will be £350 per annum, rising to £400 per annum, with board and laundry, valued for superannuation purposes at £100 per annum.

Candidates must be registered under the Medical Act, and preference will be given to those who have held the post of House Surgeon or House Physician at a General Hospital. The appointment will be subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Applications, on a form which will be supplied, with copies of three recent testimonials, to be sent to the Medical Superintendent and to be received by March 24th, 1938.

DEVON MENTAL HOSPITAL.

Required, **JUNIOR ASSISTANT MEDICAL OFFICER** (male), unmarried, who must be legally qualified and registered. Preference will be given to candidates who must have of five years' service to obtain a Diploma in Psychological Medicine, and obtain a Diploma in Psychological Medicine. The Hospital is fully equipped with operating theatre, bacteriology laboratory, etc.

Salary £350 per annum, rising by £25 per annum to £450, with £50 in addition to those who possess the D.P.M., and board, apartments, laundry and attendance, valued at £10.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909. Form of application to be obtained from the Clerk at the Devon Mental Hospital. Examination must be completed and returned on or before March 24th, 1938.

(Appointments continued on p. 67.)

CITY MENTAL HOSPITAL, Humberstone, Leicester.

ASSISTANT MEDICAL OFFICER (Male).

Residential General Hospital experience is desirable. Salary £350, rising by £50 per annum to £450 per annum, together with board, lodging, washing and attendance, valued for purposes of superannuation at £150 per annum. If the applicant be married he will be permitted to live out, and the salary will commence at £500, rising by £50 per annum to £600. An additional £50 per annum will be paid for possession of a D.P.M.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909.

There is a good laboratory and two active Psychiatric Clinics, one attached to the Leicester Royal Infirmary.

Duties will include attendance at a mental deficiency colony.

Applications, giving particulars of experience, etc., together with names of three references (one of which should be non-professional) and marked "A.M.O." to be sent to the Medical Superintendent before March 31st.

PRINCE OF WALES'S HOSPITAL, Devonport.

(Formerly the Royal Albert Hospital, Devonport.)
64 Beds.

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £120 per annum, with board, residence and laundry.

Duties to commence April 1st, 1938. Appointment is tenable for six months and is subject to renewal, or promotion to the senior position when this post becomes vacant. Applicants must be registered under the Medical Acts.

Applications, stating age and qualifications, with copies of three recent testimonials, to reach the undersigned not later than March 24th.

ARTHUR R. CASH,

General Supt. and Secretary.

Prince of Wales's Hospital,
Greenbank Road, Plymouth.

BIRMINGHAM & MIDLAND EYE HOSPITAL. (114 Beds.)

Applications are invited from duly qualified medical practitioners for the post of HOUSE SURGEON at the above Hospital.

Salary £150 per annum (rising to £150 at the end of six months' satisfactory service), and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, must be received not later than Thursday, March 24th, 1938.

Church Street, J. W. PEARCE,

Birmingham, 3. General Superintendent.

DERBYSHIRE ROYAL INFIRMARY, Derby.

(General Hospital, 362 Beds.)

Applications are invited for the post of HOUSE SURGEON for Ear, Throat and Nose Department, who must be a male of British nationality and unmarried. Candidates must be qualified and registered under the Medical Acts. Salary will be £150 per annum, with apartments, board, etc.

Applications, with copies of testimonials, to be sent to the undersigned. State earliest date duties could be commenced.

ARTHUR TAYLOR,

Superintendent and Secretary.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (84 Beds.)

Wanted, April 9th, 1938, a RESIDENT HOUSE PHYSICIAN (Lady). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, to be sent to the undersigned on or before March 30th.

ARTHUR N. WHISTON,

25, St. Mary's Gate, Derby. Secretary.

BEDFORD COUNTY HOSPITAL.

Wanted, FIRST HOUSE SURGEON to take over his duties on April 8th for a term of not less than six months. He must be fully qualified, male, unmarried. Salary £155 per annum, together with board, lodging and laundry. Applications, stating age, nationality and qualifications, together with three recent testimonials, to be sent to the Secretary, Hon. Medical Staff Committee.

BIRMINGHAM MATERNITY HOSPITAL.

HOUSE SURGEON (man or woman) wanted for nine months, from May 1st, 1938 (three months in Hospital, three months on District, and three months in Hospital). Salary to be at the rate of £75 per annum. Applications, with full particulars and copies of testimonials, to be sent not later than April 2nd to HUGH C. ASTON, 45, Newhall Street, Birmingham, 3.

KING EDWARD VII. HOSPITAL, WINDSOR. (200 Beds.)

HOUSE SURGEON required, beginning April (preferably with Ear, Nose and Throat experience), for charge of Ear, Nose and Throat beds and other special departments. Applicants must be fully qualified men or women, and registered and unmarried.

Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than March 25th.

A. E. CHURCHER,

Secretary.

KING EDWARD VII HOSPITAL, WINDSOR. (200 Beds.)

CASUALTY OFFICER required for beginning of April. Applicants must be fully qualified men or women, registered and unmarried.

Salary at the rate of £120 per annum, together with board, residence and laundry.

Applications, stating age, qualifications and experience, accompanied by testimonials, should be sent to the undersigned not later than March 25th.

A. E. CHURCHER, Secretary.

MANCHESTER ROYAL INFIRMARY.

MEDICAL OFFICER TO OUT-PATIENTS.

The Board of Management invite applications from registered medical practitioners for the above appointment. The duties are to assist in the treatment of Medical Out-patients on three mornings a week from 9 o'clock. The appointment is for one year. Salary £105 per annum.

Candidates must state age and send fifteen copies of their application and testimonials to the undersigned on or before 9 a.m. on Thursday, March 31st, 1938.

By Order,

A. L. M. YOUNG,
March 14, 1938. Assistant Secretary.

MINEHEAD AND WEST SOMERSET HOSPITAL. Minehead, Somerset.

Applications are invited for the post of RESIDENT HOUSE SURGEON (male or female) to this Hospital. Duty to commence on April 1st, 1938. Appointment for a period of six months. Salary £150 per annum, with board, residence and laundry.

Applications, stating age, nationality, experience and qualifications, accompanied by copies of three recent testimonials, to be sent to the undersigned not later than March 26th, 1938.

W. H. P. RODDA,

Secretary.

NEWARK GENERAL HOSPITAL. (66 Beds.)

Applications are invited for the post of RESIDENT HOUSE SURGEON (male). Salary at the rate of £175 per annum, with board, residence and laundry. The appointment is for six months, and may be renewed for a further term of six months. Duties to commence on or about April 1st, 1938.

Applications, stating age and hospital experience, together with copies of three recent testimonials, should be forwarded to the undersigned immediately.

B. C. DION,

Joint Secretary.

NEWCASTLE THROAT, NOSE AND EAR HOSPITAL.

Applications are invited for the position of HOUSE SURGEON.

Salary £150 p.a., with board, laundry and furnished quarters.

The position is suitable for anyone preparing for the D.L.O.

Written application, stating age, experience and qualifications, with copies of three recent testimonials, to be sent to the Secretary, Throat, Nose and Ear Hospital, Rye Hill, Newcastle-on-Tyne, 4.

KING GEORGE HOSPITAL, ILFORD. (Near London—207 Beds.)

HOUSE SURGEON (male) required for six months, from April 19th. Salary at the rate of £100 p.a. Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, not later than April 4th.

G. AUSTIN HEPVORTH,

Secretary and Superintendent.

ROTHERHAM HOSPITAL.

Wanted, HOUSE PHYSICIAN (male), qualified. Salary £180, with board, residence and laundry. 130 beds. Excellent experience to be gained.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate Street, Rotherham.

ROYAL VICTORIA INFIRMARY, Newcastle-upon-Tyne. (785 Beds.)

WHOLE-TIME JUNIOR GYNAECOLOGICAL AND OBSTETRICAL REGISTRAR (Open Appointment).

Applications are invited for the above post. Candidates must be registered medical practitioners duly qualified in Medicine and in Surgery, and must have held the post of resident in a recognized Maternity Hospital for six months and a further six months in a Hospital devoted to women's diseases, or in the Gynaecological Department of a recognized Hospital.

The appointment is for one year, and is renewable annually for a period not exceeding three years. The salary is at the rate of £300 per annum.

Full information can be obtained by application to the undersigned, by whom applications, stating age, qualifications and experience, and accompanied by not more than three recent testimonials, must be received not later than Thursday, March 31st, 1938.

S. DUNSTAN,

March 7th, 1938. House Governor and Secretary.

ROYAL VICTORIA INFIRMARY, Newcastle-upon-Tyne. (785 Beds.)

WHOLE-TIME ASSISTANT TO RADIOLOGICAL DEPARTMENT (Open Appointment).

Applications are invited for the above post. Candidates must be registered medical practitioners duly qualified in Medicine and in Surgery, and must hold the D.M.R., or at least the first part of it. The appointment is for one year, and is renewable annually for a period not exceeding three years.

The salary is at the rate of £300 per annum (non-resident).

Full information can be obtained by application to the undersigned, by whom applications, stating age, qualifications and experience, and accompanied by not more than three recent testimonials, must be received not later than Thursday, March 31st, 1938.

S. DUNSTAN,

March 11th, 1938. House Governor and Secretary.

ROYAL VICTORIA INFIRMARY, Newcastle-upon-Tyne. (785 Beds.)

Applications are invited for the post of whole-time REGISTRAR to the Orthopaedic Department (open appointment). Candidates must be registered in Medicine and Surgery. The appointment will be for one year, commencing April 11th, 1938, and may be further renewed on conditions. The rate of remuneration is £150 per annum.

Regulations governing the appointment must be obtained from the undersigned, and applications, with copies of not more than three recent testimonials, should be received by first post on Thursday, March 31st, 1938.

S. DUNSTAN,

March 11th, 1938. House Governor and Secretary.

PRINCE OF WALES'S HOSPITAL, Greenbank Road, Plymouth. (Formerly Stn. Devon and East Cornwall Hospital) 264 Beds.

Applications are invited for the post of non-resident WHOLE-TIME ASSISTANT PATHOLOGIST. Duties to commence, if possible, on April 11th.

Commencing salary £500 per annum. Candidates must be duly qualified medical practitioners.

Applications, stating age, nationality, qualifications and experience, together with copies of three recent testimonials, to be forwarded to the undersigned on or before March 25th.

ARTHUR R. CASH,

General Superintendent.

PRINCESS ALICE HOSPITAL, EASTBOURNE. (Voluntary General Hospital, 120 Beds, two House Surgeons.)

RESIDENT HOUSE SURGEON (male) required on April 9th, 1938. Salary at the rate of £150 per annum, with board and laundry. Applications from registered practitioners, accompanied by copies of three recent testimonials, should be delivered to the undersigned by the first post on Wednesday, March 30th, 1938.

W. RUSSELL RUDALL,

March 9th, 1938. Secretary.

STROUD GENERAL HOSPITAL, Stroud, Glos

RESIDENT MEDICAL OFFICER required. Candidates must be fully qualified and registered. Six months' appointment from April 1st. Salary £160 per annum, with board and laundry. Applications, stating age, nationality, etc., together with copies of three recent testimonials, to be sent to the undersigned, from whom particulars may be obtained.

C. FORD SPENCER, Secretary.

WANTED—ASSISTANTSHIP OR LOCUMS by medical woman. Some years experience in private and panel practice. Accommodated to church. Own car if required.—Address, No. 442, B.M.A. House, Tavistock Square, W.C.1.

WANTED. WOMAN DOCTOR AS ASSISTANT in Sanatorium. Previous experience not necessary.—Address, No. 442, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT WANTED, MALE, UNDER 30, £300 p.a. car allowance, all found with newly qualified, experience not essential in large Partnership, North London.—Address, No. 442, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIP WITH VIEW PARTNERSHIP is offered in country practice and residential area within 40 miles London. Age about 30. Salary £350. Car allowance £50. House free.—Address, No. 4504, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL—MALE ASSISTANT (PROTESTANT) wanted for large practice in good town near Glasgow with view to early partnership.—Apply, stating age, qualification and experience to **CLARENCE HARRIS and COMPANY, Solicitors**, 27, West George Street, Glasgow, C.2.

M.D., AGE 29, DESIRES OUTDOOR ASSISTANTSHIP, with early VIEW. Sect. Protestant. 5 years' hospital and G.P. experience.—Address, No. 442, B.M.A. House, Tavistock Square, W.C.1.

RADIOLOGICAL PRACTICE IN SOUTH AFRICA—An ASSISTANT with a view to PARTNERSHIP is required in a diagnostic practice near Johannesburg. Mixed hospital and private practice. Salary offered, £1,000 per annum. Estimated value of half-share of practice, £12,000. Clinical and diagnostic experience essential. Passage paid. Interview in England.—Apply to Miss M. C. Toop, F.R.C.S., D.R.E.D., Clerwood, Catterthorne, Edinburgh.

WOMAN DOCTOR, EXPERIENCED in hospitals, general practice, and locum work. Wishes post as ASSISTANT with, or without, view to Partnership or would do locums. Free and 4 April. Can drive car.—Address, No. 4401, B.M.A. House, Tavistock Square, W.C.1.

YOUNG DOCTOR, SINGLE, KEEN, WELL qualified, musical, 3 years Hospital and G.P. experience, seeks ASSISTANTSHIP in good-class practice, preferably in or near London, to enable Doctor not over 40. Good prospects, companionship and congenial surroundings essential. References. Free in May.—Address, No. 4427, B.M.A. House, Tavistock Square, W.C.1.

MEDICAL POSTS, DISPENSERS

A LADY DISPENSER BOOKKEEPER supplied immediately on request, qualified and with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations.—Write, wire, or telephone (Bayswater 0969) Secretary, 7, Westbourne Park Road, W.2.

A Course of Training in Dispensing and Pharmacy is given at **GORDON HALL SCHOOL OF PHARMACY** and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply, Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. 'Phone: Euston 1910.

ASSISTANT MEDICAL OFFICER REQUIRED for mining group in India. Knowledge of radiology advantage. Commencing salary £400. free house, servants, use of car, etc.—Address, No. 4406, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANT MEDICAL OFFICER REQUIRED. Medical Woman, with Mental Hospital experience. Salary £300 per annum, with emoluments.—Apply, Medical Superintendent, The Lanes, Lincoln.

BIOCHEMIST, M.Sc., DESIRES POST. Several years' hospital, research, and teaching experience.—Address, No. 4412, B.M.A. House, Tavistock Square, W.C.1.

CAREER FOR DAUGHTERS OF MEDICAL MEN DISPENSING. Full training for APOTHECARIAS HALL CERTIFICATE. New Session commencing November.—The Principal, CENTRAL SCHOOL OF PHARMACY FOR LADY DISPENSERS, 23, Moreton Street, London, S.W.1.

DOCTORS REQUIRING QUALIFIED DISPENSERS. Nurse-Dispensers, Secretary-Dispensers or Chauffeuse-Dispensers are invited to write, wire, or telephone Temple Bar 558, THE DISPENSER'S BUREAU, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR WISHES TO RECOMMEND SECRETARY aged 24, can dispense under supervision. Drive car type really, do professional and private accounts. Excellent references, prefers to live with family. Near London or elsewhere.—Address, No. 4419, B.M.A. House, Tavistock Square, W.C.1.

LADY SECRETARY-SHORTHAND-TYPIST. 10 years' experience, seeks post with doctor, locum or country, residential or otherwise. Complete knowledge medical terms books, accounts, own machine.—Address, No. 4504, B.M.A. House, Tavistock Square, W.C.1.

MANCHESTER PHYSICIAN (INDIAN) requires RESIDENT NURSE RECEPTIONIST. Permanent. State registration essential. Unmarried. Infracted. Short-wave. X-ray, minor theatre duties, occasional resident patient. Experience not essential. Apply, age, photo, references, quart salary.—Address, No. 4515, B.M.A. House, Tavistock Square, W.C.1.

PSYCHOTHERAPY—MEDICAL MAN, specializing in psychotherapy, desires PART-TIME WORK in good-class practice in or near London. Non-resident partnership considered. Central practice.—Address, No. 4015, B.M.A. House, Tavistock Square, W.C.1.

PROFESSIONAL AND PERSONAL REQUIREMENTS MAY OFTEN BE SATISFIED THROUGH THE ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL

QUESTEND HY D R O. PROMENADE. Cleveley, Lancs.—RESIDENT DOCTOR. woman. D.R.M.E. New Opening May. 56. 65. per week, all found. Essential particulars.—Mrs. H. M. SCHOFIELD, Managing Director.

SECRETARY (LADY), UNIVERSITY DEGREE. seeks POST with London doctor. Twelve years' experience, three and four years with general practitioners.—Salary £3 10s. or near.—Miss SIMPSON, 21, Hervey Road, S.E.3.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION. 35, Euston Square, S.W.1 (Telephone: Victoria 3721), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

YOUNG LADY DESIRES POST SECRETARY-RECEPTIONIST: Bristol or district preferred. Experienced in private and N.H.I. work, dispensing and drawing. V.A.D.; aged 30 years.—Address, No. 4403, B.M.A. House, Tavistock Square, W.C.1.

THE SCOTTISH LIVINGSTONE HOSPITAL, at Moleopolis, Beaumaris, Argy., is in need of a DOCTOR MISSIONARY. Salary £240 (unmarried), £300 (married); also outfit and furnishing allowances, and return passage paid. Short-term appointment of two years might be considered. For information apply to The Secretary (Mrs. Wm. Bell), United Free Church of Scotland, 266, St. Vincent Street, Glasgow, C.2.

PARTNERSHIPS

WANTED. A THIRD PARTNER in growing practice in small town within forty miles of London. Gross receipts £5,000. A fifth share offered after preliminary assistantship, increasing to a third share after five years.—Address, No. 4510, B.M.A. House, Tavistock Square, W.C.1.

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March 11th, 1938. Secretary

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March 14th, 1938.

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Sixty copies of the application, together with copies of three recent testimonials, must be furnished, and should be forwarded to the undersigned not later than April 4th, 1938.

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Candidates must be unmarried, and preference will be given to those with previous experience in General and Orthopaedic Hospitals.

Applications, with copies of three recent testimonials, to be sent on or before March 26th, 1938, to the General Secretary, Royal Cripples Hospital, 80, Broad Street, Birmingham, 15.

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OXTED AND LIMPSFIELD COTTAGE HOSPITAL,

Oxted, Surrey.

HONORARY EAR, NOSE AND THROAT SURGEON.

The Board of Management invites applications for the above post.

Applications must reach the undersigned by Saturday, March 26th.

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HOUSE SURGEON (Male).

Applications are invited from registered medical practitioners for the above post vacant on April 1st. Salary £150 p.a., plus board and lodging.

Applications, giving particulars of age, experience and nationality, together with copies of recent testimonials, to be addressed to the Secretary not later than March 31st, 1938.

KENT AND CANTERBURY HOSPITAL.

The Board of Management invite applications from duly qualified Medical Practitioners for the post of **HONORARY ANAESTHETIST** to the Ear, Nose and Throat Department. Particulars of the appointment may be obtained from the undersigned, to whom applications, accompanied by testimonials, should be forwarded not later than April 11th, 1938.

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34 SEASIDE TOWN WITHIN HOUR OF LONDON.—Very old-established PRACTICE, about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), large garage and garden, for sale or rent. Good scope. Premium £1,000.

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38 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant outlying residential district. Visits 3/6 to £1 1s. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.

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41 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £10,000 p.a., in rapidly developing district. Panel about 517. Modern two-storied house with ample accommodation, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.

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43 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10s., medicine extra. House (5 bedrooms), electric light and gas, garage and garden. Welsh not necessary, but an asset. Premium one-half share, to include remainder of lease, £750.

44 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-rooms), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.

45 MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,500. Panel 1,900. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

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50 LONDON, N.7.—Old-established mixed PRACTICE, about £1,365 p.a., in populous district. Panel about 400. Visits 3/6 and 5/-. majority. Semi-detached corner house (5 bedrooms), with small garden. Rent £100 p.a. Very good scope. Premium two years' purchase.

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12 W. OF ENGLAND.—Old-established middle-class PRACTICE in good town. Receipts, 1937, £1,450. Panel 300. Visits 5/- to £1 1s., plus medicine. Very convenient detached non-basement house (7 bedrooms, etc.), to rent. Premium one and a-half years' purchase, or near offer.

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15 SURREY.—PRACTICE doing about £900 in growing neighbourhood. Panel 650, increasing. Detached

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16 LONDON, S.E.—Suburban PRACTICE. Receipts 1937, £780. Panel 350. Detached house (7 bedrooms, etc.), small garden, no garage. Price leasehold £700. Scope. Premium one and a-half years' purchase.

17 MIDDLESEX.—Increasing PRACTICE doing at rate of £400 in Harrow. Panel 150. Small modern detached house. Rent £90 p.a. Premium £400.

18 LONDON, S.E.—PRACTICE doing at rate of £770 p.a. in thickly populated district. Panel 670. Small house (3 bedrooms). Rent £80 p.a. Branch surgery, £40 p.a. Premium £1,150, to include drugs, etc.

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21 S. OF ENGLAND.—Progressive town.—PRACTICE about £1,000. Exclusively physio-therapy. Scope for X-ray work. Prospect of appointment on hospital staff. Premium to include certain equipment, £1,125.

22 SCOTLAND.—PRACTICE in small town in Fifeshire. Receipts last year, £760. Good house for sale.

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26 LONDON, W.9.—PRACTICE doing about £1,600. Panel 1,700 and P.M.S. 40. Semi-detached corner house (4 bedrooms, etc.), no garage or garden, to rent. Premium £3,250.

27 BRISTOL.—Old-established middle-class PRACTICE. Receipts, 1937, £342. Panel 200. House (6 bedrooms), in best residential part, with garage and garden. Decided scope for increase. Premium for freehold house and practice, £1,500, or best offer.

28 LONDON, S.W.18.—Increasing PRACTICE in populous district. Income last year about £825. Panel 450/500. Club worth about £200 p.a. Shop-fronted house to rent on lease. Excellent scope. Reasonable offer for quick sale.

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PRINCIPAL CONTENTS

The Physical Basis of "Biliousness"	p. 661	Leading Articles	p. 680
Prolan in Urine in Extragenital Conditions	666	Correspondence	697
Labyrinthine Giddiness	668	Surgery in General Practice: Scalp Wounds and Skull Fractures	685
Internal Strangulation through Aperture in Mesentery	671	M.R.C. Report: Second Notice	689
Unequal Pupils in Unconvicted Prisoners	672	London's Council Hospitals	678
A Study of Mental Defect	687	Epidemiology Section	709
		Reviews	675

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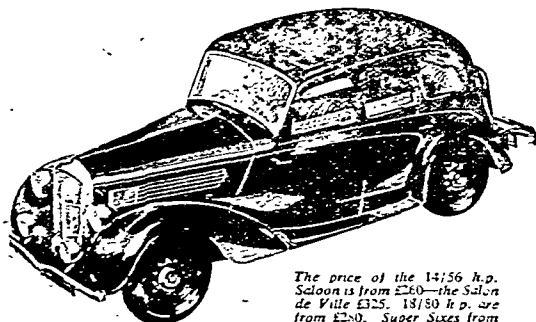
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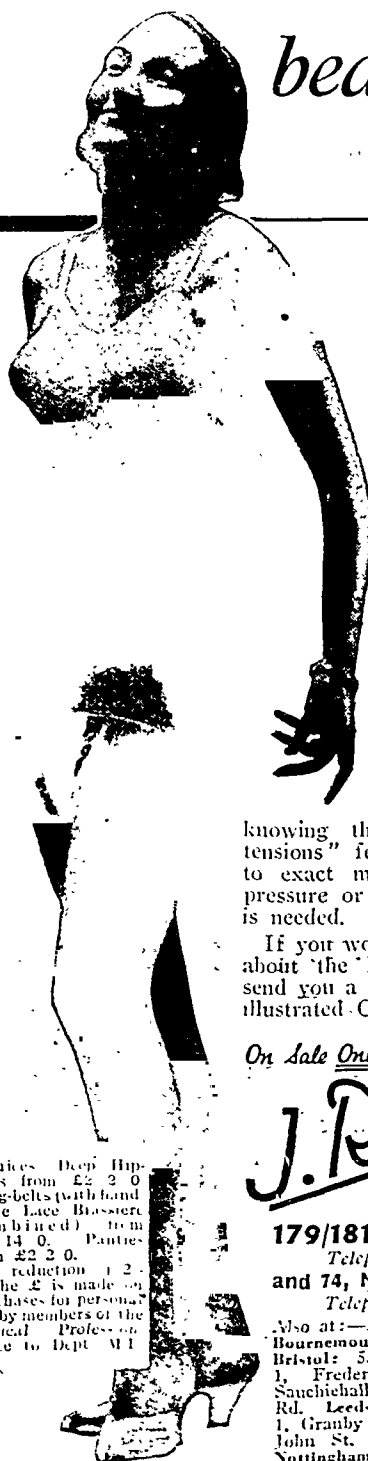
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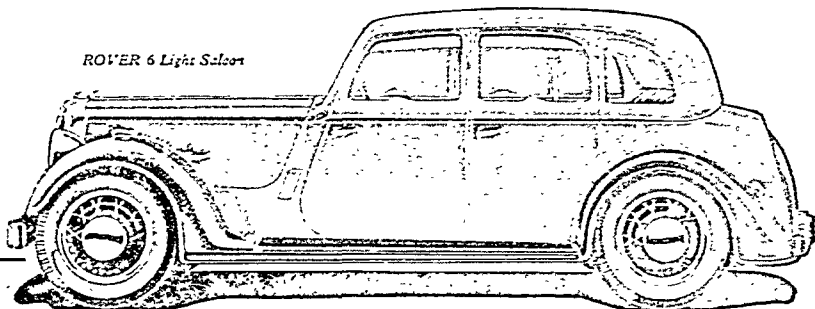
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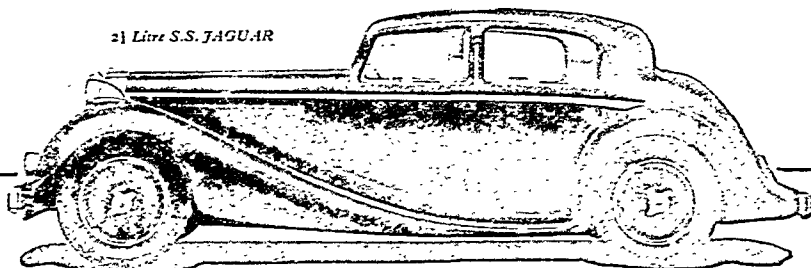


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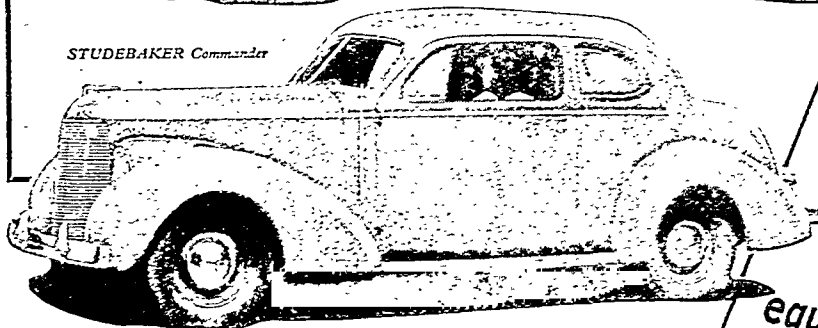
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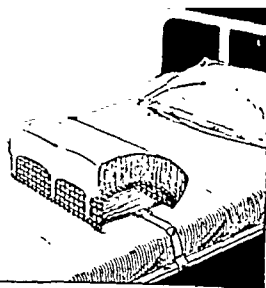
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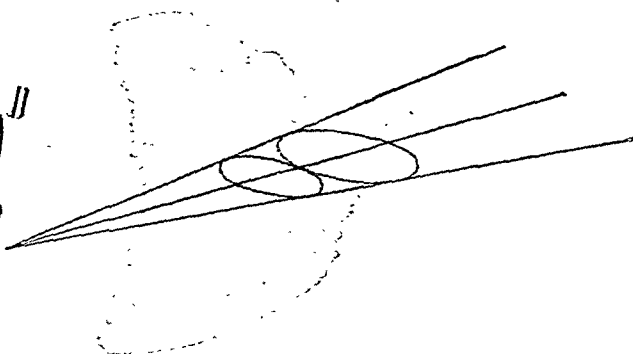
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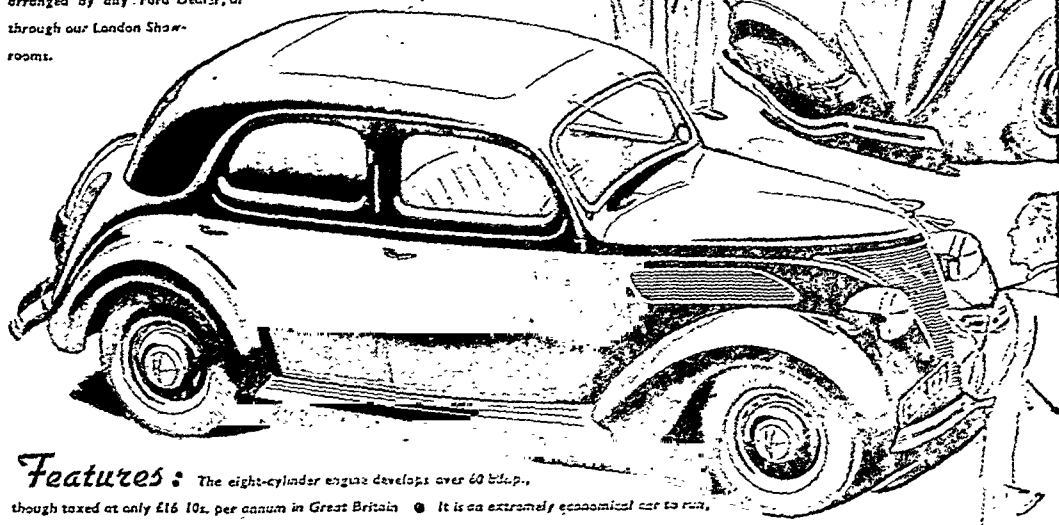
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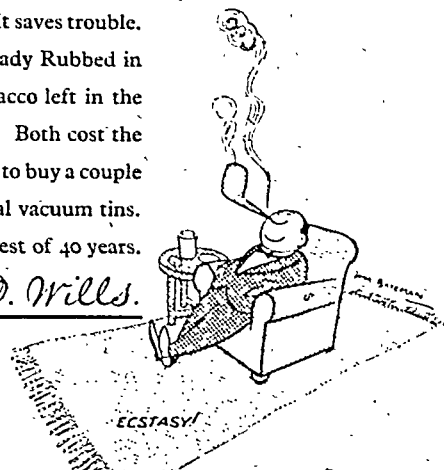
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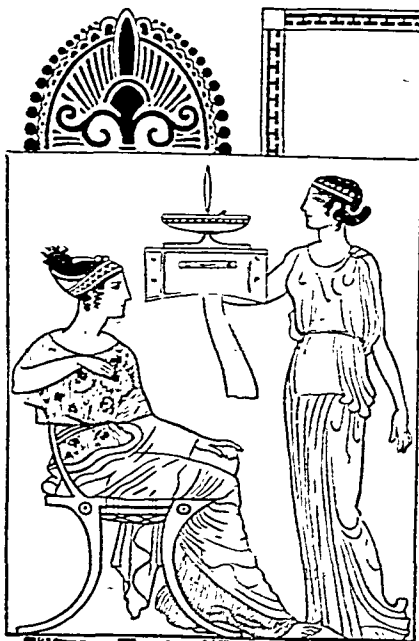
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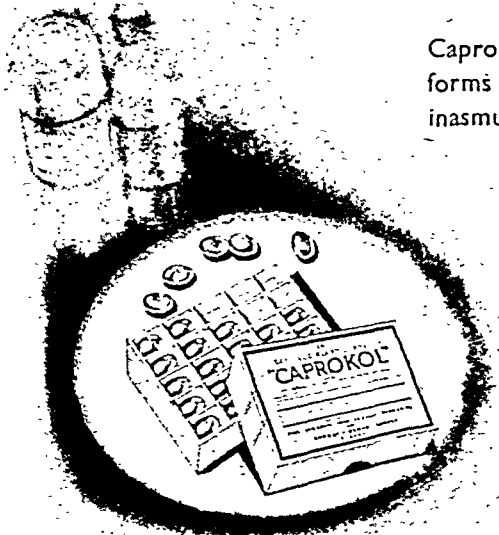
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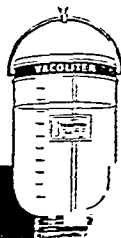
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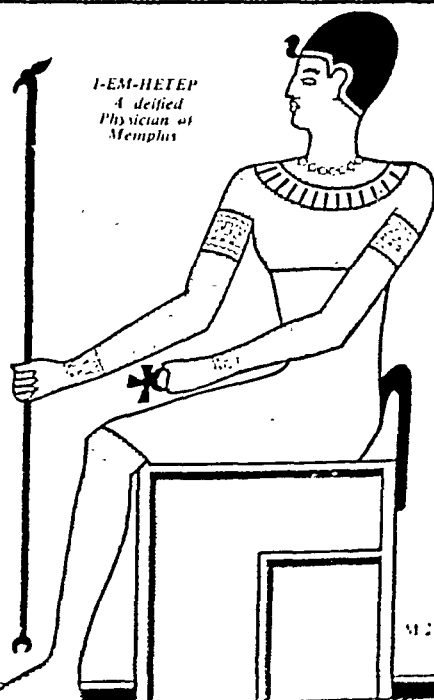
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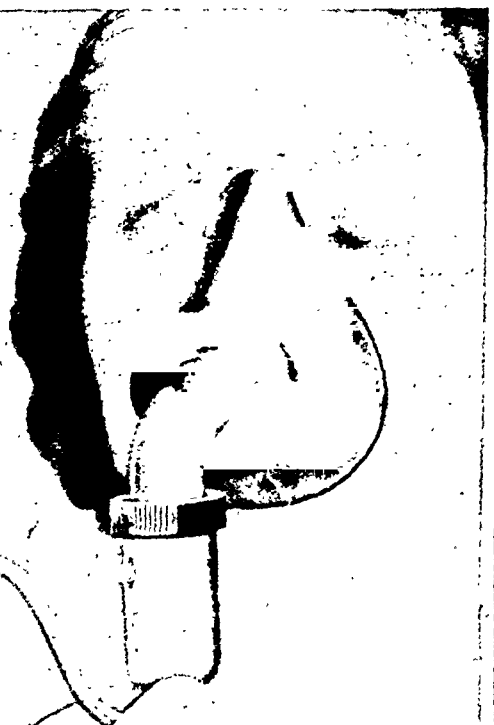
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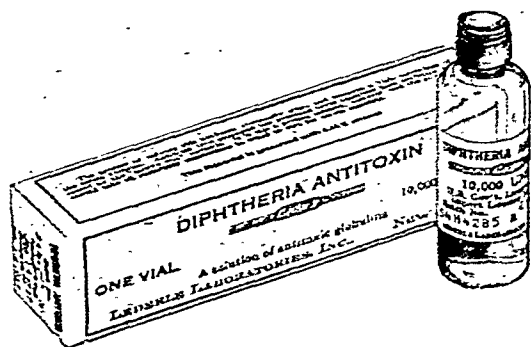
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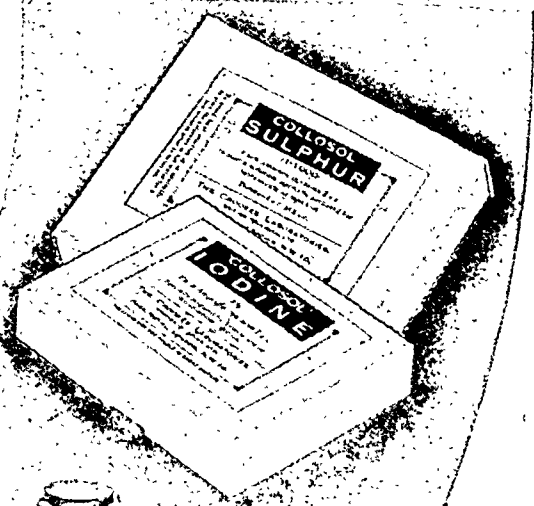
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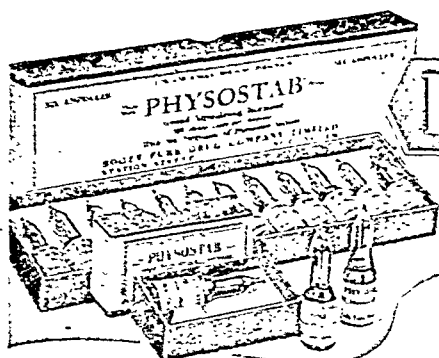
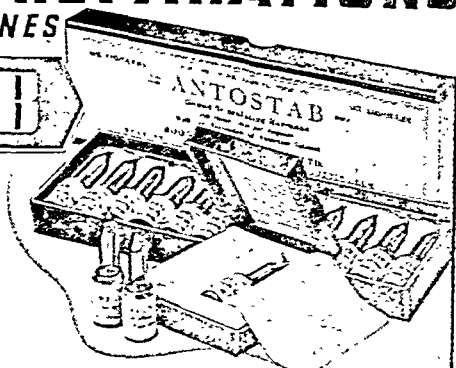
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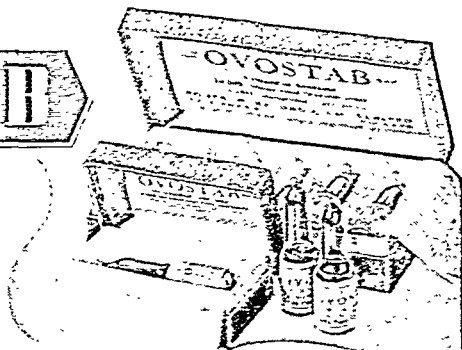
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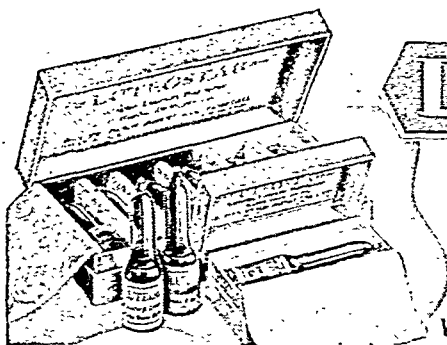
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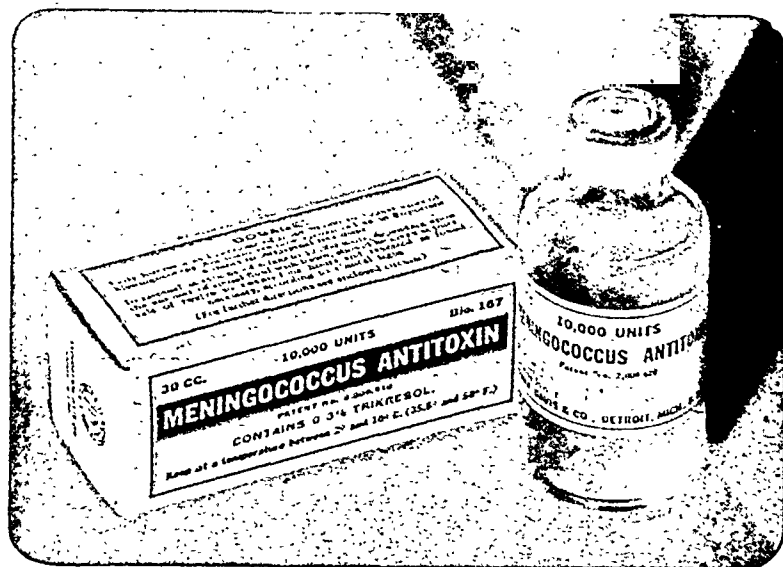
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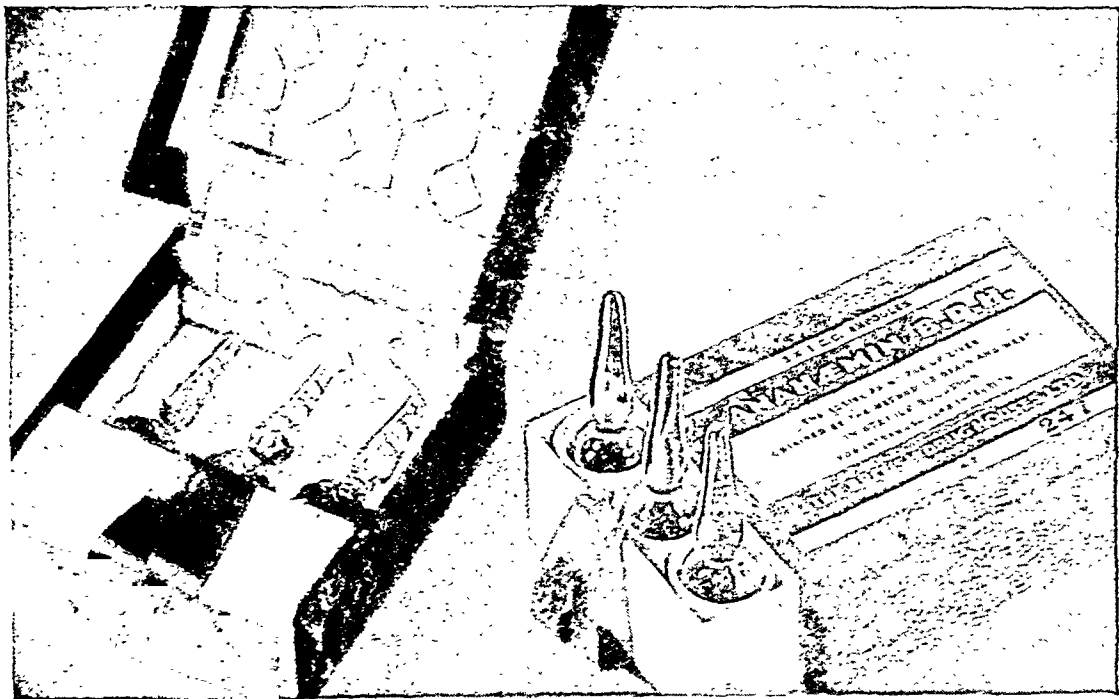
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In the treatment of pernicious anæmia

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Female 68 years . . . pallor, lassitude, anorexia, nausea, vomiting, giddiness, weakness and numbness of the legs. Sleeping badly. Losing weight.

On admission T.100.2 P.100 R.23 B.P.110/70

Treatment 31.8.37, 1.9.37, 3.9.37, 5.9.37 and 10.9.37 2 c.c. of Anahæmin, then twice weekly

Blood counts 1.9.37 Hb. 25% r.b.c. = 1.2 millions per c.mm. C.I. = 1.0
20.9.37 (21st day of treatment) Hb. 65% r.b.c. = 3.6 millions per c.mm.
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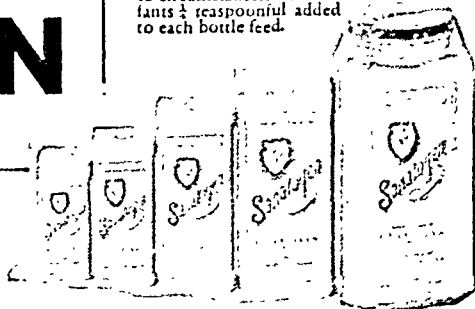
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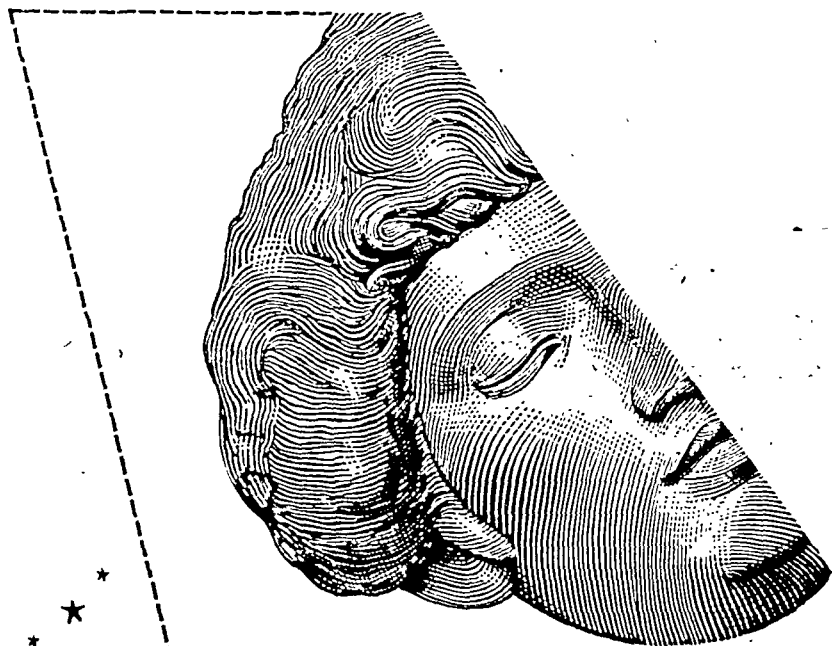
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THE PHYSICAL BASIS OF "BILIOUSNESS" AND "WIND ROUND THE HEART"*

BY

SIR ARTHUR HURST, D.M., F.R.C.P.

Senior Physician to Guy's Hospital

"BILIOUSNESS" OR A "TOUCH OF LIVER"

Among the commonest conditions of which patients complain is a "touch of liver" or a "bilious attack." As neither is mentioned in most textbooks of medicine, it is natural that a recently qualified doctor should conclude that there is no such thing and should be driven to explain to the sufferer that what he puts down to his liver is really a disorder of his stomach, his bowels, or his nerves. But the patient remains unconvinced, and when next he wakes up with a dull headache, a dirty tongue, no appetite for breakfast, and the conviction that life is not worth living, he will tell his wife that his bad temper is due to his liver, and the doctor be damned. It is a curious fact that there is no equivalent in French or German for the word "liverish" or a "touch of liver," though a bad-tempered Frenchman is said to be "un bilieux." There is also no record of the word "liverish" being used in England before the first quarter of the nineteenth century, and I am inclined to think that it was introduced by soldiers and civilians who came home to nurse their damaged livers in Cheltenham and Bath, as it was in India that the frequency of hepatic abscess first led Army surgeons to recognize the premonitory symptoms of a disordered liver.

I believe that the patient who says he is liverish is often correct, and that functional disorders of the liver are actually far more common than organic diseases. The liver has more ways in which it can be attacked than any other organ. Poisons absorbed from the stomach, intestines, gall-bladder, and spleen reach it in the blood of the portal vein; poisons and organisms in the systemic circulation are conveyed to it by the hepatic artery; infections may ascend the bile ducts from the duodenum, especially in the presence of achlorhydria; and infection may be carried by lymphatics from the wall of the gall-bladder.

Alcohol is the commonest cause of liverishness, but there are many others. The intestinal toxæmia which results from the habitual abuse of purgatives, though never from untreated constipation, and all forms of food poisoning and intestinal infections, such as those with typhoid and various parenteric bacilli and with *Amoeba histolytica*, as well as such general infections as septicaemia and malaria, may injure the liver. With the exception of alcohol and amoebiasis they rarely produce enough damage to give rise to symptoms unless two or more are associated together. But an acute "liver attack" may occur in all these conditions as a result of indulgence in an amount of alcohol which formerly would have had no ill effect, and indiscretions in diet, fatigue, and excitement

are often contributory causes. A patient of mine, a man of 58, found it difficult to decide whether a bad liver attack was too high a price to pay for his sole pleasures in life, betting at race meetings and gambling at Monte Carlo, both of which invariably brought one on even if he drank no more alcohol than usual.

The liver is well provided with means for dealing with toxins and bacteria, but it is not always capable of destroying them when they arrive in excess. The hepatic cells are then damaged and their functional capacity is impaired. The damage in the early stages is not irreparable, and although microscopical examination would doubtless reveal the presence of structural changes, they are at first of a type from which complete recovery can take place. The ordinary clinical methods of physical examination do not give any safe guide to the diagnosis of these early stages of hepatic disorder, but fortunately in the laevulose test we have a means of recognizing them. Our experience of over a thousand cases at New Lodge Clinic in which the possibility of hepatic insufficiency required consideration has led us to regard it as a very reliable test of liver function. We now consider a combined one-hour and two-hour rise in the blood sugar of more than 25 mg. per 100 c.cm. after taking 50 grammes of laevulose as suspicious, and of more than 30 mg. as certain evidence of hepatic insufficiency.

Alcoholic Hepatosis

It is obvious that cirrhosis of the liver is only the last phase of a very long-standing disease, the early stages of which have passed unrecognized. As the condition is one of toxic degeneration rather than inflammation it is more suitably described as hepatosis than hepatitis. Whereas the death rate per million living from cirrhosis of the liver has fallen from 248 in 1902 and 185 in 1912 to 81 in 1922 and 50 in 1932, alcoholic hepatosis is quite common, especially among the well-to-do. The familiar symptoms of "the morning after the night before" are the symptoms of acute alcoholic hepatosis, and the laevulose test shows that definite hepatic insufficiency is present and disappears completely within a few days. Table I shows the results of the laevulose test in five healthy young men on the morning before a "night out" compared with the morning after. In each case there was a greater rise in blood sugar with the second test than with the first, which showed an actual fall in four instances. The rise was greatest in A and B, the only ones who felt any the worse for the experiment.

Habitual over-indulgence leads to a chronic alcoholic hepatosis, which is still capable of complete resolution even if it has been present for many months. It is only when it has continued without intermission for years that irreparable damage is done, but the nodular hyperplasia

* The Harveian Lecture, delivered before the Harveian Society at Manson House on March 10, 1933.

No. 18a

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shows that the hepatic insufficiency has disappeared (Table III). To avoid the risk of recurrence a second series of six injections of emetine should be given at the end of three months and then every six months for a couple of years.

TABLE III.—*Laevulose Tolerance Test in Amoebic Hepatitis Before and After Treatment with Emetine*

Case	Sex and Age		Rise of Blood Sugar above Fasting Level, in mg. per 100 c.cm.		
			1 hr. after	2 hrs. after	Combined 1 and 2 hrs.
1	F, 53	Before treatment ..	71	31	102
		After treatment ..	16	13	34
2	F, 40	Before treatment ..	55	30	85
		After treatment ..	6	0	6
3	F, 33	Before treatment ..	34	14	43
		After treatment ..	13	-2	16

Bilious Attacks and Migraine

What is called a bilious attack in a child is in most cases the equivalent of migraine in an adult. One or other parent is often a sufferer from migraine, and the child is likely to develop it when he grows up. The term "bilious attack" is apparently derived from a misinterpretation of the fact that it often terminates with bilious vomiting. There does, however, appear to be some obscure connexion between the liver and migraine in a proportion of cases in both children and adults (Hunt, 1933). We have never found any sign of hepatic insufficiency as shown by the laevulose test, and van den Bergh's test is negative both during and between the attacks. But when in the course of our investigations we aspirated a specimen of bile through Einhorn's tube after making the gall-bladder and bile ducts evacuate their contents by injecting magnesium sulphate into the duodenum, a number of adult patients asked to have the process repeated, as they felt clearer in their heads and altogether less "bilious" than they had done for months. In these cases the gall-bladder was often found to be tender, especially shortly before and during an attack. It is apparently the mechanical effect of unloading the liver of accumulated bile which has this unexpected result, as in every case the bile was quite normal and there was

diseases of the gall-bladder, and although there does not appear to be any special liability to cholelithiasis among the migrainous, it seems not improbable that a disordered liver may be one factor in the complicated pathogenesis of migraine.

"WIND ROUND THE HEART"

Aerophagy

There is no physical basis for the wind which troubles most people who complain about it; it is on their brains, and neither in their stomachs nor round their hearts. Nearly thirty years ago I described experiments which showed that the only adequate stimulus to the sensory nerves of the alimentary tract is tension on the fibres of its muscular coat (Hurst, 1911). A slight increase gives rise to the sensation of fullness and a greater rise to pain. The tension depends upon the postural tone of the muscle fibres and the volume of the contents of the segment concerned. A sensation of fullness and pain may result from increased tone of the muscles with no change in the contents, or upon increase in the volume of the contents with constant tone. The sensation of fullness or pain can be relieved when some or all of the contents consist of gas, which can be evacuated by belching from the stomach or as flatus from the colon. Everybody has had experience of gaining relief in these ways, and consequently the average person is inclined to ascribe a sensation of fullness in the stomach or colon to wind, although in most cases it is due to other causes. Success confirms his suspicion, but instead of accounting failure to a wrong diagnosis he assumes that wind is present but cannot be expelled. In his futile attempts to eructate he swallows air until enough is present in his stomach to be easily and loudly evacuated (Fig. 1). The relief which follows is partly psychological and partly due to the fall in intragastric tension. As the discomfort which initiated the aerophagy is often due to achalasia or spasm of the pyloric sphincter, the primary discomfort may be overcome, as the further rise in intragastric pressure resulting from the aerophagy may be sufficient to force the pylorus as well as the cardia (Fig. 1d). Sodium bicarbonate gives relief in precisely the same way as aerophagy: carbon dioxide is evolved

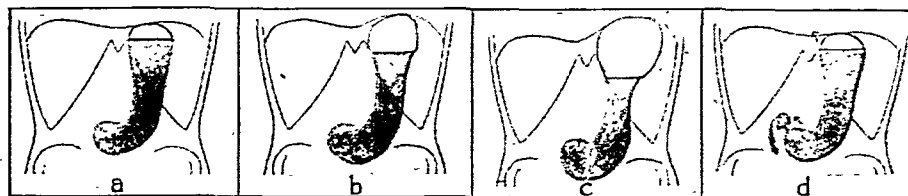


FIG. 1.—Drawings to illustrate the relief of intragastric tension by aerophagy

no evidence of coexisting cholecystitis or gall-stones. Such patients derive benefit from stimulation of biliary drainage by means of Epsom salts and olive oil. The former should be given in concentrated solution fasting every morning, the dose being the largest which can be taken without causing looseness, and a tablespoonful of the latter should be taken three times a day half an hour before meals.

A large proportion of sufferers from migraine know from experience that fatty food induces an attack, and among those who have not discovered this for themselves it is common to find that the exclusion of eggs, cream, fat meat, fried food, and chocolates helps to prevent migraine. It is interesting to observe that these are just the cholesterol-rich foods which frequently upset patients with

by the action of the acid gastric juice, and the increased tension in the stomach forces gas through the cardia and fluid through the pylorus. In both cases the patient brings up gas, and it is difficult to convince him that this is not the product of fermentation in his stomach. But owing to the inhibiting action of free acid on bacterial activity and the continuous passage of food into the duodenum fermentation cannot occur; we have found that even in complete achlorhydria very little gas is produced by fermentation unless pyloric obstruction is also present.

Neurotic patients may get so much satisfaction from belching wind with a resounding noise that they continue to swallow air, and the whole process is repeated again and again. Eventually attacks of aerophagy occur with-

TABLE I.—Blood Sugar in mg. per 100 c.cm. Fasting and One and Two Hours after taking 50 grammes of Laevulose in Five Healthy Young Men, (1) the Morning Before, and (2) the Morning After a "Night Out"

	A	B	C	D	E	Total
(1) Fasting ..	86	80	100	100	94	
1 hour ..	88	71	98	111	111	
2 hours ..	74	64	95	87	105	
Total rise ..	-10	-25	-7	-2	28	-16
(2) Fasting ..	133	82	69	126	114	
1 hour ..	143	87	63	145	139	
2 hours ..	143	87	71	125	121	
Total rise ..	20	10	-4	18	32	+76

caused by new-formed liver tissue may even then compensate for this more or less completely, although areas of complete necrosis are gradually replaced by fibrous tissue, the first stage of cirrhosis having at last developed.

Over-indulgence in alcohol is a very elastic term, what is excess for any given individual depending upon the vulnerability of his liver cells, which varies greatly in different people. It has nothing to do with his general reaction to the effects of alcohol, as alcoholic hepatitis is not often associated with alcoholic psychoses or peripheral neuritis. The premonitory symptoms of cirrhosis are mainly hepatic in origin, though chronic oesophagitis and, less frequently, chronic gastritis may contribute to them; but the latter is not necessarily present, a normal curve of acidity without any excess of mucus being often obtained with a fractional test meal.

Young men and girls who indulge in cocktails three or four times a week may develop alcoholic hepatitis. Their anxious parents are apt to ascribe their sallow complexions, loss of appetite, mental torpor, and irritability to incipient consumption or other serious disease, but the well-marked hepatic insufficiency disclosed by the laevulose test and the tender and often slightly enlarged liver reveal the true nature of their malady. Complete recovery with disappearance of liver tenderness and return to a normal response to the laevulose test quickly follows a period of rest with a light diet and abstinence from alcohol.

Table II gives some examples of the results of the laevulose test in alcoholic hepatitis before and after treatment. Patient No. 6 had drunk a bottle of champagne a day for twenty years, and was so ill that he was thought to be dying from some obscure abdominal complaint. His liver was large, hard, and very tender. After three months on a strict diet his liver was no longer palpable, and he returned home feeling perfectly fit and able to play tennis and golf for the first time for five years. No. 7 had been drinking from one to three bottles of whisky a day for over a year, and also recovered completely.

The tender liver often aches, and a man "with a liver" has generally a fairly accurate knowledge of its surface anatomy. He is never jaundiced, and latent jaundice, as shown by a positive indirect van den Bergh reaction, is uncommon; when present it disappears as rapidly as the abnormal response to the laevulose test.

In early cases, after a short period of strict treatment, it is only necessary to forbid alcohol in any form between meals, when it is rapidly absorbed and reaches the liver in a comparatively concentrated form. But in more advanced and chronic cases it is useless to advise anything short of complete and permanent abstinence. This advice is easier to follow than might be expected, as the patients are never dipsomaniacs and have no uncontrollable urge

TABLE II.—Laevulose Tolerance Test in Alcoholic Hepatitis Before and After Treatment

Case	Sex and Age	Interval between Observations	Rise of Blood Sugar above Fasting Level in mg. per 100 c.cm. after taking 50 grammes Laevulose		
			1 hr. after	2 hrs. after	Combined 1 and 2 hrs.
1	F, 22	22 days	51 23	15 10	66 33
2	M, 32	32 "	45 6	82 33	134 26
3	F, 56	9 "	44 16	49 18	93 34
4	M, 49	9 "	44 15	7 -15	51 0
5	M, 56	20 "	49 13	0 -11	49 2
6	M, 52	3 months	73 0	71 -13	144 -13
7	M, 45	6 weeks	58 10	31 -6	89 4
8	M, 40	24 days	51 12	15 -22	66 -10

to drink. They drink for conviviality and because they like it or find it difficult to complete a business deal without celebrating it with a drink. A badly damaged liver is abnormally vulnerable to such toxins as alcohol, and even a small dose is poisonous. But more important is the psychological fact that with his first drink a man's judgment is impaired, and though he may have intended to take no more he will have a second and a third, and so on *ad infinitum*. He is only safe when teetotal.

Amoebic Hepatitis

In 1923 Lieutenant-Colonel Gordon Covell published in the *Guy's Hospital Reports* a paper in which he showed that amoebic dysentery was always accompanied by hepatic insufficiency as measured by the laevulose test, even in the complete absence of symptoms pointing to disorder of the liver. Since that time we have always performed the laevulose test in the many patients who, on returning home after long residence in the East, complain of general unfitness in the absence of any obvious organic disease. They look pale and sallow, though they are neither anaemic nor jaundiced and van den Bergh's reaction is generally negative. They have frequent liver attacks—headache with a dirty tongue, anorexia, discomfort in the region of the liver, and constipation or alternating constipation and diarrhoea. The liver is often slightly enlarged and tender, and the laevulose test shows that hepatic insufficiency is present. Though alcohol and various infections may have contributed to this result the condition is mainly due to a mild chronic form of amoebic hepatitis. The patient may have had definite attacks of dysentery, but more frequently he has had nothing else than an occasional attack of diarrhoea, and sometimes not even that, yet the caecum and ascending colon are often tender, and the appendix has generally been removed for "chronic appendicitis" without benefit. It is remarkable that this condition, which never leads to abscess formation, can persist for several years after returning to England and yet be amenable to treatment. It often remains unrecognized owing to too much reliance being placed on the presence of cysts of *Entamoeba histolytica* in the stools as essential evidence of the existence of amoebiasis.

Complete recovery follows a dozen injections of 1 gram of emetine. The patient not only loses his symptoms but the liver ceases to be palpable and the laevulose test

occurred when food was brought into his room persisted in a lesser degree after the disappearance of the associated emotion, presumably as a result of a conditioned reflex. The ulcer became much smaller, but after many



FIG. 3.—Man aged 76 with eventration of diaphragm caused by aortic stenosis secondary to esophageal ulcer.



FIG. 4.—Same case as Fig. 3 after taking opaque fluid whilst in horizontal position to show ulcer.

weeks it had not healed owing to the development of cicatricial narrowing, and eventually a gastrostomy was performed. This resulted in complete healing with disappearance of the occult blood from the stools. The cicatrization of the ulcer led to almost complete obstruc-

tion; this would probably have been overcome by gradual dilatation had he not developed a rapidly fatal attack of acute mania.

A similar condition of *aérogastrie bloquée* may result from dislocation of the cardia, which is generally caused by excess of gas in the neighbouring splenic flexure. The excess of gas escapes from the stomach when it can reach the pylorus on assuming the horizontal position. In the morning no excess is present, but with each meal the quantity increases until the afternoon, when the accumulation produces a rise of pressure sufficient to cause pain, the diaphragm at the same time being displaced into the thorax. Immediate relief follows the passage of a stomach tube. One patient with this condition had learnt to lie down at 3 p.m. every day when the pain was at its height (Figs. 5 and 6). In half an hour he was com-



FIG. 5.—Man aged 43 with eventration of diaphragm caused by aortic stenosis. Erect position.

fortable, as the gas had passed into his small intestine, and after another hour he evacuated some of it per anum, but enough remained in his splenic flexure to maintain the dislocation of his cardia. Permanent relief occurred only after he had evacuated the gas from his stomach by a tube at 3 p.m. every day for a week, so that no excess passed through his pylorus to collect in the colon.



FIG. 6.—Same case as Fig. 5 in horizontal position, with gas escaping into duodenum and disappearance of eventration.

(b) MEGACOLON AND AÉROCOLIE BLOQUÉE

Megacolon is the result of interference with the normal neuromuscular mechanism controlling the last stage of the act of defaecation, in which the passage of faeces from the pelvic colon into the rectum causes the latter to contract and the sphincter ani to relax. When owing to degeneration of Auerbach's plexus or other causes the sphincter does not relax (achalasia), faeces and gas are retained, and the rectum and especially the more thin-walled pelvic colon become progressively dilated (Hurst, 1934b). The pelvic colon finally forms a huge loop, which reaches the left and occasionally the right dome of the diaphragm. Megacolon is the commonest cause of eventration of the diaphragm. I have seen thirty-five cases in private practice—twenty-four in males and eleven in females, including four boys and one girl (so-called Hirschsprung's disease)—compared with two cases caused

out any preceding epigastric discomfort, the condition then having all the characteristics of a tic. The action, though originally serving a useful purpose, no longer does so; its repetition depends upon the subconscious gratification which it gives to the patient, who is able to restrain it by an effort of will, but after a short time gives way to an overwhelming impulse to continue, though often ashamed of his weakness.

Aerophagy can be cured by explaining the true cause of the "flatulence" in language suited to the patient's intelligence. He is instructed to make no voluntary effort to eructate, however much he may desire to do so. At the same time an attempt must be made to discover and relieve the primary cause of the discomfort which led to the aerophagy, whether this is some form of functional dyspepsia or of organic disease, such as gastritis, ulcer, or cholecystitis.

Intestinal Carbohydrate Dyspepsia

The most common cause of intestinal flatulence is carbohydrate dyspepsia (Hurst and Knott, 1931). The envelopes of root vegetables are softened but unbroken by cooking. Under normal conditions amylase of the pancreatic juice penetrates the envelope in the small intestine and converts the starch into soluble sugars, which diffuse into the surrounding media and are absorbed. When owing to abnormally rapid passage through the small intestine some of the starch reaches the caecum the same thing happens there. But whereas in the relatively sterile small intestine very little undergoes fermentation, in the caecum and ascending colon bacteria are so active that fermentation occurs before the sugar has time to be absorbed. Gases and organic acids are produced, the former causing colonic distension and discomfort, and the latter, if in great excess, irritating the mucous membrane sufficiently to cause diarrhoea. The stools are acid, contain many starch granules, and produce much gas on incubation. During the day the gas collects in the splenic flexure and causes discomfort, which is often mistaken by the patient for gastric flatulence and so gives rise to aerophagy. During the night, when the splenic flexure is no higher than the pelvic colon and rectum, the gas moves onwards, and the discomfort in the lower abdomen is often enough to interfere with sleep until relief is obtained by the passage of odourless flatus. Intestinal carbohydrate dyspepsia can be controlled by giving a diet containing no root vegetables or rice; in severe cases the use of other starchy foods must also be limited. As there is no deficiency of amylase the administration of vegetable diastase is useless. The number of enterococci in the stools is increased owing to the excess of carbohydrate in the colon acting as an excellent culture medium; the intestinal flora return to normal when the condition is relieved by dieting. It is obvious that nothing could be more futile than treating cases of this kind by vaccination with the patient's enterococci or by intestinal lavage, though many patients receive such treatment owing to failure to look for starch in the stools and to see whether fermentation occurs on incubation.

Eventration of the Diaphragm

In certain conditions gas accumulates in the stomach or the colon immediately beneath the diaphragm under excessive tension, with the result that the left dome is displaced upwards into the thorax, so that it is higher than the right dome and may even give rise to dextrocardia. Eventration of the diaphragm produced in this way is very much commoner than that resulting from congenital atrophy of its musculature, for which the name has generally been reserved.

(a) AÉROGASTRIE BLOQUÉE

The gas bubble seen with the x rays under the diaphragm is derived from air swallowed with each mouthful of food and drink. It is permanently absent only in achalasia of the cardia, in which the contents of the dilated oesophagus act as a lock, preventing the passage of swallowed air (Fig. 2). Excess is normally removed

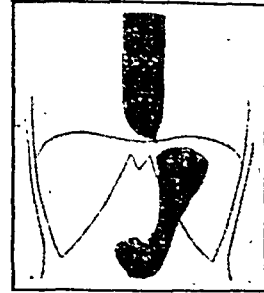


FIG. 2.—Achalasia of the cardia, showing absence of gastric air bubble owing to lock formed by food and saliva permanently filling the lower six inches of the dilated oesophagus.

by unconscious silent eructation in the day and through the pylorus at night, when the horizontal posture makes this possible. In rare cases eructation is prevented by spasm of the lower end of the oesophagus just above the sphincter owing to the presence of a simple oesophageal ulcer (Hurst, 1934a). Enormous quantities of gas collect in the stomach and may cause intense pain, increased each time any food or saliva is swallowed owing to its admixture with air. Failure to recognize the true nature of the condition may have a deplorable effect upon the patient's nervous system. This was the case in a man of 76, who had suffered from "gas pains" since 1926. In 1929 and again in December, 1931, he had a small haematemesis; on both occasions he was x-rayed, but nothing beyond excess of gas in his stomach was discovered. Early in 1932 he noticed that when he swallowed there appeared to be an obstruction at the entrance into his stomach, as the passage seemed to "shut up" in a painful spasm whenever food reached it, this being followed by regurgitation of the food with excess of mucus. An x-ray examination again showed no abnormality, except an enormous gas bubble in the stomach, which caused the left half of the diaphragm to be elevated above the right (Fig. 3). He was regarded as hysterical and was treated by various forms of psychotherapy on the Continent, in America, and in England, but without success. His condition became progressively worse, and when I first saw him in January, 1932, he was intensely depressed and was terrified at the mere idea of eating. When a meal was brought into the room his face became anxious and his hands shook. Several minutes elapsed before he could persuade himself to lift the fork in his trembling hands to his lips, and he masticated much more than was necessary in order to put off the moment of swallowing as long as possible. He had lost much weight and strength. As it seemed impossible that such severe dysphagia could be purely nervous in origin, especially in view of the history of haematemesis, a further radiological examination was made, and Dr. P. J. Briggs succeeded in demonstrating the presence of a deep chronic ulcer just above the cardiac sphincter (Fig. 4). The enormous gas bubble in the stomach was clearly a result of the oesophageal spasm caused by the ulcer interfering with the escape of swallowed air upwards, just as it interfered with the passage of food downwards. He was treated with a diet of citrated milk and with atropine, and rapidly lost his pain and dysphagia; he became comparatively happy, but the physical signs of fear were

lesions of the prestate, and the conflicting results reported in cases of breast lesions, tend to detract somewhat from its value. Under these circumstances further investigations of the urinary prolan A content should, in our opinion, continue to be made on lesions of all types involving either the primary or the secondary sex organs, with a view to clarifying the position. The following investigation is therefore offered as a contribution towards this end. During the period covered by this investigation sixty-six cases from the surgical and gynaecological wards were examined. These, as might be expected, consisted mainly of lesions of the secondary sex organs, though they included a few of the ovary and the testis as well. The cases were distributed thus:

Breast (including carcinoma, sarcoma, duct papilloma, chronic mastitis, cysts, acute and chronic abscesses)	28 cases
Prostate (all benign adenomatous enlargement)	32 "
Testis (teratoma)	2 "
Ovarian cyst	1 case
Uterine fibroid	1 "
Chorionic epithelioma (see discussion)	1 "
Pituitary (eosinophil adenoma)	1 "

The method used to determine the amount of prolan A in the urine was that described by Ferguson (1933). The early morning specimen of urine was acidified when necessary and was concentrated by the alcohol-ether method. This concentrated extract was injected into virgin female albino mice not more than 3 weeks old. Three mice were used for each specimen, and received doses of 0.1 c.cm., 0.2 c.cm., and 0.4 c.cm. of the extract respectively. Five injections in all were given to each mouse, two on the morning and evening of the first day, two at the same times on the second day, and one on the morning of the third day. The mice were killed 100 hours after the first injection and their ovaries removed and examined macroscopically at once, and later microscopically. The reaction obtained was judged according to Ferguson's notation (1933):

Reaction I: Hyperaemia and swelling of Graafian follicles with formation of cumulus oophorus.

Reaction II: Massive haemorrhage in ripened follicles.

Reaction III: Corpus luteum formation.

The presence of one or more of these reactions in the sections of the mouse ovaries was considered to denote

Urinary Prolan A Secretion in 66 Consecutive Cases of Lesions of Primary and Secondary Sex Organs

Group	Organ	Lesion	Before Operation		After Operation	
			No. of Cases	Result of A-Z	No. of Cases	Result of A-Z
A	Breast	Carcinoma	13	All negative	6	All negative
		Sarcoma	1	Negative	—	—
		Duct papilloma	2	Both negative	2	Negative
		Cystic hyperplasia	1	Reactions II and III in all mice	1	Reactions II and III in all mice
		Acute abscess	1	Negative	2	Negative
		Chronic mastitis	3	Reaction III in mouse with largest dose	—	—
B	Prostate	Simple enlargement	32	All negative	13	All negative
	Primary sex organs	Teratoma testis	2	Reaction III in all mice	—	—
		Ovarian cyst	1	Negative	—	—
		Uterine fibroids	1	Reactions II and III in all mice	21 days later: Negative	—
		Chorion epithelioma	1	—	—	—
		(Same case)	—	—	—	—
C	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
D	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—
	Pituitary	Eosinophil adenoma	1	Negative	—	—

a positive reaction. In all sixty-six cases the urine was investigated before operation, and in twenty-five of them the test was repeated ten to fourteen days after operation to see if any change had occurred. The results obtained are tabulated in detail at the foot of the preceding column.

Discussion of Results

Group A: Breast.—Of the twenty-eight cases of varying breast lesions investigated, two unexpectedly gave positive results—namely, "acute abscess" and "tuberculous mastitis." One of these cases was that of a married woman aged 23 who came to the casualty department with an acute abscess in the left breast which had developed on a painful breast of two months' duration following an attack of influenza. The abscess was drained and recovery was uneventful. Examination of the breast at that time produced no evidence of pregnancy enlargement, nor was there any suggestion from her or from the clinicians that she was pregnant. Some months later, however, when she was personally visited it was discovered that she had been delivered of a child six months after the breast abscess had been drained. She must therefore have been three months pregnant at the time the urine was examined, and this obviously explains the positive results obtained both before and after the treatment. The case of tuberculous mastitis occurred in a married woman aged 33 whose youngest child was nine years old. She had had a miscarriage four months before coming to hospital, but stated that since then she had not missed a period. On admission she complained of a painful lump in the left breast that had been increasing in size for the last three months, and of a discharging sore that had been present for four years. Clinically the lump appeared to be malignant, and radical mastectomy was performed. The pathological report, however, showed tuberculous mastitis, but there was no evidence of carcinoma. The positive reaction was given only by the mouse which had received five doses of 0.4 c.cm. concentrated urine, one ovary showing an area of haemorrhage and a corpus luteum, and the other showing the presence of two corpora lutea. This positive reaction cannot be explained unless at the time the patient was pregnant and the pregnancy had a short duration and was terminated without her having been aware of the fact. It is also just possible, since the reaction was given by only one mouse, that this particular mouse was older than had been specified by the dealer, though in size it was similar to the other two used for the test. Apart from these two suggestions I can offer no explanation of the positive reaction in this case. The results obtained in this group of breast lesions were persistently negative, save for one explicable case and one doubtful result.

Group B: Prostate.—All the cases of benign enlargement of the prostate, both before and after operation, gave negative results, indicating that the hypertrophy of the prostate which develops in later life cannot be correlated with that form of pituitary activity which is associated with an increased excretion of prolan, and also that the Aschheim-Zondek test has no diagnostic value in this condition.

Groups C and D: Mixed.—The only case of pituitary adenoma (associated with acromegaly), occurring in a woman aged 32, gave a negative result, which is consistent with the findings of Watts (1932). The two cases of teratoma testis were both positive, and fall into line with the findings of other observers (for example, Ferguson, 1933). The other positive case in this group was that of a woman aged 25 who complained of a blood-stained

by congenital atrophy of the diaphragm and four cases of *aérogastrie bloquée*. It is remarkable how trivial the symptoms of megacolon may be, the condition often being recognized by the discovery of an enormous gas-containing loop of pelvic colon under the diaphragm in the course of a radiological examination of a patient suffering from nothing more serious than chronic constipation. In a minority of cases recurrent attacks of severe pain from partial volvulus of the dilated pelvic colon occur. Gradual dilatation of the anal sphincter and complete evacuation



FIG. 7.—Woman aged 43. Megacolon showing collection of gas in greatly dilated loop of pelvic colon reaching both domes of the diaphragm.



FIG. 8.—Same case as Fig. 7, after escape of gas under high pressure through tube passed per anum, showing descent of diaphragm from the level of the ninth to that of the eleventh vertebra.

of the colon generally result in complete and permanent relief, although the pelvic colon remains abnormally distensible. In exceptional cases a partial twist of the uppermost part of the pelvic colon prevents the escape of the accumulated gas and painful attacks of partial volvulus may continue. It is sometimes possible to evacuate the air-lock by means of a tube (Figs. 7 and 8). In other cases it may be necessary to excise the volvulus during a quiescent period. I have never found it necessary to advise sympathectomy.

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OUTPUT OF PROLAN A IN URINE IN CERTAIN EXTRAGENITAL CONDITIONS

REPORT OF AN INVESTIGATION

BY

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It is now a well-established fact that in certain tumour conditions of the male and female genital organs the excretion of prolan A in urine is in excess. In the literature the reports in connexion with the relation of prolan excretion to hydatidiform mole and chorionic epithelioma of the uterus on the one hand, and to teratoma and chorionic epithelioma of the testis on the other, are so extensive, and have been so well summarized by Hamburger (1933), that only a few references which bear directly on this investigation will be mentioned. Since Hamburger's publication many workers have found increased prolan A output in the above conditions—for example, Ferguson (1933), Cutler and Owen (1935), and others.

Earlier Investigations

Ferguson carried out numerous quantitative investigations on urinary prolan A excretion in cases of teratomatous testicular tumours, and it is his technique which has been employed in this investigation. He found that 50 to 50,000 mouse units of prolan A per litre of urine were excreted, the amount varying with the embryonal character of the tumour, the extent of the disease, and the status as regards treatment. His work appears to show that the prolan A estimation has a definite clinical value in the diagnosis and prognosis of these cases.

The work recorded in connexion with secondary sex organs and pituitary adenomas is not so extensive as that which has been carried out on the primary sex organs, and the results are not conclusive. In connexion with breast tumours, Engel (1930) and Saphir (1934) investigated a few cases of breast cancer and obtained no positive results. Zondek (1932) and Baudler (1935), however, obtained varying results in patients with similar lesions, some giving a positive and others a negative prolan A reaction. More recently Taylor (1936), dealing with fourteen cases of non-malignant lesions of the breast, found that in three cases of nipple secretion there was a slight increase in the amount of prolan A excreted in the urine. With regard to pituitary tumours Love (1932) reports a case of an adenoma of the pituitary gland in a male which gave a positive Aschheim-Zondek reaction three times as strong as that normally expected in the urine of a pregnant woman. On the other hand, Watts (1932) found no gonadotropic hormone in blood or urine in fourteen cases of pituitary chromophobe and eosinophil adenomas.

I have been unable to discover any record of work on the urinary prolan A content in cases of ordinary prostatic enlargement. The investigations of Burrows (1935), however, appear to have an indirect relation to this subject. He has shown that the effect on the prostate of the mouse of treatment with oestrogenic compounds, which normally are liberated as the result of the action of prolan A, is to produce histological changes resembling in many ways those of benign enlargement in man.

The Present Investigation

The Aschheim-Zondek test is of such generally recognized value in pregnancy and in the somewhat restricted conditions of chorionic epithelioma and teratoma that the paucity of information in this connexion is

Apart from inherent sensitiveness, the fact that the membranous labyrinth is enclosed in a bony cavity filled with liquid renders it extremely appreciative of changes in tension. Trivial alterations in the air pressure in the middle ear, such as are induced by an obstructed Eustachian tube, may, by the tension transmitted through the oval or round window to the labyrinth, sometimes induce both tinnitus and giddiness.

As part of its inherent sensitiveness the membranous labyrinth is also affected by toxic substances in the blood stream. This explains the feeling of fullness and buzzing in the ears that is induced by certain drugs, such as quinine and salicylates, and by other substances, such as tobacco. Being situated in the base of the skull the labyrinth is also apt to suffer injury either from concussion or from an actual fracture of the bony capsule within which it is contained. Finally, being situated in close relation to the middle ear, it suffers occasionally by the direct spread of infection from the middle ear.

Types of Giddiness

From the point of view of diagnosis it is important to recognize the following types of giddiness which may be met with as a result of labyrinthine derangement:

1. Typical semicircular canal attacks in which the patient has the feeling that objects are rotating around him or that he is himself rotating.
2. A sensation of being forced to one side or the other, which sensation may be actually accompanied by an inability to walk straight.
3. Attacks in which the patient is suddenly thrown to the ground, either forwards or backwards, as if he had been hit on the head by a hammer. This is possibly due to involvement of the otolith organs.
4. The occurrence of a more or less constant unsteadiness, so that the individual has to hold on from pillar to post and both feels and is unsteady.

In almost all cases labyrinthine vertigo may be recognized by the coincidence of auditory symptoms, although in a few instances these may be absent in the early stages. These auditory symptoms consist of tinnitus and deafness. In addition, particularly early in the case, there may be distortion in the hearing of sounds. This distortion may be such that certain tones are heard at a higher or a lower pitch in the affected than in the normal ear. Not infrequently, also, although deafness is present there may be an undue sensitiveness to sounds, so that the hearing of certain tones may be described by the patient as being actually painful.

In considering the clinical picture of giddiness resulting from a disturbance of the internal ear it will, I think, be helpful briefly to mention those conditions the nature of which is firmly established.

Infection of the Labyrinth from the Middle Ear

This may occur as a result of either acute or chronic middle-ear suppuration, and may present itself either as a very acute condition in which the suppuration invades and destroys the whole of the labyrinthine structures, or as one in which there is a more or less localized spread of infection to a portion of the internal ear only. In the former case the patient becomes acutely giddy, with vomiting, violent nystagmus, and incoordination. This giddiness is accompanied by absolute deafness and intense tinnitus on the affected side. Should further complications, such as meningitis, not supervene the acute symptoms gradually subside, and, as has already been said, after a period of a few weeks or months the indi-

vidual learns to be co-ordinate with one labyrinth only. In the latter variety, in which there is a limited and circumscribed infection of the labyrinth, some degree of subjective and objective giddiness is present, and this may occur in attacks with in addition the well-known *fistula sign*—that is, vertigo on increasing the air pressure in the meatus. Certain other diseases may affect the labyrinth. They are:

Mumps.—A rapid effusion into the labyrinth occasionally occurs in this disease, and is characterized by an acute attack of giddiness with absolute deafness during the first week of the complaint, leaving when the acute stage has subsided an absolutely deaf ear. Fortunately the condition is usually unilateral.

Herpes.—This occasionally involves the ganglia of the eighth nerve, not infrequently with an involvement of other cranial nerves, particularly the seventh. This condition produces the typical eruption on the pinna, meatus, and membrane, with acute vertigo, vomiting, nystagmus, and loss of hearing in the affected ear. Unless its existence is recognized the condition is apt to be mistaken for an acute suppuration of the middle ear with a labyrinthine involvement.

Congenital Syphilis.—In about half the cases of congenital syphilis a labyrinthine invasion takes place, accompanied by acute vertigo with vomiting. This as a rule leaves a completely deaf ear, usually on both sides.

Acquired Syphilis.—This does not very often involve the labyrinth, but when it does the picture is a dramatic one. Such involvement occurs as a late secondary manifestation, is bilateral, and gives the picture of an acute destruction of the labyrinth with vertigo, vomiting, nystagmus, etc., the whole process being one of considerable rapidity, with complete destruction of the labyrinth in the course of two or three weeks.

Focal Labyrinthitis

Having briefly mentioned what may be regarded as clear-cut cases of giddiness associated with known diseases of the labyrinth, we are left with a large number of cases in which we have the picture of labyrinthine giddiness but without any of the causes I have detailed. This group of cases has been very ill defined, and as a result of this lack of definition has been given a number of names, such as "Ménière's disease," "aural vertigo," and "neuritis of the eighth nerve." During a period of some years I have been attempting, by an examination of case-records and the obtaining of after-histories, to classify such cases, and have formed the opinion that we are dealing with a distinct and defined disease.

This condition, which I venture to christen "focal labyrinthitis," presents the following picture: It affects both sexes equally, the average age in the series being 47. In more than half the cases the first symptom noted was auditory—for example, deafness and tinnitus—and not vertiginous, and in this former group a period of months or years elapsed before the giddiness began. A defect in hearing in the affected ear is almost always found, and may be extreme in degree up to total deafness. In a few cases, at the beginning of the complaint, a defect in hearing may be absent, but in these the history of a temporary defect during the attacks of giddiness is generally obtained. The deafness is usually variable in degree, as is also the tinnitus. It has been thought that when the hearing in the affected ear was destroyed the giddiness would cease, but my experience shows that this is correct in only half the cases. In addition to the giddiness, during the attacks there is a wide-

discharge for three months following a miscarriage. On examination the uterus was found to be soft and uniformly enlarged to one and a half inches below the umbilicus. No foetal parts were felt per vaginam. The breasts were active, and the diagnosis of a normal pregnancy was made and she was discharged. Two months later she returned, having had a "flooding" ten days previously, when she passed clots and some "white tufts." At this time the uterus was not palpable per abdomen, but was found to be enlarged per vaginam (two to three months). The breasts were still active. A positive Aschheim-Zondek reaction was obtained. As the discharge continued over a period of three weeks it was decided to perform a curettage. The curettings, however, showed only blood clot and fragments of normal-looking endometrium. There were no chorionic villi or other products of conception, and no evidence of hydatidiform mole or chorionic epithelioma. All these observations have been confirmed by subsequent examination of the curettings. Three weeks later the Aschheim-Zondek test was negative. Quite recently, eleven months after the curettage, this patient returned to hospital with a large mass in the uterus which had extended into the vagina. Clinically the mass was diagnosed as a chorionic epithelioma, and a positive Aschheim-Zondek reaction was obtained. She was treated with radium, and a week later the test was repeated and was found to be still strongly positive. She died a day after the last test, and at the post-mortem examination a large mass of growth was found in the uterus and vagina, with metastatic nodules in the lungs. Microscopically the tumour was a typical chorionic epithelioma. The case is included in this series because of the interesting sequence of events. It is obvious that in the beginning a normal pregnancy was present; hence the positive reaction. The pregnancy terminated in an abortion, which explains the curettage findings and the negative test. Some residual chorionic tissue must have been present, since a chorionic epithelioma later developed, but at that stage it was not sufficient to give a positive Aschheim-Zondek reaction.

Summary

The results of Aschheim-Zondek tests on urines from patients with diseases of the secondary sex organs show that, with one possible exception, lesions of the breast and prostate are not associated with any increase in prolan A excretion in the urine. Among additional cases examined the positive results obtained with chorionic epithelioma, teratoma testis (two cases), and an unsuspected case of pregnancy confirm previous findings in these conditions, and the negative results in cases of ovarian cyst, uterine fibroids, and pituitary eosinophil adenoma are in keeping with the majority of previous observations.

I should like to record my thanks to Dr. Fraser and Dr. Taylor and the clinical staffs of the Bristol Royal Infirmary and the Bristol General Hospital for collecting the material for this investigation. The expenses of the work were defrayed by a grant from the Colston Research Committee.

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LABYRINTHINE GIDDINESS ITS NATURE AND TREATMENT

BY

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Giddiness is a vague term, and includes a very large number of conditions in which the patient either feels unsteady or is unsteady on movement. I propose to confine myself to cases in which such unsteadiness is due to a derangement of the internal ear or labyrinth, partly because this is a very common type and partly because it is the only one about which I can speak with any degree of confidence.

Some Anatomical and Physiological Points

The first problem presenting itself is to decide whether the giddiness is labyrinthine or not, and it might help if I first briefly run over some anatomical and physiological points in relation to the internal ear, as helping to clarify the picture. The internal ear consists of a very delicate perceptive nerve apparatus enclosed in a series of intercommunicating fine membranous tubes and small chambers filled with fluid (the endolymph), surrounded by fluid (the perilymph), and suspended in a dense bony capsule. The anterior portion of the membranous labyrinth we know as the cochlea, and its function is confined to hearing. It is, I think, now established that the perception of different tones is a function of the cochlea, and the analogy of a piano or other stringed instrument, each string being associated with a different tone, is near enough to the truth for our purpose. The posterior portion of the membranous labyrinth consists of the semicircular canals and otolith organs, which together constitute the vestibular apparatus. The function of this apparatus is to assist in the co-ordination of movement by informing the centres of the position or movement of the head in space. While the semicircular canals take note of turning movements, the otolith organs probably appreciate movements in a horizontal or vertical plane.

From a physiological point of view both the auditory and the vestibular organs are extremely sensitive, but while the stimulation of the auditory organ is recognized by our consciousness, normal stimulation of the vestibular organ is not. Our own experience, however, in crossing the Channel, ascending in an aeroplane, or, if we belong to the Victorian era, waltzing in the old style, teaches us that a relatively moderate degree of excess of normal stimulation will both impress our consciousness and produce a widespread disturbance of the vegetative nervous system as shown by nausea, vomiting, pallor, sweating, etc. Fortunately, however, this organ, although extremely sensitive, is adaptable, with the result that Nelson was able to win battles at sea and Miss Colledge is able to spin on skates at an incredible speed and stop instantaneously without feeling any discomfort.

While from the examples I have given we appreciate that giddiness results from overstimulation of the vestibular apparatus, it may also occur as a result of the unbalanced action of the two sides. Thus if the labyrinth be destroyed on one side, for a time the individual is inco-ordinated and therefore giddy; but experience shows that in the course of a few weeks or months this also is allowed for, and both the unsteadiness in movement and the subjective giddiness pass off, the individual becoming normal, at any rate for the ordinary movements of everyday life.

INTERNAL STRANGULATION THROUGH AN APERTURE IN THE MESENTERY

BY

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Of the uncommon varieties of internal strangulation of the bowel probably that associated with a hiatus in the mesentery is the most seldom encountered, and in consequence few cases have been recorded. A married woman aged 33 who presented this unusual condition was admitted to the Rotherham General Hospital twenty hours after the onset of her symptoms.

Case Record

About 7 p.m. on the day before admission the patient was suddenly seized with severe abdominal pain which doubled her up. Nausea was present, but no vomiting occurred until after castor oil had been given a few hours later. The purgative aggravated her pains, and vomiting became frequent and distressing. Her symptoms were attributed to tinned fish which she had eaten a few hours before the onset of the pain, and food poisoning had been suggested. Colicky pains continued throughout the night and vomiting of brownish fluid persisted; the patient would experience an acute pain that doubled her up, this being followed by an abdominal rumble, with temporary relief. A movement of the bowels took place in the morning, faeces but no flatus being passed. By this time there had been a marked deterioration in the woman's general condition, and when again seen by her doctor an intra-abdominal catastrophe was suspected. She was sent into hospital with a diagnosis of internal haemorrhage on account of her marked pallor and rapid pulse.

Past History.—No dyspepsia had been experienced. On direct questioning the patient recalled vague abdominal discomfort during the past few months. The bowels had always been regular. Periods were normal, the last one having terminated a fortnight before admission. In addition to having three children she had had a four-months miscarriage in January, 1937.

Examination.—When examined the patient was in a collapsed state, with a definite cyanotic tinge showing through her pallor. The temperature was subnormal, the respirations 25 per minute, and the pulse 130. Systolic blood pressure was in the region of 90 mm. Hg. The abdomen was slightly distended and showed limited movements with respiration. Generalized abdominal tenderness was present, but the maximum tenderness was immediately above the umbilicus and towards the right iliac fossa, in both these areas some muscle-guarding being detected. Dullness was noted in the flanks. No tenderness was elicited in the pouch of Douglas and no intra-abdominal swelling could be palpated. The hernial orifices showed no abnormality. Examination of the urine revealed no sugar and no albumin. Taking into consideration (a) the symptoms and signs of acute intestinal obstruction, (b) the severe shock, (c) the absence of external herniae, a provisional diagnosis of acute internal strangulation was made, acute pancreatitis being considered as a secondary possibility.

Pre-operative Treatment.—For three-quarters of an hour before operation the patient was kept under a shock cage; during this time two pints of normal saline were given subcutaneously. One-quarter grain of morphine and 1/100 grain of scopalamine were administered hypodermically half an hour before leaving the ward.

Operation.—At 2 p.m., under local anaesthesia (novocain), the abdomen was opened through a right paramedian split-rectus incision, which extended an equal distance above and below the umbilical level. A large quantity of clear brownish fluid escaped on opening the peritoneal cavity. No fetor was present. The caecum was collapsed, and to its left side a mass of distended bowel could be palpated. On further investigation it was found that about four feet of the lower ileum

had passed, from below upwards, through a large defect in the terminal part of the mesentery. In addition the herniated ileum had undergone torsion in an anti-clockwise direction. The bowel was purple and tense; it was reduced without great difficulty and soon recovered its normal colour. It was noted that the hiatus in the mesentery lay between the ileo-colic artery and the lowest mesenteric branch. These arteries ran along the free margins of the opening, which extended up to near the site of origin of the ileo-colic artery. No attempt was made to close the gap, as this would have prolonged operation unduly. Accordingly, having relieved the strangulation and made certain the bowel was viable, the abdomen was closed in layers.

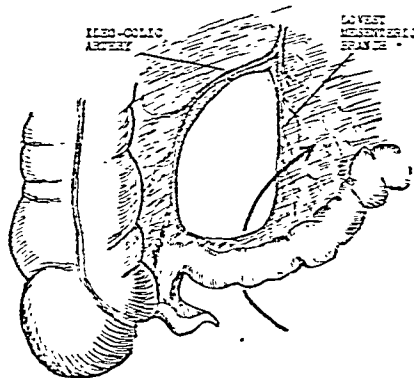


Diagram showing the position of the mesenteric hiatus.

Post-operative Treatment.—In addition to maintaining the body temperature a continuous intravenous saline drip was instituted, after having first given intravenously 20 c.c. of 15 per cent. sodium chloride. The patient's general condition improved considerably, the pulse falling and improving in volume. There was no vomiting, and colicky pains no longer caused distress. The improvement was maintained for eight hours after operation, when a sudden collapse took place, the patient dying within a few minutes of the onset of the collapse. No permission for a necropsy was obtained.

Commentary

There are a number of interesting features about this case when it is considered not only from the point of view of the abnormality discovered but also from the clinical and pathological aspects in relation to acute intestinal obstruction. The way in which the ileo-colic and terminal mesenteric vessels lay actually along the free margins of the opening was striking: the appearance did not in any way suggest that trauma at an earlier date had caused a small primary tear in this area. There seems to be little doubt that the mesenteric aperture was congenital in origin.

Clinically, in the absence of external herniae the symptoms and signs of acute intestinal obstruction with superimposed shock suggested internal strangulation. The acute onset with rapid deterioration in the patient's condition, together with consideration of the maximum point of tenderness, made small-bowel strangulation a more likely possibility than a colon volvulus. The profound nature of the shock made one think that there was more than a mere knuckle of bowel strangulated. It is well known that acute pancreatitis may closely simulate acute intestinal obstruction, but when one bore in mind the age, sex, and build of this patient, together with the absence of antecedent dyspepsia and also the position of the maximum tenderness, acute pancreatitis became only a second possibility.

spread upset of the vegetative nervous system, giving rise to nausea, vomiting, sweating, pallor, and not infrequently diarrhoea, the general picture of sea-sickness being closely reproduced. The middle ear is usually normal, the proportion showing some changes in the tympanic membrane being not greater than is met with in a similar group in which vertigo is absent. On careful search a focus or foci of infection can be found in all cases, most usually in maxillary antra, tonsils, or teeth. In regard to the antral cases it is interesting to note that the infected side does not necessarily coincide with that in which the ear is diseased.

The course of the complaint is infinitely variable, long periods of partial or complete freedom from giddiness occurring, perhaps alternating with attacks of extreme severity, and this fact renders it very difficult to assess with certainty the results of treatment. The disease is a progressive one, as evidenced by the defect in hearing, and its duration in the cases under review varies between the limits of two and thirty-nine years. Although there is a temporary ebb and flow in the course of the complaint I have not as yet met with a case in which spontaneous cure has taken place, as judged by the hearing.

I find on examination of my records of cases which I have had under observation from the beginning and subsequently over a long period that in all cases the initial diagnosis was one of middle-ear or Eustachian catarrh. This diagnosis was based, I find, on tradition and on the observation that inflation usually produced some improvement in the hearing. The subsequent course of these cases has convinced me that this initial diagnosis was mistaken and that the condition was a labyrinthine one from the start.

Treatment

Labyrinthine giddiness occurring in cases of middle-ear suppuration is usually an indication for operative drainage of the middle-ear cavities. Formerly, in addition to such drainage of the middle ear and mastoid, an attempt was made by many to pursue the infection into the labyrinth also. This surgical adventure never appealed to me, and I think it is now largely abandoned as being more likely to expedite the spread of infection to the cranial cavity than to prevent it. In the case of giddiness due to labyrinthine involvement in mumps or herpes no treatment is available. In the case of syphilis any evidence of labyrinthine involvement, as shown by giddiness and defect in hearing, is an indication for immediate and thorough treatment of the disease.

In the remaining and far greater number of cases, which I have designated "focal labyrinthitis," careful search for a septic focus or foci, followed by their appropriate treatment, which is usually operative, will, in my experience, give very satisfactory results so far as the giddiness is concerned. My results are as follows:

All cases treated in this way—that is, by the eradication of a septic focus or foci—have been included, and, with two exceptions which are mentioned below, these patients are now completely free from vertigo. The total number is twenty-three, and in ten of these what may be described as a cure resulted—that is, both the cessation of the vertigo and the return of the hearing to normal. In a further three cases the vertigo ceased and some improvement took place in the hearing; in eight the vertigo ceased but the hearing remained unaltered. Of the remaining cases, in one the tonsils were removed a year ago without any diminution in the vertigo, but recent examination has

shown some dead and infected teeth, which may be regarded as responsible. The other failure is represented by a case of twelve years' duration in which intranasal drainage of the maxillary antra has produced no improvement. Recent examination of this case suggests that a chronic tonsillitis may be responsible, and removal of the tonsils has been advised. I feel that, although the number of cases is small, in view of the fact that all are included and that the results are so uniform one must regard them as whole-heartedly supporting my hypothesis.

Finally, as it is sometimes helpful to excise an eye which is hopelessly disorganized by inflammation and which is of no functional use, so is it desirable to destroy a diseased labyrinth that, while no longer useful for hearing, is still producing distressing vertigo. Various methods have been employed to this end. The earliest was the opening of the labyrinth either through the promontory or the external semicircular canal. Later the opening of the external canal was augmented by the injection of alcohol along its lumen into the centre of the labyrinth; and recently cranial surgeons have been increasingly advocating and employing division of the eighth nerve within the skull for the relief of giddiness. Some three years ago the idea occurred to me of injecting alcohol into the labyrinth through the intact membrane and the footplate of the stapes. After a considerable amount of preliminary experimental work I have now carried out this procedure on a number of cases and am satisfied that it achieves the desired end without any appreciable risk to the patient. The procedure necessitates a general anaesthetic, of only very short duration, and the method is therefore particularly applicable to aged or debilitated individuals.

Summary

1. Giddiness due to derangement of the labyrinth is common.
2. Of such cases of giddiness a very considerable proportion are of doubtful nature, and have been given such names as "Ménière's disease," "aural vertigo," etc.
3. As a result of the clinical study of some seventy cases I believe that the labyrinthine derangement is inflammatory and secondary to a focus of infection.
4. The favourable results following the eradication of a focus of infection strongly support this hypothesis.
5. The injection of alcohol through the intact tympanic membrane and footplate of the stapes offers a simple and satisfactory alternative to the surgical opening of the labyrinth or division of the eighth nerve.

The third International Goitre Conference will be held in Washington from September 12 to 14. On the first day attention will be paid to endemic goitre, cretinism, and myxoedema, with special reference to aetiology, pathology, types, geographical distribution, iodine, prophylaxis, thyroiditis, and malignant goitre. On the second day the thyroid will be considered in relation to metabolism, nutrition, and the endocrine glands, comprising a study of its physiological and pathological interrelationship and the clinical application thereof. On the concluding day hyperthyroidism will be discussed, including questions of metabolism, iodine, complications, recurrences, and "goitre heart," with consideration of the diffuse and nodular toxic goitre types and the surgical and medical treatment. The official language of the conference is English; interpreters will be available for papers read in other languages. The papers read and the speeches made will be published afterwards in the form of *Transactions*. Further details may be had from Dr. Allen Graham, 200 East 93 Street, Cleveland, Ohio.

ring to general paralysis of the insane, states: "The intrinsic muscles of the eyes are affected in some stage of the disease in almost all cases. The first eye symptom is usually an inequality of the pupils with a sluggishness on the part of the larger pupil to contract to light, accompanied by an absence of the usual dilatation following cutaneous stimulation, while all other reflexes are perfectly normal." He quotes Bevan Lewis, who described an early inequality not associated with impairment of the pupillary reflexes and probably due to a cortical lesion, and a late inequality associated with absence of reaction to light and other stimulation and probably due to advancing spinal and bulbar disease.

Apart from the cases of general paralysis of the insane referred to above none of our cases showed evidence of mental disorder associated with anisocoria. Ten men stated that their skulls had been fractured, and in two of them bony depressions were felt. It is recognized that the nature and consequences of past head injuries are often difficult to assess from the history given by a law-breaker, but a reliable history of a severe head injury with concussion was obtained in sixteen other cases.

As to local eye conditions, sixty-two men had different errors of refraction in the two eyes with no obvious abnormality. Nine suffered from strabismus, and in ten the inequality was the result of trauma. Seventeen suffered from cataract, corneal ulceration, congenital ptosis, disseminated choroiditis, diabetic retinitis, and other ocular disease.

Anisocoria was associated in one case with aneurysm of the thoracic aorta, and in three cases with aortic lesions. One subject gave a history of tuberculous disease of the right apex, which was quiescent at the time of examination; in two cases parenchymatous goitre was present, and in one torticollis. In 139 cases both history and clinical examination proved negative. It is interesting to note that only seventeen out of the total of 295 men were aware of the pupillary inequality—seven in consequence of their own observations, while the remaining ten had been informed of the fact by their medical attendants.

The question of the relation between the degree of inequality and the pathological condition is of considerable importance. Our figures show that a minor degree of inequality was present in approximately 63 per cent. of our cases of anisocoria, a medium degree in 32 per cent., and a gross inequality in only 5 per cent. Further, it appears that minor degrees of inequality are most common when the anisocoria is a physiological abnormality or is due to a difference in refraction, whereas a gross inequality is more frequently a result of injury or disease. It may be said with some degree of confidence that persistent major degrees of inequality indicate a definite lesion, whether due to disease or injury, and in this respect our findings agree with the statement of French, that "pronounced difference in the size of the pupils may be symptomatic of some organic lesion."

Conclusion

To recapitulate, of 3,000 unconvicted male prisoners 295 showed persistent anisocoria. No pathological condition could be detected to account for the anomaly in 139 (47.1 per cent.); an error of refraction was the only other abnormality in sixty-two (21.0 per cent.); a history of syphilis occurred in thirty (10.1 per cent.); and in the remaining sixty-four (21.1 per cent.) the inequality was due to various causes. Only four were associated with mental disease. The anisocoria was therefore of no significance from the point of view of criminal responsibility in approximately two-thirds of the cases, and in less than half of the remaining third (13.5 per cent.) was associated with syphilis and a history of head injuries, conditions which may be related to mental disorder. It appears, then, that although anisocoria is most commonly a physiological anomaly, it should be regarded with suspicion and of possible

medico-legal significance in medico-legal cases if laboratory tests are not available.

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Clinical Memoranda

Multiple Benign Sarcoid and Tuberculous Ulceration

Boeck in 1899 designated as multiple benign sarcoid of the skin the condition which Besnier had described as lupus pernio. The recent literature on this subject was reviewed in the *Journal* of September 11, 1937 (p. 534). The following case in which sarcoid was associated with tuberculous ulceration of the leg seems worthy of being placed on record.

CASE HISTORY

A rubber planter, aged 31, was admitted to the Hospital for Tropical Diseases, London, on April 4, 1934, complaining of ulcers of the left lower leg and a generalized skin eruption of six to seven months' duration. He first went out to the Federated Malay States in 1923, and had resided there ever since, except for two holidays, each of six or seven months, spent in this country. In September, 1933, while on holiday in Scotland, he noticed the left ankle to be a little swollen, and shortly after this a small ulcer appeared on its posterior aspect; this was thought to be due to an insect bite, and consequently was treated with fomentations. The ulcer healed, but the leg felt tired and painful after walking any distance, and three weeks later a rash appeared over the left lower leg posteriorly. In December, while on the way out to the Federated Malay States, this rash spread to the back, to the abdomen, and then over the skin surface of the body generally. On reaching Klang, Federated Malay States, the condition had become that of a healed but bronzed ulcer on the leg, with a number of skin patches resembling the heat spots to which he has always been subject. During January the joints became painful and all cartilages were tender, while the nasal mucous membrane showed slight but definite signs of inflammation; there was no temperature at that time, although shortly afterwards there was slight evening pyrexia, and the old ulcer became inflamed again and the lymphatics in the skin leading from it became raised and hard. Other ulcers appeared over the leg, and the raised, rather lupus-like, but discrete patches on the skin surface generally increased. The Wassermann and Kahn reactions were negative, but blood culture showed a growth of short, delicate, Gram-negative rods; guinea-pig inoculation showed these organisms to be non-pathogenic. Serum precipitation tests for glanders, made both in Kuala Lumpur and in Singapore, were inconclusive. Treatment with lotions and ointments externally, calcium internally, arsenicals intramuscularly, and protein shock was in no way beneficial. The patient then returned to England for further investigation and treatment. During the voyage home two more ulcers appeared on the same leg, and from these a slight serous discharge exuded. The skin eruption was at first itchy, but under the treatment outlined above the irritation subsided. The general health remained good. Apart from malaria in 1927 there was no illness of note, nor was there any familial history of tuberculosis.

DIAGNOSIS AND TREATMENT

On admission the patient was found to be well nourished, with apparently normal mucous membranes and a clean moist tongue. There was no cyanosis of the finger nails and no clubbing of the fingers. The posterior aspect of the left

In previous recorded cases either the contents of the loop had to be aspirated to facilitate reduction or the condition of the loop had necessitated resection, in both instances thus removing the highly toxic contents of a closed loop. In this case such procedures were not needed to relieve the strangulation. Chloride deficiency and dehydration were made good, and before the fatal collapse the satisfactory progress suggested that the post-operative treatment was adequate. Unfortunately this proved to be incorrect. Where large loops have been strangulated, in addition to measures already mentioned a blood transfusion appears desirable in spite of initial satisfactory progress with chlorides and fluids alone. If such a transfusion be given after relief of strangulation it will provide the circulation with healthy blood capable of more effectively neutralizing toxins. It would be helpful to know whether routine aspiration of large strangulated loops to remove toxins which otherwise would be absorbed with the restoration of loop circulation gives the patient a better chance of recovery.

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THE INCIDENCE OF UNEQUAL PUPILS IN UNCONVICTED PRISONERS *

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The incidence of inequality of the pupils in pathological states and as a physiological anomaly is generally recognized. Collier and Adie (1926) say: "Inequality of the pupils occurs in connexion with all nuclear and peripheral ocular paralyses, and with cervical sympathetic paralysis. It accompanies all defects of vision from lesions of the visual path between the eye and the external geniculate bodies, provided the appreciation of light be unequal in the two eyes. It may be congenital or associated with inequalities of the refraction of the two eyes, and then has no pathological significance. It is commonly a sign of nervous syphilis." French (1936), writing on the same subject, declares: "Inequality in the size of the pupils is observed frequently and may have no pathological significance. . . . In cases of marked inequality of the pupils one may suspect tabes, general paralysis of the insane, a unilateral lesion of the third nerve or cervical sympathetic, trigeminal neuralgia, carotid or aortic aneurysm, a unilateral intracranial lesion, or glaucoma." Firth (1914) states: "Anisocoria without impairment of the pupillary reactions is not necessarily a serious symptom, for it may occur in healthy persons. Here the difference is usually not more than half a millimetre, and rarely as much as one millimetre; the inequality persists in all states of illumination and convergence. Inequality associated with change of the pupil reactions may be taken as evidence of an organic lesion."

The significance of anisocoria as an indication of mental disorder in medico-legal cases may be uncertain unless the cerebrospinal fluid is examined; but the medical officer is seldom in a position to urge this if the accused is charged

with a minor offence and appears to be mentally normal. It therefore seemed desirable to investigate the matter further, and 3,000 men received into Brixton Prison were examined to ascertain the proportion of cases presenting anisocoria and to determine its relative frequency in the group when associated with declared organic nervous disease or mental disorder. For this purpose comprehensive notes were made on the history of each case, with particular reference to venereal disease, nervous and mental disease, head and eye injuries, and other relevant factors. A physical examination of the various systems followed, with ophthalmoscopic examinations and tests for errors of refraction. The subjects were also examined in regard to their mental conditions. All cases of anisocoria were examined on the evening of their reception and again the following morning. In many cases the inequality noted overnight was no longer present at the second examination. This was found to apply to cases of minor and major degrees of inequality. The total number of cases showing anisocoria on reception was 576. Of these, 281 (48.8 per cent.) were rejected on subsequent examination on account of the transient nature of the inequality. This could not be attributed to any difference in light intensity, and it was thought that fatigue was probably the determining factor. In the evenings the pupillary reaction was less sensitive, the pupils somewhat more dilated, and consequently any inequality more marked.

There can be little doubt that anisocoria, particularly if non-pathological, is subject to considerable variation, and pupils which at one period are definitely unequal may at other times be equal. This applies also, to a lesser extent, in cases of anisocoria associated with disease of the nervous system. In this connexion Firth (1914) states: "Inequality of the pupils occurs in many organic nervous diseases, and also in functional disorders: the condition may be transient, constant, or subject to change. The degree of anisocoria may vary from day to day, even from hour to hour."

Method of Classification

Of the total cases examined 295 (9.8 per cent.) were found to have persistent anisocoria. They have been classified into three groups, according to the degree of inequality and which pupil was the larger:

Left Pupil					Right Pupil				
110 +	75 +			
54 ++	41 ++			
9 +++	6 +++			
173						122			

Conditions Associated with Anisocoria

Thirty of the cases gave a history of syphilis: four of these were diagnosed as suffering from general paralysis of the insane; seven showed other signs of neurosyphilis; and in five the pupillary reactions were abnormal without other clinical evidence of neurosyphilis. There was apparently no clinical relation between the stage of the disease and the degree of inequality. In the remaining fourteen cases there were no clinical signs of syphilitic disease of the nervous system. In one case of neurosyphilis with marked pupillary inequality the condition was congenital. In another case, with a history of syphilis but without signs of any specific lesion, the inequality was due to an accident, in which the patient had been struck a blow on the eye, with subsequent retinal degeneration.

Inequality of the pupil may be present with only a slight modification of the pupillary reflexes in early cases of neurosyphilis. It may be the first ocular sign and one of the earliest indications of the involvement of the nervous system. There can be little doubt that anisocoria associated with changes in the pupillary reaction invariably indicates a definite organic lesion, and is often accompanied by other signs of the disease. Cowen (1902), refer-

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Reviews

HEPATITIS

Les Hépatites. By Maurice Loeper. (Pp. 262; 47 figures. Fr. 60.) Paris: Masson et Cie. 1937.

Professor Maurice Loeper, who is well known as a distinguished authority on diseases of the digestive tract, has here brought together a series of studies on inflammation of the liver substance. Hepatitis is now recognized as the essential pathological state in affections of the liver. In so-called catarrhal jaundice it is no longer allowed that an infective process has spread from the intestine to the liver by way of the bile ducts. The catarrhal plug of mucus at the ampulla of Vater observed by Virchow is now regarded as secondary, the primary state being a toxic alteration of the liver cells. Some of the toxins, those which produce the severe or malignant type of yellow atrophy of the liver, acute or subacute, are known, such as arsenic, mercury, gold, atophan; there is the form due to infection with the icterohaemorrhagic spirochaete, with an established clinical form; while the ordinary infecting bacteria of the alimentary tract may be responsible for the milder cases. All forms from the severest to the most benign have demonstrable inflammatory lesions of the liver cells, and clinical tests of liver function—coefficient of urea to residual nitrogen of the blood, galactose retention, bilirubin of the blood—show a deterioration of liver efficiency. Though biliary lithiasis is a humoral complaint, the jaundice associated with gall-stones in the ducts is not always a jaundice of retention; Professor Loeper demonstrates that there is often hepatitis and recommends early surgical intervention for treatment. This lends additional emphasis to the old dictum of Chauffard: If certain of an obstruction one operates, even if doubtful one still operates, and the earlier the better. Operation is often indispensable; it is always justified. Operation is the only means of protecting the liver from serious, often irremediable, damage.

Professor Loeper proceeds to discuss other less well-known aspects of liver disease. The heart is affected in cases of chronic hepatitis, not only by the cirrhotic process tending to dam the blood in the abdominal cavity with consequent insufficient irrigation of the heart and low blood pressure, but by the direct effect of toxins on cardiac muscle or nerves. Cardiac failure in cirrhosis may result mechanically from insufficient perfusion of the liver, or secondarily through alteration of endocrine glands; the suprarenal, thyroid, pancreas, testis, ovary, and hypophysis may all show degenerative changes from toxæmia; and there is the effect of toxins on the myocardium itself. Thus oedema in sufferers from liver disease may be due to fatigue or failure of the cardiovascular system. Other varieties of oedema may be mechanical, or due to concomitant lesions of the endocrine glands or kidneys. Indirectly too there may be an oedema of starvation in severe and cachectic states. The particular form of bronze diabetes leads on to a discussion of melanosis, which is a unity, always, even in bronze diabetes, produced by melanin. The diminution in the oxidation of sulphur appears to be related to lack of ascorbic acid, and both in bronze diabetes and in Addison's disease encouraging results have been obtained by giving ascorbic acid by mouth or intravenously. Professor Loeper adds interesting studies of the telangiectases associated with hepatitis and the tuberculous peritonitis so often found as a complication of chronic liver disease. The book gives a lucid discussion of the problems of liver disease.

FRACTURES, DISLOCATIONS, AND SPRAINS

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. Second edition. (Pp. 1,246; 1,222 figures. 52s. 6d. net.) London: Henry Kimpton. 1937.

A second edition of *The Management of Fractures, Dislocations, and Sprains*, first published in 1934, brings this valuable work up to date, and it remains a book which the student, the general practitioner, or the surgeon may consult with advantage. It is a practical and comprehensive guide to the treatment of fractures and dislocations, which are considered in detail on a regional plan. Chapters on the Workmen's Compensation Laws and the medico-legal aspects in fracture cases continue to make interesting reading. Chapter XI, on fractures of the skull and brain trauma, was written by the late Dr. Charles E. Dowman not long before he died and has been revised by his associate, Dr. Edgar F. Fincher of Atlanta. The volume is divided into two parts. Part I, which is much the smaller, deals with the principles and general aspects; Part II with diagnosis and treatment of specific injuries. In the latter section a chapter on fractures of the jaws and related bones of the face is written by Dr. James Barrett Brown of St. Louis. The chapter on injuries of the spine is one of the best in the book and has been brought right up to date. Illustrations are abundant but the quality of the reproduction of x-ray films varies somewhat; thus, Figs. 452 A, B are excellent, but Figs. 453 and 454 on the opposite page are poor by comparison. This continues to be an excellent reference work for the practising surgeon.

EYE, EAR, NOSE, AND THROAT

The 1937 Year Book of the Eye, Ear, Nose, and Throat. The Eye: E. V. L. Brown, M.D., and Louis Bothman, M.D. The Ear, Nose, and Throat: G. E. Shambaugh, M.D., E. W. Hagen, M.D., and G. E. Shambaugh, jun., M.D. (Pp. 640; 113 figures; coloured frontispiece. 2.50 dollars or 10s. 6d., postage 6d.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co., Ltd. 1937.

The issue for 1937 of the *Year Book of the Eye, Ear, Nose, and Throat* fully maintains the standard of previous years. The same arrangement and subdivision of the subject-matter is preserved. In the first part, dealing with the eye, by Professors E. V. L. Brown and Louis Bothman, a few abstracts of particulars may be mentioned. Reitsch reports eczema on his own fingers and even face from the use of pantocain in his practice. Laurell and Heinonen produce experimental and statistical data respectively to show that pediculosis as an important factor in the aetiology of phlyctenulosis and tuberculosis is overrated. Heinsius reports an experimental investigation into the influence of vitamin A on regeneration of the corneal epithelium; and Kugelberg draws attention to the frequent association in Sweden of spasmophilia and cataract. Goerlitz reports the cure of a detachment of the retina in a pregnant woman. The indications for termination of pregnancy in this condition require to be revised since the introduction of the Gonin operation. MacDonald records a case of choroidal chorion epithelioma in a young man. A full description, with illustrations, is given of a method of dacryocystorhinostomy by Wright. Serr reports clinical observations with the new Zeiss projectometer of Maggiore, and points out its advantages over the projection perimeter and Bjerrum screen. Henry Cohen describes two cases of pernicious anaemia in which failing vision with optic atrophy was the first indication.

The section on the ear, by Professors Shambaugh and Hagen, includes several papers on otosclerosis—some on

lower leg showed three small ulcers in various stages of healing, which exuded a slight serous discharge; the surrounding skin presented a bluish-red or violet discoloration and induration. On the skin surface of the body generally, including the face and arms, were numerous pigmented, slightly raised plaques, varying in size from a pin-head to little less than a two-shilling piece, and in colour from rose to light brown; the colour did not alter with pressure. The plaques on the face were not so deeply coloured as those on the body, and while they were present on both surfaces of the arms they predominated on the extensor aspects. There was slight blood-stained crusting of the right nostril. Examination of the respiratory, cardiovascular, gastro-intestinal, genito-urinary, and nervous systems revealed nothing abnormal. There was no elevation of temperature or pulse rate while the patient was in hospital.

X-ray examination of the abdomen revealed a group of calcareous glands in the lower part of the right loin space. The Wassermann and Kahn reactions were still negative. There were 8,000 leucocytes per c.mm., with 49 per cent. neutrophils, 30 per cent. lymphocytes, 7 per cent. large mononuclears, 6 per cent. eosinophils, and 2 per cent. basophils. The faeces showed the presence of ankylostoma ova. A swab from the nose disclosed a few pus cells and Gram-positive cocci. No tubercle bacilli and no *B. leprae* were found. One of the plaques was removed from the back; cultures on different media were negative, but:

"Microscopical examination showed an architecture which was typical of the multiple benign sarcoid of Boeck. There was no definite alteration in the epidermis, but in the corium extending down to near the subcutaneous tissue were deposits of cells situated chiefly about the hair follicles. These cells were of connective-tissue origin, and were round or irregular in shape, with here and there giant cells present. Where the infiltration was densest the connective-tissue stroma was rarefied. The histology differed from that of tuberculosis cutis in the infiltration being more circumscribed, in the almost complete absence of plasma cells, and in the irregular shape of the connective-tissue cells."

A scraping from the edge of one of the small ulcers on the posterior aspect of the left leg, however, showed the presence of tubercle bacilli:

"The ulceration was rather more superficial in type than that which occurs in Bazin's disease (erythema induratum), and suggested that the infective virus was spreading by the lymphatics rather than by being more deeply seated in the veins. At first sight the ulceration recalled that met with in sporotrichosis of the skin, and it was not until tubercle bacilli were found in the scrapings from one of the ulcers that the true nature of the lesions was determined."

The condition was finally diagnosed as that of multiple benign sarcoid of Boeck associated with tuberculous ulceration of the leg. The ankylostomiasis was treated by means of oil of chenopodium, carbon tetrachloride, and magnesium sulphate. The patient was made to rest in bed, while dry dressings were applied to the leg. Potassium iodide was at first administered internally; later colossal bismuth and colossal bismuth ointment were applied locally, and intramuscular injections of bismostab were given; and, finally, injections of sodium morrhuate were given twice weekly. None of these therapeutic measures had any appreciable effect upon the skin condition, but the leg showed some improvement.

The interesting features of the present case were: (1) the association of tuberculous ulceration of the leg with Boeck's sarcoid; (2) the actual finding of tubercle bacilli in the ulcers; (3) the absence of evidence of visceral tuberculosis other than that of a small group of calcareous abdominal glands.

The above case was admitted under Dr. N. Hamilton Fairley, and later transferred to the care of Dr. J. M. H. MacLeod, to both of whom I am indebted for permission to publish the case, and to the latter for his kindness in furnishing me with the detailed histology of the condition.

R. HOWITT WISEMAN,
Medical Officer of Health, Mombasa.

Systemic Embolism as a Complication of Lobar Pneumonia

The following case is of interest on account of the rarity of this complication of pneumonia.

CASE RECORD

A man aged 55, a labourer, was admitted to hospital complaining of pain, swelling, and loss of power in the left forearm, wrist, and hand of six days' duration. For two weeks before the onset of pain his doctor had been treating him for lobar pneumonia, from which he was making an excellent recovery, when one afternoon he developed sudden severe pain in his left arm after a bout of coughing. The arm below the seat of the pain became blanched and later red and swollen. He sent for his doctor, who treated the arm with rest and local application of ichthyol; there was, however, no improvement in his condition after six days, so he was admitted to hospital.

The patient, of an obese plethoric type, still complained of some cough, especially in the mornings. His arm was painful and quite useless below the elbow. On examination the arm was found to be dark blue in colour distal to a line about two inches below the elbow-joint. Above this was an indurated area which gradually merged into normal tissue. The nail beds were quite black, with no circulation evident and no pulse palpable in radial artery. There was slight oedema of the back of the hand. He could bend his wrist through a few degrees, but could not move his fingers. The hand showed typical "claw" deformity, the interphalangeal joints all being flexed, and it was impossible to straighten these by force. There was complete sensory loss in the area.

Examination of his chest revealed some impaired resonance of the right base with coarse crepitations on deep inspiration. His sputum was mucopurulent. No cardiac lesion could be detected on physical examination, and there was no history of cardiac symptoms. The blood pressure was 140 mm. systolic and 90 mm. diastolic. Apart from those changes due to the local condition, no lesion was found in his nervous system. He had no enlargement of liver or spleen; his bowels were regular and his appetite had returned to normal. There was nothing abnormal in his urine. The temperature was 99° F. and the pulse 90.

In view of the history and physical signs a diagnosis of embolism of the brachial artery was made. The arm was wrapped in cotton-wool and kept in a position a few degrees short of extension. Immediate operation was not indicated on account of the duration of the affection. His chest condition improved under treatment with expectorants and tonics; the arm remained in a stationary state for two weeks, dry gangrene of the palm then setting in. During all this time no further localization of the affected area had taken place.

Amputation under local anaesthesia was not favoured by the patient, so three weeks after admission, when his chest had completely recovered, the arm was amputated at the junction of the middle and lower thirds of the humerus under general anaesthesia. He made an excellent recovery, his chest never showing any sign of relapse, the only event being a small boil which developed on the other wrist. This cleared up in a few days with elastoplast, and he was discharged from hospital on November 6, 1937.

DISCUSSION

In view of the history of sudden onset of pain in the arm after a severe fit of coughing, the whole following an undoubted lobar pneumonia, it seems rational to suppose that the pneumonic condition had caused a phlebitis of some of the pulmonary veins with thrombus formation. The undue mobility of the newly expanding lung caused by the strain of excessive coughing had loosened a thrombus which, passing through the left auricle and ventricle, lodged in the brachial artery of the left arm.

Reading.

WILLIAM H. HOOD, M.B., B.Ch.,
Assistant Medical Officer, Battle Hospital.

expounded are now recognized as the serious and pertinent difficulties which they certainly are in the lives of every one of us. The mother and her child, sexual education, nudity, the physical aspects of love, chastity, sexual abstinence, prostitution, venereal disease, marriage with its pleasure principle and its procreative principle—these are the subject-matter of this book, subject-matter which anyone with any interest in the social betterment of the individual or the race must take into account. But it is a book for the intelligent reader: there are no cheap dogmatisms, no facile solutions of these, perhaps at present, insoluble problems.

The author with great erudition relates the experiences and opinions of eminent authorities all down the ages, and his own opinion (if expressed at all, and sometimes we could wish that the opinion of so great an authority as Havelock Ellis were expressed more definitely) certainly does not obtrude. Still, a great deal of information is given, and perhaps it is necessary that everyone should decide for himself, given the premises and arguments, what is the right course to take. As an example of the author's fairness we may refer the reader to the chapters on chastity and sexual abstinence. As he says, continence is always desirable, but it is well to realize that absolute abstinence from any form of sexual gratification whether in fact or fantasy would mean complete sexual anaesthesia, which if it ever existed would be most certainly pathological; hence we cannot generalize as to the how and when and where of abstinence: it must be a separate problem for each individual.

No thinking person ought to burke the problems of sex in society; and he will find the information which he requires, if he is to consider them honestly, set out in this book as completely, as scientifically, and as impartially as he could wish.

Notes on Books

The official *Medical Register* for 1938 has now been published on behalf of the General Medical Council by Constable and Co., Ltd., at 21s., post free 22s. 6d. The table printed in the introductory section shows that 2,214 names were added last year, the highest increment in any year since 1925. New registrations numbered 1,096 in England, 593 in Scotland, 239 in Ireland, and 286 on the Colonial and Foreign lists. The total number of names on the *Register* at the end of the year was 60,163, representing an increase of 1,153. The number of names removed from the *Register* during 1937 was 1,090: of these 957 were deleted on evidence of death; 123 for failure to comply with the inquiries of the registrar as to cessation of practice or change of address; and five were struck off under the disciplinary powers conferred by Parliament on the General Medical Council. The average annual number of penal erasures during the past twenty years was five.

A Concise Pharmacology has been written in collaboration by Mr. F. G. HOBART, the head of the pharmaceutical department of Westminster Hospital, and Dr. G. MELTON, sometime medical registrar of that hospital. The volume is intended for the use of medical students, and the authors have condensed the subject into a pocket volume of 171 pages. The condensation effected is best indicated by the fact that the actions of digitalis are described in less than a page, whilst the actions of potassium iodide and potassium bromide only occupy about a dozen lines each. On the other hand, a number of drugs are mentioned, such as adnota, damiana, lithium salts, oleum rusci, sabal, etc., which are of very secondary importance. The section on the sex hormones fails to

indicate the state of current knowledge on this subject, since it does not distinguish between the scientific status of unstandardized ovarian, orchitic, or prostate substances given by mouth and the preparations of the purified sex hormones. A somewhat unusual feature of the volume is the insertion at its end of a few pages of advertisements, mostly of proprietary medicines. It is published by Leonard Hill, Ltd.

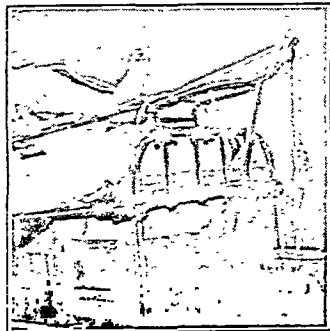
Übungstherapie bei Rheumatischen Erkrankungen. Der Rheumatismus, Volume I, by Dr. P. KÖHLER (Dresden and Leipzig, Theodor Steinkopff, RM.5) is the first contribution to a symposium on rheumatism edited by Professor Rudolf Jürgens. Dr. Köhler here describes the treatment of chronic rheumatic conditions by small movements carried out by the patients against the resistance of graduated weights attached to the limb over pulleys. These are adapted to both large and small joints. The simplicity of the apparatus is shown in illustrations.

Preparations and Appliances

SIMPLE EXTENSION APPARATUS

Mr. M. D. SHEPPARD (Chelmsford, Essex) writes:

The illustration below depicts an apparatus for attachment to the end of a standard hospital bed. It serves for the support of a Thomas's splint, and also has fixed to it a pulley to allow extension of the limb, either through a Steinman's pin or by the adhesive plaster method. There are many cases of fracture of the lower limb requiring simple extension, often for only a short time, which do not necessitate



the complicated mechanism of a Balkan frame. There are several types of pulley which may be fixed to the end of the bed, but all have the disadvantage of being unstable, and of supplying no support to the end of the Thomas's splint and no fixation, which usually has to be achieved by numerous sandbags, boxes, or other unwieldy contrivances. I had the apparatus to be described manufactured by Messrs. Body and Co. of Chelmsford and Southend. It clamps on to any standard hospital bed. A piece of wood splinting is placed across the two horizontal bars, and this supports the end of the Thomas's splint, which can be secured in position by a few turns of cord. When the end of the bed has been raised to allow counter-extension by the weight of the body the height of the pulley can be adjusted to come into line with the Steinman's pin by altering the position of the hook on the vertical bar, which rests on the lower bar of the bed. Once the extension weights have been attached by the usual cord to the Steinman's stirrup, the limb and Thomas's splint require no further attention or adjustment, as the flat wooden support prevents the outward rotation of the foot and the splint which is the bugbear of most methods of lower limb extension. We have six of these supports in use at the Chelmsford Hospital, where a large number of lower limb fractures are dealt with, and have found them satisfactory.

its genetics and others recording the ultimate result of Gray's intratympanic treatment with thyroxine; and there are also papers on many other forms of treatment. H. M. Taylor shows the influence of quinine taken during pregnancy in producing deafness in the child at birth. Brunner writes on disturbance of hearing in brain tumours, a subject that has not been much studied. A remarkable number of papers now report scattered cases of otitic meningitis with recovery, largely due to the use of protosil. Petrositis still receives much attention in the literature.

In the nose and throat section Hetler presents a study of infections of the mucous membranes in relation to nutrition, drawing attention to the importance of the vitamins, especially vitamin C; and Sewall describes removal of the sphenopalatine ganglion by a transantral route. In the subsection on diseases of the bronchi and oesophagus is an outstanding paper by Berk and Harris on the treatment of chronic secreting bronchiectasis by Roentgen therapy. Remarkably good results were obtained in a series of thirty cases. The treatment was based on the analogy of the effect of Roentgen rays in abolishing the secreting capacity of the salivary glands.

GERMAN FOR MEDICAL STUDENTS

German for Students of Medicine and Science. With Notes, Grammatical Introduction and Vocabulary. By W. F. Mainland, M.A. (Pp. 160. 8s. 6d. net.) London and Edinburgh: Oliver and Boyd Limited. 1937.

One of our more accomplished polyglot diplomats was reported the other day as saying that he did not consider that he "knew" a language until he could make an after-dinner speech in it and solve a cross-word puzzle. If students of medicine and science limited their reading to those languages which they "knew" in this sense, their demands upon that modern tower of Babel, the book-stacks of the large medical library, would indeed be modest. But doctors rush in where diplomats fear to tread, and it is with a view to facilitating this rushing-in process that Mr. Mainland has written his book. No claim to originality in conception is made; indeed, in the preface the author admits that between the purely literary and the heavily scientific "eminently successful compromise has been achieved in general science readers by such books as the *Science German Course* of Mr. A. G. Haltenhoff, *Basic German for Science Students* by Dr. M. L. Barker, and the *German Course for Science Students* of Drs. Bithell and Dunstan." But he adds, "The present little volume is a modest attempt to adapt this blend to the use of medical students, without leaving the pure scientists altogether out of account."

The book consists of some preliminary notes on grammar and hints on text reading; these are followed by texts for reading, which are arranged in order of difficulty. Finally there is a vocabulary. With regard to the notes on grammar the criticism immediately arises that, as this is not intended to be a beginner's manual and knowledge of the rudiments of the language is presupposed, such an arbitrary selection of alleged "snags" in German grammar is not needed and is slightly irritating. For instance, surely a knowledge of the rudiments of German implies a knowledge of the difference between *Mann* and *man*.

The vocabulary is presumably intended to save the reader the labour of using a dictionary, and this intent would have been furthered if the translation of the difficult words had been placed immediately after the passage in which they occur. It is arguable that the memory is more lastingly impressed if some labour goes

to the solving of a problem; this used to be a favourite axiom of schoolmasters, but its application to the teaching of more mature minds, with their lower threshold for petty irritants, is of doubtful validity. Perhaps it is such a doubt which has induced Mr. Mainland to compromise.

The texts provided are wide in their interest and well chosen and graded, but it cannot be said that this book marks a great advance in imparting the necessary knowledge of the language to the would-be student of "original papers."

ANALYSIS OF MEDICAMENTS

Drugs and Galenicals: Their Quantitative Analysis. By D. C. Garratt, B.Sc., Ph.D., F.I.C. With a foreword by Sir Frederick Menzies, K.B.E., M.D., LL.D., F.R.C.P. (Pp. 422; 3 figures, 30 tables. 25s. net.) London: Chapman and Hall, Ltd. 1937.

Garratt's *Drugs and Galenicals* deals with a subject so highly specialized that up to recent times there was no textbook which met in any degree the needs of the analyst of medicaments. The methods employed by the few who formerly practised in this sphere varied with different individuals, each analyst having evolved for himself plans of procedure which became trustworthy in his own hands because of his special experience, but which might be a pitfall to others. More recently the methods available for use have become more numerous, more satisfactory, and less dependent for their success on the special experience of the individual. Garratt, having had an extensive practical experience in the analytical examination of medicaments, has been able to make critical trials of the many analytical operations proposed by different workers. His book describes the merits and defects of these, and indicates how they may be used to obtain decisive analytical results. The treatise covers a very extensive range, and each subject is treated with generous wealth of detail. It is commendably well written, having regard to the fact that the matter is one which does not lend itself to good writing. The only thing we observe to be lacking is one which in the present stage of progress is not easy fully to supply—namely, comment on the comparative solubilities of substances in the solvents used for extractive dissolution. Perhaps also a few words might with advantage have been added here and there explaining the theoretical basis of the methods used—as, for instance, in the case of the separation of strychnine from quinine. A remark of this nature would serve as a caution to an inexperienced worker that aqueous hydrochloric acid would not be suitable for the extraction of strychnine from a chloroformic solution. But perfection is a high ideal. The book will supply an urgent need.

SEX AND SOCIETY

Sex in Relation to Society. Being the First English Edition of Volume VI of *Studies in the Psychology of Sex*, abridged and revised. By Havelock Ellis. (Pp. 529. 12s. 6d. net.) London: William Heinemann (Medical Publishers) Ltd. 1937.

This volume is a new edition of the last volume of the author's well-known *Studies in the Psychology of Sex*, which was published for doctors and scientific students only, nearly thirty years ago. The chief difference which may be noted in the interval is not so much in the contents or arrangement of the book itself as in the fact that nowadays a work of this sort may be published for general reading and will be read in all seriousness by a large number of intelligent people, whereas thirty years ago the implication was that if released for general perusal it would have been regarded merely as pornography. So far have we advanced that the problems here

removal of intracranial tumour. Of the amputations the greatest number (154) were through the thigh, and the next greatest (121) amputation of the finger.

Radiotherapeutic Service

The first place in the Medical Supplement is given to an account of the radiotherapeutic clinic at Lambeth Hospital. The number of new cases placed on the records of this clinic increases every year. For various reasons the tables, which occupy fourteen pages, must not be taken as furnishing indications generally applicable in the field of x-ray and radium therapy. For example, all untraced patients are reported and counted as dead—a very big assumption in view of the floating population in the neighbourhood of the clinic—and no patient is said to have died of an intercurrent disease unless a post-mortem examination has been performed and he has been found free from all signs of the malignant disease for which he was treated. With the exception of rodent ulcers and small squamous carcinomata, which are treated by interstitial radium needling or by radium surface appliances, all malignant growths are treated first by external radiation, either by x-ray therapy or by radium surface appliances at 2 or 3 cm. from the skin. Owing to the very large number of cases of malignant disease coming to the clinic only sixty non-malignant cases were treated during the year, though it is felt that there must be a very large number of such conditions which would benefit by radiotherapy and for which at present no provision is made. The same hospital has a radium centre for carcinoma of the uterus, where 104 cases were treated during the year, most of them in an advanced stage of the disease.

In the plastic surgery unit at St. James Hospital 294 cases were admitted and 397 operations performed, including eighty-two Thiersch grafts. There is also a speech-training department here for patients suffering from some abnormality of speech mechanism, and it is suggested that the use of this department for postgraduate teaching might be increased. At the goitre clinic at New End Hospital 134 operations were performed, followed by considerable improvement in eighty and some improvement in twenty-nine. The arthritic unit at St. Stephen's Hospital has been the scene of some research work on the determination of vitamin C reserves and also the use of gold salts in rheumatoid arthritis. Certain clinical observations have been made on the use of insulin in selected cases of this complaint, and it is said that some of the results have already proved very striking. Notes are given of the work at two diabetic clinics, at St. George's-in-the-East and St. Peter's, and some cases are described illustrating the action of protamine-insulin and zinc-protamine-insulin, compared with that of ordinary insulin. The need for caution in the initial stages of treatment with protamine is emphasized.

Special Subjects and Unusual Cases

Among several reports on special subjects there is one on antitoxin therapy in diphtheria. Opinion generally is said to be crystallizing that doses in excess of 100,000 units, especially when all or part is injected intravenously, are not required. The prevalence of cerebrospinal fever in London has recently increased. During 1936 there were ninety-nine cases, and during six months of 1937 108 cases. There is a tendency at the five Council hospitals where these cases are treated to supplement or replace by other methods the standard Flexner method of intrathecal serum treatment. The treatment of cerebrospinal fever is entering upon a new phase, at present transitional.

Prontosil in the treatment of erysipelas is regarded as an agent exercising a specific control in this condition. An interesting chapter on the Council's rheumatism scheme, for which at present 650 beds for acute and subacute cases and 250 for convalescent cases are provided, is included in the report. It is considered that London can

be well satisfied with the progress made during the last nine years. A scheme, probably the most comprehensive of its kind in existence, has been worked out for dealing with the problem of juvenile rheumatism and its sequels. It provides facilities for early diagnosis, an adequate period of institutional treatment, arrangements for the education of the convalescent child, and the constant medical supervision of every rheumatic child up to and after leaving school.

Only a brief glance can be given at the several papers contributed by the medical officers of the Council on interesting and unusual cases.

These include two cases of agranulocytic angina, certified to be suffering from faucial diphtheria and sent to a fever hospital; a case of leuco-erythroblastic anaemia associated with a teratoma: an unusual case of aplastic anaemia in which there was great difficulty in making the diagnosis during life; two cases of paratyphoid fever with rare complications, staphylococcal pyaemia in one instance and terminal *B. paratyphosus* B meningitis in the other; two cases of solitary non-parasitic liver abscess presenting no indication of how or whence infection came; a case of aneurysm associated with tabes dorsalis which was treated by distal ligation, the patient improving considerably; and a fatal case of pellagra in a Deptford woman who had never been out of England, but who had a history of diet poor in animal protein and almost certainly deficient in vitamins. One case of conjoined twins is reported. The twins, one of which lived for twenty-four and the other for thirty hours, were united brow to brow. The most remarkable point in the case is that the first-born twin was apparently born dead, but when the circulation of the second twin became brisk the first-born began to breathe.

Cost of the Service

The cost of all these services is the subject-matter of a separate publication in which those interested in hospital administration, voluntary or municipal, will find much useful material. Municipal hospital expenditure is increasing not only in the aggregate but also in the amount spent per patient. In the general hospitals for acute cases—referred to in the report as "acute hospitals," not a very happy term—under the administration of the London County Council the average weekly cost of maintenance per patient has gone up by 12s. during the last five years and now reaches £3 19s. 4d. per patient. It should be understood, however, that this is the mean figure of all the hospitals in this category, and there are some rather wide variations between them. Thus the average cost of maintenance at Hammersmith Hospital, South Block, where the British Postgraduate Medical School is situated, is as much as £6 3s. 1d., while at St. James, Balham, it is only £3 6s. 3d. The cost lessens, of course, with the size of the hospital. Thus St. James has 900 beds commonly available, and Hammersmith, South Block, only 400.

The cost tables are more detailed in form than those given in the annual reports of King Edward's Hospital Fund in respect of the voluntary hospitals. They are based upon the assembling into groups according to the type of patient treated. In the general hospitals for acute cases, which are most similar to the large general voluntary hospitals, the medical service represents a cost on the average of 4s. 5d. per patient per week, and the nursing service 10s. In the general hospitals for the treatment of chronic cases the total cost of maintenance is £2 4s. 1d., and in the fever hospitals £4 12s. 3d., of which the cost of the medical service represents just upon 4s. and of the nursing service 12s. 6d. In the tuberculosis hospitals, with a total weekly cost per patient of £3 15s. 9d., the medical services cost 4s. 8d. and the nursing services 6s. 8d.

A word should be added in praise of the orderly presentation of these reports. Details are given in a form, tabular or otherwise, which makes it a simple matter to elicit any desired information.

LONDON'S COUNCIL HOSPITALS

A GREAT ADMINISTRATIVE ACHIEVEMENT

The London County Council administers the most extensive hospital service in the world. In its seventy-five general and special hospitals it could put to bed the entire population of a town like Kingston-on-Thames or Richmond or Twickenham. The total accommodation of its general hospitals alone is four times that of the twelve great teaching hospitals of London. It is an extending service, upon which five and a half million pounds a year is spent, this sum having gone up by one million during the last five years. The work is summarized from various aspects in three of the familiar orange-coloured fasciculi forming parts of the annual report of the Council itself.¹

New Developments

A large programme of modernization and extension was begun in 1931 and is still continuing. Among the larger schemes completed during the year under review were a new ward block containing just upon 100 beds at Lambeth Hospital, new x-ray departments at three hospitals, massage departments at two, and nurses' homes at two, one of them with 200 bedrooms and the other with 120. In the fever hospitals schemes for new isolation blocks and other reconstructions are in progress or just completed. In a number of the general hospitals special units have been established for branches of medical and surgical work of such a specialized nature that it is not economical or convenient to provide for it at every hospital. The latest to be added are units for the treatment of patients with foreign bodies in the air or upper food passages and for the surgical treatment of cardiovascular disease. At the latter, which is situated at Lambeth Hospital, eleven patients received surgical treatment during the period covered. Seven cases of cardiac ischaemia were investigated, and in four the operation of cardio-omentopexy, devised by Mr. L. O'Shaughnessy, was performed successfully by him.

The question of improving the treatment of fracture cases has been considered. The arrangements in the Council's hospitals for the treatment of fractures conform in general with the principles laid down in the report of the British Medical Association committee. The L.C.C. is following the general policy of concentrating fracture cases in selected hospitals. The same policy of concentration is being followed with regard to epileptic patients. As few epileptic patients as possible are retained in public assistance institutions, and with the exception of a few persons subject to slight and infrequent fits all epileptics are accommodated in sick wards or transferred as soon as possible to one or two particular hospitals. In the seven group laboratories of the pathological service the examinations of specimens during the year numbered not far short of a quarter of a million, and at the Belmont central laboratories, which were built by the Metropolitan Asylums Board mainly for the production of diphtheria antitoxin, the actual volumes of diphtheria antitoxin and of streptococcus antitoxin (scarlatina) issued during the year amounted to 153 and 248 litres respectively. It may be added that in connexion with medical education sixteen of the Council's general hospitals have now been recognized by the Royal College of Surgeons of England for the candidature of members of the staff for the final Fellowship examination of the College, and thirteen hospitals by the British College of Obstetricians and Gynaecologists for its diploma.

Maternal Welfare

In the maternity departments of the Council's hospitals it was necessary to make provision for nearly 2,700 more

births in the year under review than in the year before. The number of births in these hospitals was over 18,000. Attendances at the ante-natal clinics went up to 120,500 from 97,800 the year before, and it is stated that only a very small percentage of London women now receive no ante-natal care at all. The number of maternity patients who return for a post-natal examination is also increasing, though more slowly. The rate of maternal mortality in the Council's hospitals shows a sharp decrease. It has fallen by more than one-half (from 7.2 to 3.5) in three years. The fall in the number of deaths from abortion (nineteen in 1936 as against fifty in 1935) reflects the greater care in the diagnosis of septic abortion. A large number of seriously ill patients are now admitted to the North-Western Hospital puerperal fever unit, where 185 cases were treated during the year—151 of uterine sepsis and associated complications and thirty-four of other diseases. The deaths numbered thirteen in the first category and one in the second.

In the Medical Supplement Dr. Letitia Fairfield gives some further details. The number of women confined in the Council's hospitals during the year was 17,936, more than twice the number which obtained in 1929. Of this number 16,302 had had ante-natal care at an L.C.C. clinic, and among these there were thirty-two deaths; among the remaining 1,634 who had had ante-natal care from other sources or had had none at all there were thirty-one deaths. But such figures have to be interpreted with caution, because many emergency cases are sent to hospital during labour because they are abnormal, but they are not necessarily abnormal because they did not have ante-natal care. Three of the deaths were associated with anaesthesia, but in every instance the anaesthetic was given by an experienced medical officer and in the opinion of the consultant obstetrician to the unit was properly chosen. No mishap occurred in connexion with the scheme permitting the administration of light intermittent anaesthesia by midwives.

Statistical Tables

The statistical tables, which in Part I of the report number over sixty, afford a great amount of interesting information. One table shows the number of cases admitted to the special hospitals in which the disease finally diagnosed differed from that stated on the admission certificate. Thus three cases certified on admission as dysentery turned out to be chicken-pox; thirty-seven admitted as diphtheria turned out to be measles; four admitted as measles proved to be diphtheria; and fifteen admitted as chicken-pox proved to be measles. Over 1,700 cases were admitted with a mistaken diagnosis of diphtheria, 1,016 with a mistaken diagnosis of scarlet fever, and 976 certified on admission to be measles proved to be some other condition.

The ages of patients in the fever hospitals are interesting. During the year there were admitted 136 cases of scarlet fever, forty-six of diphtheria, and fifteen of measles in which the patients were over 40 years of age. The sex incidence shows all the infectious diseases, except measles, to be heavier among females.

The figures also show how the out-patient service of the general hospitals is being developed. Out-patient treatment is now provided at twenty-five such hospitals at a cost of £60,000, and during the year the number of patients seen in these departments was 141,000, an increase of 30,000 on the year before. The number of operations carried out at the general hospitals was just over 40,000. The greatest number were done for appendicitis (3,929). There were 2,564 cases of curettage of the uterus, 2,963 manipulations in fractures, and 3,056 incisions for abscess under general anaesthesia. Seven operations were done for excision of a myeloma, seven periarterial sympathectomies, eight operations for epithelioma of the lip, six operations on the ovaries and Fallopian tubes for malignant disease, and three for

¹ London County Council. *Annual Report of the Council, 1936*. Vol. IV, Public Health. (Part I) General and Special Hospitals (2s. 6d.); (Part II) Hospital Finance (1s.); (Part III) Medical Supplement to the Report on the Hospital Services (5s.). Westminster: P. S. King and Son, Ltd.

majority of medical men. The number of offences for which a sentence of corporal punishment can now be given is surprisingly large. Its administration for living on the earnings of a prostitute and for robbery with violence is comparatively recent. Few persons except specialists in this branch of legal research can have known that a section in the Diplomatic Privileges Act, 1708, permits corporal punishment for a solicitor who serves a writ on a foreign ambassador, and that an Act of 1786 gives power to award it for certain irregularities in the slaughtering of horses and cattle. The committee, of course, recommends the repeal of these inappropriate provisions, but in forming its opinion on the use of corporal punishment for various other offences it has paid close attention to the views of medical men and psychologists. In recommending the abolition of birching for young offenders the committee draws a wise distinction between a beating by a parent or master, with whom the child has some constructive relationship, and an impersonal judicial birching by a police officer, usually after a considerable delay. The section of the report dealing with this matter is a model of reasoned argument, and lays great stress on constructive means of dealing with young offenders. If birching is abolished the committee recommends that the juvenile courts should be given additional powers to enable them to deal with those offences which merely require an effective deterrent.

It so happens that the committee's report appears soon after a notorious case, in which the infliction of sentences of flogging on two criminals received wide and unsavoury publicity. The report, if it receives proper notice, will do much to correct the wild statements that have been made about the practice in the infliction of this punishment. Judicial flogging is a severe penalty, but not as frightful as some newspapers have represented it. The medical safeguards prevent its being applied to a prisoner who is not physically capable of standing it, but do not ensure that it shall be withheld from a prisoner whose mind and disposition make it an unsuitable form of punishment. The committee found that in large numbers of cases it will have no marked effect on the offender's frame of mind and that in some rare cases it may have a salutary effect in compelling him to face the realities of his offence. It was satisfied, however, that in other cases it might do lasting damage to a man's character and personality. In the words of one experienced witness, corporal punishment occasionally hardens the outlook of a tough-minded offender, and may perhaps occasionally do harm to some who are tender-minded; and there appears to be a risk that it may sometimes produce a result that is not intended. A weighty reason against it

is that it has no reformatory quality. The committee therefore considers that its retention can only be justified if it can be shown to be essential in the interests of the community as a deterrent. None of the witnesses suggested that corporal punishment restrains the offender from all forms of crime, and even those who believed most strongly in its deterrent effect claimed only that it deterred him from the special offences for which corporal punishment may be given. The results of a detailed analysis lent support to the view that it was apt to produce feelings of resentment and bitterness which make an offender more likely to commit other offences. The committee was unable to find any body of facts or figures which showed that the *ad hoc* introduction of a power of flogging had brought about a decrease in the number of the offences for which it might be imposed, or that such offences had tended to increase or decrease in proportion to the number of floggings ordered. It therefore recommends the repeal of all powers to punish indictable offences with flogging. It is particularly interesting that the committee should have done so in the face of the opinion of the judges of the King's Bench Division that flogging was a useful deterrent and might well be retained for a number of the offences for which it may at present be ordered. The committee felt that if it were to be retained the confused and miscellaneous provisions of the existing law must be swept away and a new system built up on some more logical principle. The only suggestion made during the hearing of evidence was that it should be reserved for cases in which gross and brutal violence had been used, and this suggestion was ultimately based not on the view that the offenders could not be effectively deterred by other methods but on the argument that violence must be met by violence. The committee quotes with approval the words of Mr. Asquith in 1900, that nothing more repugnant to the most elementary principles of justice and common sense could be imagined than to say that because a man has committed a savage offence those whose duty it is to enforce respect for the law should begin that man's punishment with correspondingly savage treatment. The only remaining use which the committee could find for corporal punishment is in deterring violent prisoners from assaulting prison officers, and it has concluded that flogging cannot yet be safely abandoned as a prison punishment; it should, however, continue to be used very sparingly, and the hope is expressed that in course of time it may be dispensed with altogether.

The most valuable feature of the report is its objectivity, and the complete absence from it of any trace of sentimentality. The next step is for

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THE CHEMICAL BASIS OF URAEMIA

Last week's meeting of the Medical Society of London was devoted to a general discussion on uraemia in its medical, surgical, and biochemical aspects; a report of the speeches appears at p. 693. All experimental work during recent years has been in the direction of showing that the symptoms of uraemia are caused not by the retention of any one chemical substance but by variations in the relative amounts of several substances in the tissue fluids. These variations may differ considerably from one case to another. Thus retention of inorganic phosphate together with diminution in ionized calcium tends to cause muscular irritability, whereas the retention of phenols will cause weakness and apathy. The very diversity of the symptoms does, in fact, suggest that more than one factor is at work, and that there are some cases in which stimulation of the nervous system is the more striking phenomenon and others in which depression is more obvious. Animal experiments have shown that the intracisternal injection of certain electrolytes into the cerebrospinal fluid may cause a rise of blood pressure with muscular twitching and disturbances of breathing. The similarity of these symptoms to those of uraemia has prompted M. F. Mason and others¹ to investigate further the changes in the chemistry of the cerebrospinal fluid in experimental uraemia produced by bilateral nephrectomy, ureteral ligation, or ligation of the renal arteries. The resulting symptoms were weakness and vomiting with transient and inconstant changes in blood pressure, followed by muscular irritability and later by stupor. Convulsions and coma were rare. As a rule muscular irritability occurs at the time when diminished calcium and increased phosphate can be detected in the cerebrospinal fluid and seems to depend more closely upon changes in the fluid than in the blood plasma. The same was observed in patients with uraemia; but in both patients and animals the results were not constant, and in the later stages depression may be observed despite pronounced changes in the levels of calcium and phosphorus. Phenols when injected intravenously produced weakness, apathy, and ataxia, and if given

before the intracisternal injections inhibit the muscular twitching and respiratory symptoms. The phenol content of the blood and body fluids rises in experimental uraemia. Experimentally guanidine gives rise to apathy, vomiting, ataxia and tremor, muscular twitching, and convulsions. Big doses produce a semi-comatose state. Guanidine is increased in the blood in clinical and experimental uraemia and behaves as an antagonist to calcium.

Commenting on their results the authors feel that they are justified in drawing certain conclusions as to the nature of the chemical factors in uraemia. "Central" deficit of calcium ions (that is, in the cerebrospinal fluid rather than in the blood) appears to be an important cause of neuro-muscular irritability, and this may also play a part in the production of respiratory disturbances. These symptoms may in some cases be further evoked by the accumulation of guanidine. Guanidine can, however, also bring about symptoms of depression, and may account for vomiting and other gastrointestinal symptoms. Accumulation of phenol derivatives has an action antagonistic to that of calcium deficiency, inhibiting muscular excitability and causing weakness, apathy, stupor, and coma. In certain instances dehydration, acidosis, and chloride deficiency may be important factors, but probably not essential features of the uraemic syndrome. The clinical manifestations of uraemia therefore appear to result from a variety of chemical disturbances, and the symptoms exhibited by any particular patient will depend upon which of these disturbances is especially in evidence. This in turn will depend upon such factors as diet, the state of the gastro-intestinal system, and the rapidity with which renal failure has developed. In no experimental study of uraemia has any definite relation between chemistry and blood pressure been traced, and it is known that uraemia may occur in patients with normal or low blood pressure. The height of the blood pressure seems to depend more upon the pathological state of the kidney than upon its functional efficiency.

CORPORAL PUNISHMENT

The report of the Departmental Committee on Corporal Punishment, which has just been published,¹ puts the case against corporal punishment more effectively than any argument that has hitherto appeared. In recommending the abolition of this penalty as a judicial sentence the committee substantially agrees with the views expressed in these columns,² which commend themselves to a large

¹ Cmd. 5684. 1938, London, H.M. Stationery Office. (2s. 6d.)
² *British Medical Journal*, 1937, 1, 618.

¹ *Arch. intern. Med.*, 1937, 60, 312.

At the end of ten weeks the weight and height increase among the boys in the milk-fed group was manifestly greater than in those of the biscuit-fed group. Among the girls the increase in height, but not in weight, was manifestly greater in the milk-fed group. These experiments demonstrate the benefit that results from giving a ration of skimmed milk to school children who are receiving an inadequate or unbalanced dietary in their homes. The cost in the second experiment of supplying a child daily with 8 oz. of skimmed milk reconstituted from powder was 12 annas a month, or in our currency less than a halfpenny a day.

THE NEUROLOGICAL FACTOR IN OSTEO-ARTHRITIS

It appears that nervous influences play a part in the causation of the changes in the hip-joint in osteo-arthritis. Eloesser¹ found that changes similar to those occurring in Charcot's arthropathy took place in the joints of animals in which the lumbo-sacral nerve roots had been divided if they afterwards led an active life. Corbin,² continuing observations along these lines at Stanford University, studied the effect of lumbar sympathectomy and section of the lumbo-sacral dorsal nerve roots in cats. He observed that in animals which did not move about freely after deafferentation there were no changes in x-ray appearances, but microscopical examination revealed superficial erosion of the articular cartilage and fibrillation. There was no sclerosis of the spongiosa. On the other hand, when movement was free there was well-marked fraying of the synovial membrane, thickening of the capsule, and enlargement of the head of the bone and the acetabular fossa. The effect of the operation was such that the affected limb was carried in an abnormal position owing to interference with the proprioceptive mechanism, and parts of the joint underwent wear and tear that did not occur under normal conditions. In addition hypermobility resulted and led to further wear; excessive reaction was caused—much increase in the density of the head and neck of the femur, flattening of the weight-bearing area, and thickening of the head of the bone. The ligamentum teres was destroyed in all cases in which there was pronounced general alteration in the joint. Appearances in the bone beneath the calcified articular cartilage suggested that eburnation is at least in some degree a functional response which does not require removal of the cartilage and direct mechanical stimulation. It is clear from Pearson's work³ that degenerative changes take place in the posterior root fibres in advancing years, with loss of sensibility. The ability to perceive vibratory stimuli diminishes more rapidly after the fifth decade and may be completely lost. This is attributed to arteriosclerosis in the spinal cord, especially in the column of Goll, the blood supply of this area being somewhat inefficient. It has long been believed that the changes in osteo-arthritis of the hip were due in some measure to arteriosclerosis, but the

locality of this was thought to be in the bone itself, though there was no correlation between the extent of change in the joint and the degree of arteriosclerosis (Keefer and Myers). Other features of the disease are more readily explained if the circulatory defect lies in the cord. Among these is the variability in the degree of pain in this form of arthritis. Keefer found that only about 7 per cent. of his patients with hypertrophic arthritis suffered from pain. Corbin quotes Hinsey's observation⁴ that the skin temperature was lowered in "deafferented" cats, and suggests that the reduced peripheral skin temperature of arthritic patients is the result of a decreased sensory supply to the limbs. Half a century ago many held that rheumatoid arthritis was due to changes in the spinal cord. This view has been abandoned, but it is interesting to find so much evidence of the part played by nervous influences in the production of osteo-arthritis. In exhaustive studies on the effect of wear on joint structures, chiefly on the shoulder-joint, A. W. Meyer⁵ has, however, shown that extensive destructive changes may occur in the absence of inflammation and without any evidence of nervous disturbances.

SODIUM LACTATE FOR DIABETIC COMA

Before the introduction of insulin into diabetic therapeutics recovery from diabetic coma was an event of such rarity as to excite wonder. Since the introduction of insulin recovery is so confidently expected that death, when it occurs, is disconcerting. It is now generally accepted that the prognosis in diabetic coma becomes worse with increasing age of the patient and with the duration of coma, and that the prognosis is excellent in young patients. As a consequence the view is widely held that the present methods of treating diabetic coma are adequate in uncomplicated cases and fail only in patients who either are weakened by old age or are practically moribund when they first come under treatment. An examination of the published reports of the results of treatment in series of coma cases, however, casts some doubt on this optimistic view, for there is evidence that despite careful treatment unexpected death not infrequently occurs in young comatose diabetics. It would therefore appear that there is still scope for improving our treatment of diabetic coma, and in this respect the use of sodium lactate deserves serious consideration. In 1935 Hartmann⁶ reported the results of treating cases of diabetic coma by three different methods. The first group of cases was treated by insulin and glucose; the second by insulin, glucose, and sodium bicarbonate; and the third by insulin, glucose, and racemic sodium lactate. In Hartmann's opinion the results in the third group were considerably better than in either the first or the second. On examination of his reports in detail, however, it appears that this favourable opinion of sodium lactate is supported not so much by striking clinical results as by the fact that this substance produces a rapid replenishment of the depleted alkali reserve in these cases. This

¹ *Ann. Surg.*, 1917, 66, 201.

² *Arch. Surg.*, Chicago, 1937, 35, 1145.

³ *Arch. Neurol. Psychiat.*, Chicago, 1923, 20, 432.

⁴ *Amer. J. Physiol.*, 1934, 109, 53.

⁵ *Arch. Surg.*, Chicago, 1937, 35, 646.

⁶ *Arch. intern. Med.*, 1935, 56, 413.

the Home Secretary to introduce into Parliament legislation which will carry its recommendations into effect, and there is fortunately good reason to suppose that Sir Samuel Hoare intends to do this. If the substance of the recommendations becomes a part of the law of this country it will mark an important step towards replacing the primitive feeling, which still disfigures our penal system, by sound reason based on experience.

CANCER OF THE LUNG

Cancer of the lung has of late claimed increasing attention in several of its aspects. There is in the first place the very debatable question of how the much greater apparent frequency of the disease has come about. Allowing for the effects of longer life and better diagnosis, is there still evidence that lung cancer is becoming more common? It is difficult to estimate, and possibly to overestimate, the effect of modern diagnostic methods, and cases not so investigated may still be supposed to have died simply of bronchitis and heart failure; this was probably the rule rather than the exception in the past. A recent statistical survey by Stocks has led only to the conclusion that the trend of the true frequency of lung cancer will only be ascertainable when present methods of analysis can be applied to the data of a further decade. Another major question is occupational incidence—one aspect of the complex problem of aetiology. Apart from curiosities such as the Schneeberg miners' cancer there has been little positive information from this direction, and it has always to be remembered that occupational descriptions may be highly misleading. Not only may one term cover a multitude of varying circumstances but account has to be taken of the time factor, and unrecorded changes in occupation during a preceding period of many years may wholly vitiate the significance of such descriptions. Furthermore, if road dust is to be accorded the importance to which experiment seems to entitle it, the degree of exposure to this influence determined by the position of dwellings and many other factors may well be of an importance equal to that of occupation itself. The recent examination of 18,280 death certificates in cases of lung cancer by Kennaway and Kennaway suggests that certain classes of worker are especially liable to lung cancer; these are road workers, metal grinders, gasworks employees, and those engaged in the tobacco trade. A third aspect of this subject which is claiming attention is the experimental study of lung cancer. An adenoma of the lung which sometimes exhibits malignant characters is a tumour which naturally appears in mice, and several investigators have studied the effects of known or suspected carcinogenic agents on the incidence of this tumour. The principal experiments of this kind dealing with naturally occurring suspected agents have been those of J. A. Campbell,¹ whose recent paper not only summarizes his own work but furnishes a comprehensive

review of the several aspects of the subject mentioned here. His method has been to expose mice to irritants by inhalation for short individual periods over a long total space of time. The effect of this treatment was negative in the case of exhaust gases from a petrol engine, doubtful in the case of tobacco, but striking when the substance used was dust from the sweepings of tarred roads; 74 per cent. of mice exposed to this dust developed lung tumours, the frequency in controls being 14 per cent. When the dust had been extracted with benzene to remove the tar 45 per cent. of exposed mice still developed tumours, lending some apparent support to the otherwise very debatable proposition that the inhalation of silica predisposes to lung cancer. The significance of these results is of course wholly dependent on whether these lung tumours in mice can be considered analogous to lung cancer in man. Campbell adheres strongly to the view that they can, but the wide dissimilarity in structure and behaviour between the mouse and human growths, and the remarkable frequency of lung growths in mice kept under what are usually considered healthy conditions, seem to call for some caution in the interpretation of these results.

SKIMMED MILK FOR SCHOOL CHILDREN

The more extensive use of skimmed (separated) milk has been advocated by the Technical Commission on Nutrition of the League of Nations Health Organization. Large quantities of this type of milk are available at butter factories at a very low price. Since it contains the nitrogen, carbohydrate, and mineral fractions of the milk, it has a high nutritive value for human beings. The difficulty, as pointed out in another report of the League,¹ consists largely in distribution. By the time the skimmed milk has been brought to the towns, pasteurized, and bottled, its price, so far as calorie value is concerned, will be very much the same as that of whole milk. An alternative method was therefore suggested of supplying the separated milk in dried form. It is interesting to note that observations are already available to prove the value of this method. Aykroyd and Krishnan² in India found that the addition of liquid skimmed milk reconstituted from powder to the diet of children in residential hostels brought about an acceleration in growth and a decided improvement in general condition. In a more recent paper Krishnan and Mitra³ report two experiments made on children of the poorer classes in Madras. In the first experiment twenty boys were given daily 8 oz. of liquid skimmed milk for three months, while twenty similar boys received no addition to their diet. The average increase in both weight and height was notably greater in the former than in the latter group. In the second experiment twenty-four boys and eighteen girls were given daily 8 oz. of skimmed milk reconstituted from powder, while a similar number of boys and girls were given 1 oz. of wheat-flour biscuit of about the same calorie value.

¹ *Quart. Bull. Hlth. Org.*, L. o. N., 1937, 6, 371.

² *Ind. J. med. Res.*, 1937, 24, 1093.

³ *Ibid.*, 1938, 25, 647.

¹ *J. indust. Hyg.*, 1937, 19, 449.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

SCALP WOUNDS AND FRACTURES OF THE SKULL

BY

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It has often been said that in cases of head injury it is the condition of the brain which really matters, while that of the integuments is of relatively minor significance. Although the truth of this statement is undoubted it must not be regarded as a reason for minimizing the importance of scalp wounds and skull fractures. It is my object in this paper to concentrate upon these lesions, leaving the question of the degree of damage to the brain and its treatment for consideration in the next article. It will be realized, however, that the conditions are so often associated that treatment is frequently required for damage to the intracranial contents as well as to their envelopes.

Scalp Wounds: Some Anatomical Considerations

The scalp is characterized by its extreme vascularity and relative insensitivity. Many of us have experienced a trickle of blood running over the face from a scalp wound which, because of its painlessness, we were unaware had taken place. Haemorrhage from the scalp is profuse on account both of the number of vessels and of the fact that they lie in the dense subcutaneous connective tissue and are thereby prevented from retracting when divided. The blood supply of this region is so rich that even in extensive injuries, such as partial avulsion, there is very little risk of tissue necrosis, and it is well known that because of its vascularity incisions may be made in the scalp with impunity in any direction.

The most important layer of the scalp, considered from the surgical aspect, is the subaponeurotic lymph space, which lies beneath the epicranial aponeurosis (galea aponeurotica), separating it from the pericranium. Because of this space the scalp is free to move on the skull. Effusions may collect within it, and because of venous connexions (emissaries) with the intracranial venous sinuses an intracranial spread of infection may result; hence this space is termed the *dangerous area of the scalp*. The epicranial aponeurosis is attached posteriorly to the linea suprema of the occipital bone and on either side to the zygoma, but in front it is unattached to the frontal bone, so that while subaponeurotic effusions are prevented from spreading into the neck or the temporal fossa, they readily extend anteriorly into the loose tissue of the eyelids.

Treatment of Scalp Wounds

The treatment of an injury to the scalp may constitute a relatively minor part of the management of a case of head injury, but it may be the all-important part, and many scalp wounds are the result of a comparatively slight blow, which has not been sufficient to concussion the patient or damage the brain. Scalp wounds are generally of the contused or lacerated variety, less often of the incised or punctured type. There is usually a good deal of matting of hair from coagulated blood, and this should first be cut away and shaved from the edges of the wound, which may then be the better examined.

If a main vessel such as the superficial temporal artery has been divided and is bleeding it should be secured with a catgut ligature, which may need to be passed on a needle. If the margins of the wound are bleeding freely, haemorrhage may be controlled either by the pressure of an assistant's fingers along the wound edge or by applying a series of artery forceps to the cut edges of the epicranial aponeurosis and drawing this outwards over the wound. Mattress sutures along the edges of scalp wounds are apt to introduce infection, but a troublesome bleeding point may in emergency be secured by means of a mattress suture passed down to the bone. Where possible, the underlying bone must be carefully examined by inspection and, if necessary, by the use of a probe to ascertain if a fracture is present; because if there is one we are no longer dealing with an uncomplicated scalp wound, but with a case of compound fracture of the skull, treatment of which is urgent and is considered under a separate heading.

Except for the most trivial cases, and but few even of these, scalp wounds almost always extend into the dangerous subaponeurotic area. Once haemorrhage has been arrested, therefore, and it has been ascertained that the bone is undamaged, our object must be to protect the patient from the dangers of infection and to try to promote healing of the wound by first intention. For these reasons scalp wounds should be treated as emergencies as soon after their infliction as possible. The edges must be cleaned well with soap and water, and if bruised, irregular, and dirty, excised with a sharp scalpel and approximated with a series of interrupted fine silkworm-gut sutures passed on a curved cutting needle through the whole thickness of the scalp on either side. A dressing of gauze wrung out of spirit is then applied, and if healing occurs per primam the sutures may be cut on the fifth or sixth day and removed a day or two later. If infection and suppuration ensue the wound must be opened and drained at once to allow free egress of the products of infection from the dangerous area, for the possibility of an intracranial spread of infection by emissary veins has always to be kept in mind. It was because of this that Percival Pott wrote of the scalp: "This though it be called the common tegument of the head, yet injuries to it become of much more consequence than the same kind of ills inflicted on the common teguments of the rest of the body." Owing to the extreme vascularity of the scalp, however, infection is unusual, and in most cases healing of scalp wounds is both rapid and uncomplicated.

Fractures of the Skull

It has long been realized that extensive fractures may occur with very little apparent damage to the brain, while, on the other hand, serious intracranial complications may result from head injuries in which the skull has not been fractured. In none of four cases of traumatic intracranial haemorrhage requiring craniotomy which I have recently reported was the skull fractured (Rogers, 1937). Fractures of the skull, like fractures in general, may be the result of direct or indirect violence. In the former case they tend to radiate from the point of impact of a localized blow delivered to the head, while in the latter they may result from such an injury as a fall from a

result is to be expected, for the rationale of giving sodium lactate is that the lactate group is changed into glycogen in the liver and thus liberates an equivalent quantity of the base, sodium, which is available to counteract the acidosis. Joslin and his collaborators⁷ have criticized Hartmann's results, but it is only fair to point out that their criticism is based, not on a trial of Hartmann's methods, but on the belief that their own results are as good as they could hope. Recently Wood and Bryer⁸ have reported a case of severe diabetic coma in which treatment with insulin and glucose seemed to have little effect but in which the administration of sodium lactate led to decided improvement. These authors followed Hartmann's technique, slowly injecting a 1/6 molar solution of sodium lactate intravenously until a total of 60 c.cm. per kilogramme of body weight had been given. It is true that this report concerns only one case, but it was one of such severity, and the onset of clinical improvement seemed to be so definitely correlated with the administration of lactate, that the favourable result is noteworthy. Much further experience will have to be gained before the value of sodium lactate as an adjunct to the treatment of diabetic coma with glucose and insulin is established, but the results already obtained are sufficiently promising, and the possibility of harmful effects from the administration of sodium lactate by Hartmann's technique sufficiently small, to permit this newer method of treating severe cases of diabetic coma to be given adequate clinical trial.

REPAIRING DAMAGED GOODS

The results of an international inquiry into measures for rehabilitation of prostitutes are published by the League of Nations Secretariat as one of a series of pamphlets on Social Services and Venereal Diseases.⁹ Replies from over forty countries to a questionnaire show that the need for cheap medical treatment for venereal disease is now widely recognized. In some countries such treatment is compulsory by law for all sufferers, and, as regulated prostitution declines, this group of countries, already the largest, recruits new members; in others it is only compulsory for prostitutes; and in eight countries, including our own, treatment, though voluntary, is encouraged by facilities organized or subsidized by the State and by propaganda and instruction. There is not the same wide recognition of the need for social help, and the number of countries where social service is combined with treatment at venereal disease clinics and hospitals is still small. An account is given of the systems at work in two of the countries which rely on individual social assistance—the United Kingdom and France. In the former country the hospital almoner acts as a link between the patients and the social and charitable institutions which might be useful to them; there are hostels attached to the public hospitals in London

where women recommended by the treatment centres receive free or cheap board and lodging and some general education and training in work and are helped to find employment when they leave; and help is also given through training in hospitals. In France the patients are helped by workers attached to hospitals as social assistants. Other countries, such as the Union of Soviet Socialist Republics, have set up special institutions for combined medical and social treatment. The report suggests lines for future planning and should prove of value to social workers in all countries.

MEDICAL OFFICERS FOR THE REGULAR ARMY

It is satisfactory to learn that the supply of medical officers for the Regular Army is being maintained at a rate which should soon make up for the shortage experienced for some years after the war. Since 1934, when the recommendations of the Warren Fisher Committee were adopted, 195 short service commissions have been given. Of this number 182 qualified in home medical schools and thirteen in the Dominions. Resident civil hospital appointments were held by 152 officers before or after their being gazetted to commissions. This high proportion is the result of seconding young officers to complete or to take up house appointments after being gazetted into the Royal Army Medical Corps. Since 1935 junior officers with special qualifications or who have experience beyond the average in particular branches of medicine may be "graded" for special employment in the subject of their choice, and while so employed receive additional pay. Up to date forty-nine have been "graded" as follows: surgeons, 19; anaesthetists, 10; gynaecologists, 6; physicians, 5; pathologists, 3; otologists, 2; ophthalmologists, 2; dermatologists, 2.

The twenty new Fellows of the Royal Society elected on March 17 include C. H. Best, M.D., Professor of Physiology, University of Toronto; J. W. Cook, D.Sc., Professor of Chemistry, Research Institute, Royal Cancer Hospital, London; W. E. Gye, M.D., Director of Laboratories of the Imperial Cancer Research Fund; Julian S. Huxley, D.Sc., Secretary of the Zoological Society of London; K. M. Smith, D.Sc., Senior Research Assistant, Plant Virus Station, Cambridge; E. Stedman, D.Sc., Lecturer in Department of Chemistry in Relation to Medicine, University of Edinburgh; and H. H. Woollard, M.D., Professor of Anatomy, University College, London.

The annual meeting of the Royal Medical Benevolent Fund will be held at 11, Chandos Street, W., on Tuesday, April 5, at 5 p.m., when the financial statement for the year ended December 31, 1937, will be presented and the officers and committee for the current year elected.

⁷ *Arch. intern. Med.*, 1937, 59, 175.

⁸ *Med. J. Austral.*, 1937, 2, 961.

⁹ Allen and Unwin, price 1s. 3d.

Importance of Radiography

All cases of head injury should be radiographed (Rogers, 1933), when possible. Clinical examination alone may fail to find a depressed fracture, especially if this is in the temporal fossa, beneath the temporal fascia rendered tense by blood-clot. To reveal such a fracture a series of plates may be required, with a different degree of rotation of the skull shown on each. Fractures must be differentiated from the grooves for the meningeal vessels. These grooves are sometimes abnormally deep and well developed. Their position will usually serve for recognition, since linear fractures tend to be horizontal rather than vertical.

Anaesthesia

Provided it is not introduced by passing the needle through infected tissue, thereby risking the spread of infection, local analgesia may be used, the whole operation site being surrounded by an area infiltrated with procaine hydrochloride (1 per cent.) or novocain (1 per cent.) to which adrenaline (1 in 100,000) has been added. As much as 200 c.c.m. or more of this solution may be used without ill effects.

When the patient is quiet and unconscious no anaesthetic whatever is needed, while if he is irritable and restless it is usually advisable to employ general anaesthesia; and if the services of an expert anaesthetist are available, nitrous oxide, oxygen, and chloroform form a useful combination. Ether may be used; but some cases of head injury are found to require a great deal, and it has the disadvantage of raising the cerebrospinal fluid pressure and of increasing the possibility of post-operative bronchitis or bronchopneumonia.

Illustrative Cases

The following examples serve to illustrate some of the principles of treatment which have been considered:

Case 1.—A saw-mill hand, aged 34, was in a stooping position in the pit below a circular saw and in the act of securing a spanner which had fallen into the pit. As he raised his head the saw began to revolve, ploughing through the scalp and skull in a sagittal direction. The engine was stopped at once, and he was taken from the pit unconscious and bleeding profusely from the wound. He soon regained consciousness and was attended by a doctor, who inserted a series of horsehair sutures to arrest the bleeding and sent him to hospital. By the time he arrived he was able to walk unassisted. Examination revealed a lacerated wound, six inches in length, just to the right of, and parallel to, the superior longitudinal sinus. Under nitrous-oxide-oxygen anaesthesia (7 hours 45 minutes after the accident) the scalp was shaved, the horsehair sutures removed, and the wound freely opened up. Both tables of the skull had been divided. Bone was taken away, and it was found that both dura and brain had also been damaged. The lacerated edges of the dura were excised and some bruised cortex was removed. The wound was closed and drained by three small Kocher's glass drainage tubes. Convalescence was uninterrupted, and the wound healed by first intention.

Case 2.—A horsewoman aged 19 was thrown on to the occiput and sustained a contused wound which penetrated the subaponeurotic space. She was put to bed and was attended by her doctor. Five days after the accident the wound edges were inflamed, the scalp and upper part of the face oedematous, and the skin of the frontal region reddened. There were some enlarged tender glands near the apices of both posterior triangles. She was admitted to hospital as an emergency case, and lumbar puncture performed. The cerebrospinal fluid was clear and as yet uninfected. Under ether

anaesthesia the wound edges were excised and multiple drains of fluted rubber placed into the subaponeurotic space. Suppuration was free, but the oedema gradually subsided and healing took place without intracranial complications. This patient's recovery was fortunate. The wound should have been excised in the first place; surgical aid was sought only when infection had supervened.

Case 3.—A golfer aged 26 was accidentally struck on the left side of the head with the driving club of a fellow golfer. He fell unconscious and was brought to hospital, where a wound 1 cm. in length was apparent in the left temporal region. The edges of the wound were slightly swollen and there was a trickle of blood from it. By this time the patient had recovered consciousness, but was drowsy. When the wound was probed a fracture could be felt, and some flecks of brain came away when the probe was withdrawn. Under ether anaesthesia a scalp flap was reflected and a compound comminuted fracture exposed just posterior to the pterion. A piece of inner table was seen to be driven into the brain. This was removed and haemorrhage from some torn cortical vessels controlled by the application of a piece of temporal muscle. Damaged tissue was excised, and the wound closed after placing a glove drain in its posterior angle. Recovery was complete and uncomplicated.

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A. STUDY OF MENTAL DEFECT

REPORT BY DR. PENROSE

At least two important and extensive researches in regard to mental deficiency have been conducted in England over the last few years. One of these, under the auspices of the Burden Trust, with Professor R. J. A. Berry and Dr. J. A. Fraser Roberts as chief investigators, has been based upon Stoke Park Colony, Bristol, and on the child population of the city of Bath. The other, under the auspices of the Darwin Trust and the Medical Research Council, has been based upon the Royal Eastern Counties Institution at Colchester, and, with the encouragement and help of Dr. J. Douglas Turner, the medical superintendent, has been conducted by Dr. L. S. Penrose, in charge of the research department of that institution. Each of these researches has been productive of valuable interim or incidental publications dealing with certain aspects of the work, and their final reports have been anticipated with much interest. That of the Burden Trust has not yet been issued, though an interim note on the work appeared last autumn.¹ The Medical Research Council has now published "A Clinical and Genetic Study of 1,280 Cases of Mental Defect,"² by Dr. Penrose. It is a report of great value.

The investigation which the report describes was both extensive and prolonged. The scheme of research was planned as long ago as 1930 with the object of increasing knowledge on the causation of mental defect. About the same time the Council of the British Medical Association set up a special Committee on Mental Deficiency, which issued an informative report in 1932. In an appendix to Dr. Penrose's report reference is made to more than fifty publications on the subject during the past eight years, in addition to twenty-nine coming from his own research department: and this list is by no means exhaustive even

¹ *British Medical Journal*, November 13, 1937, p. 973.

² Medical Research Council Special Report Series, No. 229. H.M. Stationery Office. (2s. 6d. net.)

height on to the feet, causing fracture of the base. The fractures occur at or near to the site of maximum impact, and, while it is not intended to discuss in detail the mechanism of production of fractures, some reference may be made to the term "contrecoup," which every student seems to remember. It is about as unreasonable to assume that a blow delivered to one part of the skull will fracture the diametrically opposite part as it is to expect that when we tap one end of an egg with a spoon the other end will crack. It is important to remember, however, that gross damage to the brain may occur by contrecoup, and I have several times noted extensive cerebral contusion at a point on the surface of the brain diametrically opposite the point on the skull at which the blow had been delivered and at which fracture may have taken place.

Skull fractures may conveniently be grouped into those of the base and those of the vault, since there are certain characteristics and indications for treatment that apply to each group. Many fractures, however, involve both vault and base—for example, those running through the squamous temporal bone into the floor of the middle fossa.

Fractures of the Base

The importance of fractures of the base lies in the fact that these are usually the outcome of a degree of violence which has produced much damage to the brain. Sir Astley Cooper held that fractures of the base were invariably fatal, but we now know that many cases recover. These fractures are often compound either into the nose or into the tympanic cavity, and owing to the close attachment of the dura mater over the skull base this membrane is lacerated and with it the arachnoid, so that occasionally blood and cerebrospinal fluid escape from the nose or the external auditory meatus. The clinical picture is usually that of the accompanying contusion and laceration of the brain, and treatment (which will be detailed next week in a paper on concussion and compression) must be directed to such. Owing to anatomical considerations local treatment for the majority of these compound fractures cannot be complete. Our object again, however, must be to protect the patient from infection, so far as possible, by keeping the nasal cavities or the external auditory meatus clean with pledgets of wool well wrung out of dilute phenol solution (1 in 200) and by administering 10 grains of hexamine by the mouth three times a day. This substance enters the cerebrospinal fluid, and in the presence of acid-forming organisms is decomposed, yielding formaldehyde, which is inimical to them.

Fractures of the Vault

These fractures may be simple or compound, linear or comminuted; they may be complicated either by being depressed or through fragments being driven into the meninges or the brain itself.

Compound Fractures of the Vault

Like compound fractures elsewhere in the body, these require urgent treatment with the object of preventing or at least minimizing the ravages of infection. They should therefore be operated upon as soon as possible and a surgical toilet of the wound effected. This involves the excision of damaged tissue and the exploration of the fracture, for which purpose the bone must be opened at the fracture site, if necessary by using a perforator and burr or a small trephine. If the dura is undamaged and clean, removal of bone need not proceed beyond this, but

if debris and foreign bodies are found within the skull and if dura and brain have been torn and contused a wider removal of bone is necessary, with further excision of damaged tissue. Hot saline should be used throughout, and bleeding vessels underlaid with fine catgut passed on a small curved needle or secured with silver clips. Drainage of the wound by small rubber or glass tubes is then instituted and the scalp wound closed with interrupted silkworm-gut sutures. As a rule the drains may be removed at the end of forty-eight hours and the scalp sutures on the eighth day.

It is important to open up and explore the fracture, because otherwise it cannot be ascertained how much, if any, damage has been done to the brain and its meninges at the site of fracture. Sometimes a surprising amount of road dirt is found within the skull, lying beneath the crack in the bone. This dirt has been left in the skull, which has burst open on striking the road and, as it closed, retained some of the material with which it has been in contact. Fragments of bone are sometimes deeply driven into the brain, and these require carefully removing with sequester forceps. A suction apparatus is useful in assisting the removal of intracerebral foreign bodies. In all cases of compound fractures of the vault and in grossly contaminated scalp wounds 1,000 international units of antitetanus serum should be given intramuscularly, whatever the age of the patient.

Gunshot Wounds

The principles underlying the treatment of gunshot wounds of the scalp and skull are similar to those which we have considered in the case of the more common lesions produced by street accidents and blows. Treatment for gunshot injuries is along lines similar to those already discussed. The removal of a bullet, a piece of shrapnel, or a number of shot may be difficult if the foreign body is deeply placed and not at first readily accessible, and rather than inflict undue damage on cerebral structures it may on rare occasions be advisable to leave it in place.

Depressed Fractures

All depressed fractures should be elevated, but if these are simple fractures there is rarely any indication for urgency; time may therefore be chosen when the patient's condition permits intervention. The area of depression is exposed by an appropriate scalp incision and the fragments levered into place: this may require a small opening in the bone, and the dura should be inspected for evidence of damage. Some textbooks state that certain depressed fractures may be left unraised; but in order to safeguard the patient from possibly unpleasant results that may follow it is inadvisable to leave his intracranial space diminished through encroachment by the depressed fragments, and the restoration of the contour of the skull is desirable. The wound made for the purpose of elevating the fragments when the fracture is a simple one should be closed in layers, using fine interrupted silk sutures for the epicranial aponeurosis and waxed thread or fine silkworm-gut for the skin.

Haematoma of the Scalp

A haematoma forms readily in the scalp but rarely requires any active treatment, the effused blood absorbing in the course of time; but because the central soft fluid part of the haematoma when palpated gives to the examining finger a sense of subsidence here, a depressed fracture is sometimes diagnosed. As a rule when there is any doubt a depressed fracture is not present.

psychosis was found in the families of patients with consanguineous parents: it is conceivable that the carriers of recessive defects tend to develop psychosis more frequently than other people."

Parental Intelligence and Size of Sibship

As to maternal age and the closely associated topic of birth order, their importance in relation to mongolism is naturally brought out, and they are discussed with regard to other conditions. In the investigation of sex differences no reliable evidence of sex-linked inheritance was found. The relation of parental intelligence to the size of sibship is a matter of great interest and importance, and it was studied both in the patient's own generation and also in the preceding generation.

"It appeared that in both generations the most fertile parental pairs were those whose average mental ability was subnormal—that is to say, dull parents had the largest families. Mentally defective parents and grandparents had fewer children than dull parents, but the lowest fertility seemed to be among parents of superior grade. This tendency of the less intelligent parents to have more children was partly counteracted by the high infant mortality in these families. The children of those parents in whom psychopathic tendency took the form of alcoholism were exceptionally numerous. Incidentally, alcoholic parents were very frequently dull, but their children were no more likely to be defective than children of non-alcoholic parents of similar grade, and idiots were rarer among their offspring than in the average sibship ascertained."

Some General Conclusions

General conclusions are set out not only in the final section of Dr. Penrose's report but also in the preface of the Medical Research Council and in the author's own introductory chapter. Some of them may be thus quoted:

"It is clear that there is no cleft between normal-mindedness and feeble-mindedness. Intelligence, like stature, is graded, and the distribution of intelligence throughout the community is continuous. Any study of mental defect must accordingly take into account the gradations of mental ability which are formed both among the patients themselves and among their relatives."

"Familial incidence of defect is specific to the grade of the patient. . . . There is a tendency for the intelligence of the children to resemble the mean grade of the parents."

"The highest fertility is associated with a parental intelligence which is on the borderline of mental defect as it is generally understood: as the mental grade of parent diminishes below this point fertility also diminishes."

"Some evidence has been brought forward in this survey that some severe cases of defect which appear to have recessive determination are due to genes which underlie milder conditions in heterozygous relatives."

"The probable existence of environmental causes of mental defect has been demonstrated in cases of mongolism, congenital syphilis, trauma, and encephalitis. Such causes as raised maternal age, trauma, and infection, which are easily recognized in outstanding cases, may function in a milder degree in other cases. In patients with particular diseases (mongolism, acrocephaly, congenital syphilis) there was evidence both of environmental and genetic aetiology of mental defect. Moreover, in borderline cases physical or mental diseases—for example, encephalitis lethargica, epilepsy—may easily convert an intellect which was potentially within normal limits to a level which corresponds to certifiable defect. It has never seemed at all probable that a single cause could account for all mental deficiency in the same way that the *Spirochaeta pallida* accounts for all syphilis. The aetiology of mental defect is multiple, and a facile classification of patients in the series into primary or secondary, endogenous or exogenous, cases would have only led to a fictitious simplification of the real problems inherent in the data."

MEDICAL RESEARCH COUNCIL

REPORT FOR 1936-7

The first part of this notice of the annual report of the Medical Research Council for the year 1936-7¹ was published last week at p. 625.

Hormones

The chemistry and interrelationships of the various hormones produced in the body by the endocrine or "ductless" glands are being actively investigated by a number of research workers, and references to this subject are scattered over many parts of the report. There has been an increasing tendency in recent years to regard the anterior lobe of the pituitary gland as the control centre of the whole endocrine system, and the fact that its removal causes atrophy of gonads, adrenals, and thyroid gland, with resulting secondary changes in the accessory reproductive organs and in blood chemistry, metabolism, and growth, gives support to this view. The Hormones Committee of the Council, presided over by Sir Henry Dale, has instituted a large-scale inquiry into the hormone content of the blood and urine of the human subject in health and disease. The scheme falls into four parts: (1) the investigation of methods for preparing active concentrations of the hormones from body fluids; (2) chemical and biological measurements of the active substances; (3) study of the variations in the amounts present in the blood and urine of normal subjects; and (4) assessment of the clinical significance of variations clearly beyond the normal limits.

Many features of the endocrine system have been investigated during the past year by workers with grants from the Council. The problem of the combined androgenic and gynaecogenic properties of "male" and "female" hormones has been extensively studied at the Lister Institute, and from this work it is concluded that, with the exception of progesterone, all the known sex hormones, as well as their most active derivatives, stimulate the development of the reproductive organs of both sexes, although in most cases they act on the male and female organs in different degrees. A new classification of the sex hormones has been suggested on this basis.

In the Council's own laboratories at the National Institute some attention has been paid to a study of the specificity of anti-gonadotropic sera. It has been found that an antiserum to the gonadotropic substances from human pregnancy urine will completely inhibit the gonadotropic activity, in young rats, of extracts from the human anterior pituitary lobe. As there is no difficulty in preparing and purifying an anti-gonadotropic serum of this nature, it is believed that it may find clinical applications. One unexpected finding in the work done on the hormone content of human materials is the excretion by ovariectomized women of male hormone in amounts not recognizably below the normal. Some cases of female hirsutism and virilism have shown a high level of androgen excretion, probably attributable to the suprarenal cortex. Some work has been done on pineal tissue, a large amount of which has been obtained with the aid of a sum of money made available to the Council from a private source. Detailed examination of this has so far failed to demonstrate any hormone activity on mammals. At Oxford University some further work has been done on the physiology of the menstrual cycle and on the endocrinology of the prostate gland. It has been shown that the menstrual cycle is associated with rhythmic changes, not only in water metabolism and in the concentration of the blood but also in the sensitivity of the uterus to oestrogenic agents.

Vitamin Research

No very outstanding advance has taken place in vitamin research during the year, but the subject has been pursued

¹ Report of Medical Research Council for the Year 1936-7. Cmd. 5671. H.M. Stationery Office. Price 3s. net.

of those which may be regarded as having scientific value. Yet throughout this period of time, even in some circles which would claim to be scientific—to say nothing of a wider public more or less interested in social questions—there has been but little diminution of that uninformed and facile thought, talk, and writing which was so prevalent at its beginning. Even to-day there is a demand for drastic action with regard to mentally defective persons based upon contentions which successive investigations are showing to be false, and upon naïve explanations of facts which research shows to be far from simple. The wisdom of waiting for more definite and certain knowledge is not the least important of the lessons to be derived from the special report now under review.

Plan and Scope of the Research

It has to be realized that so extensive a piece of research as that described by Dr. Penrose suffers from certain limitations. All the cases inquired into were institutional; there was no corresponding control investigation into a similar number of cases of normal persons, or even of persons of dull or defective intelligence living in the general community; data compiled from families selected because of the presence of abnormal offspring exaggerate certain results. Dr. Penrose, of course, recognizes this, and indeed is throughout very careful in stating his facts and conclusions and in drawing attention to circumstances that may affect their validity.

The report, after some preliminary observations, first sets out a description of the material investigated, and points out that although the 1,280 patients in the series were all certified mentally defective they did not form a homogeneous group. They came to the institution from various sources, and differed in sex, in age, in grade of defect, in social status, and as to home conditions. All these factors are given due consideration throughout. The three principal chapters of the report deal with the methods and results of investigation of family history, with a clinical analysis of the cases, and with the analysis of certain specific factors—familial incidence, parental consanguinity, maternal age and birth order, twins, and some others. The main text of the report occupies sixty-three pages, including no fewer than fifty-two statistical tables.

Investigation of Family Histories

The family of every case was visited on the average two or three times by members of the research staff. Facts were ascertained about the parents, sibs, and the patient's own children, and, wherever possible, about the more distant relatives. Miscarriages and stillbirths in the sibships were noted. Moreover, an attempt was made to assess the mental capacity of each relative. Obviously the sources of error in such assessment are great, and numerical results can be taken as approximate only; but the great care manifested, the detailed methods adopted, and the large number of individuals examined are alike noteworthy, and may certainly be regarded as having reduced the unavoidable margin of error to a minimum. The parents numbered 2,560; 7.6 per cent. of the parents were mentally defective, and the grade of the mothers was lower than that of the fathers. The number of grandparents was 5,114, but the mentality of one-quarter of these was not known. Of those whose mentality could be rated 0.7 per cent. were judged to be mentally defective and some 2 per cent. dull. These percentages do not differ from those to be expected in the general population.

The number of more distant relatives who were investigated appears to have been of the order of 20,000, and the results as regards those in whose cases a mental assessment could be made tend to confirm conclusions derived from the study of the more nearly related group. The commentary made in the report is as follows:

"The family history investigation has so far demonstrated certain results. The incidence of defect among parents and sibs of patients has been estimated to be of the order of 7 to 9 per cent. The incidence in patients' own children is much higher than this, but the incidence of defect among more distant relatives is considerably less. The results apply equally to both sexes for most groups of relatives, but a great many more defective mothers than fathers were found. Since no significant difference in this respect was observed for parents of male and female patients, and since defective grandparents showed little sex difference, the excess of defective mothers probably does not represent a genetic phenomenon but is largely due to a peculiarity in the selection of cases. . . . When patients were separated into groups of comparable mental grade defect was seen to be more common among relatives of mild cases than of idiots. Further, a correspondence was demonstrated between the grade of defect in the patient and the grade of defect discovered in the family: idiots, for example, though less likely to have defective relatives than simpletons, were more likely to have relatives who were idiots. Superior ability was twice as frequent among relatives of idiots as among relatives of other patients, and idiocy three times as frequent. The absolute incidence of defect varied directly with the degree of relationship."

Clinical Analysis

The clinical analysis of the cases is discussed under the headings of mongolism (63 cases), endocrine dystrophies (88 cases), congenital syphilis (50 cases), neurological abnormality (128 cases), skeletal abnormalities (142 cases), miscellaneous physical abnormalities, including deaf-mutism and eye affections (87 cases), epilepsy (210 cases), psychopathy (204 cases), and an important residual group. Neurological cases include cerebral inflammation (21 cases), cerebral trauma (23 cases), pre-natal diplegia (66 cases), and hemiplegia (11 cases). The residual group consisted of 308 patients. Their families differed in some important respects from the families of other types. The occupational status of the fathers and the home conditions were much below the general average of all types except congenital syphilis. Parents of normal mental grade were much fewer, and the proportion of defective and dull sibs was much higher. The facts suggest that hereditary causative factors have a greater degree of dominance in this group than in the clinical groups.

In regard to the analysis of special factors some important observations are made. As to specific familial incidence we are reminded that concentration of disease in a family can be produced by adverse environmental factors common to members of the family group as well as by hereditary influences. There were forty-five cases of parental consanguinity. The offspring of these showed a large proportion of idiots, of patients with cranial abnormalities, and of epileptics and diplegic patients.

"Analysis of the mental grades of parents and sibs demonstrated that consanguineous parents were very frequently dull: sibs also showed this peculiarity, and, in addition to this, idiot sibs were unusually common. There were more miscarriages and deaths in infancy among the sibs where parents were consanguineous than among the sibs of the average patient. These observations suggest that a number of cases of idiocy are due to rare recessive genes but that these genes are not perfectly recessive: in some families the heterozygotes, or carriers, are mentally dull. A rather high incidence of

system of nerves and its reactions were embodied in his Hume Lectures, published in the *British Medical Journal* early in 1937.

Research on the action of ultra-short high-frequency waves has been continued at the London Hospital and elsewhere. The work has been concerned with the high-frequency conductivity of different tissues in relation to selective heating. Grantees have also been working on the biological action of x rays and gamma rays, and the work has brought out the extraordinary variation which living cells display as regards susceptibility to radiation.

At the British Postgraduate Medical School one worker, with the aid of a grant towards expenses, has been investigating the causes and treatment of haemorrhage, with special reference to haemophilia and purpura. His conclusion is that contraction of the injured capillary blood vessels is probably the first stage in the physiological arrest of bleeding. During this stage firm coagulation of the escaped blood can take place, and the clot so produced prevents further haemorrhage when the vessels subsequently dilate. The haemostatic action of Russell's viper venom has been found by other workers to be greatly accelerated by adding small quantities of tissue extract or lecithin.

From the Bernhard Baron Institute at the London Hospital is reported a study of the ultimate distribution in brain tissue of injected thorium dioxide (thorotrast), frequently used as a diagnostic agent for mapping out the cerebral arteries. It is commonly believed to be harmless, but clinical and histological findings indicate that even the small volumes ordinarily given may cause distressing symptoms from blockage of capillaries and small veins in the neighbourhood of the compressing tumour, abscess, or haemorrhage. Another neurological investigation concerns the pathological changes in the nervous system in so-called haemorrhagic encephalitis, a rare sequel to arsenamine medication for syphilis. These were found to include widespread areas of necrosis as well as of haemorrhage around the minute blood vessels of the brain.

Finally, almost as light relief, a reference may be made to the statistical work of the Council, which is directed by a committee serving also the Ministry of Health in this special field. An analysis of the sickness experience of London transport workers was completed and published during the year, and other inquiries have been into the changes in the birth rate during the last half century and into the death rate in certain urban areas. There is indeed scarcely anything of interest to medicine or to medical sociology which the Council leaves untouched.

HEALTH OF TASMANIA

The report for 1936 of the Director of Public Health, Tasmania, states that an increasing number of local health inspectors are qualifying for the certificate of the Royal Sanitary Institute. It is hoped that ultimately none but qualified officers will be employed by local bodies. With regard to infectious diseases the report records 573 cases of diphtheria with twenty deaths during the year. Immunization was practised in only a few municipal districts. There were 478 cases of scarlet fever, compared with 302 in 1935. The cases were generally of a mild type, and there were only six deaths. Acute anterior poliomyelitis was absent during the year under review. Two nurses were sent to Brisbane to study Sister Kenny's method of treatment of paralysis. It is stated that these nurses will subsequently be attached to a public hospital for two years, where it is proposed to establish a special clinic for the treatment of infantile paralysis. A most gratifying increase is recorded in the activities of the Bush Nursing Centres, which are of special importance in districts remote from medical aid; 9,083 patients visited the bush nurses during the year, compared with 5,735 in 1935; nurses paid 8,866 visits to patients, compared with 7,634 in 1935. Unfortunately there is great difficulty in securing enough suitable applicants for posts under the Bush Nursing scheme.

THE PLACE OF THE HEALTH RESORT IN SURGERY

CONFERENCE AT HASTINGS

Another successful conference organized by the British Health Resorts Association took place at Hastings during the last week-end. It was attended by a select company of medical men from London and elsewhere and by others interested in the development of health resorts. Hastings fully maintained its reputation for hospitality, and the Mayor (Councillor E. M. Ford), who met the guests on the evening of their arrival and presided over the first session of the conference, mentioned that Hastings was among the first and had remained one of the most constant friends of the association. This was the association's second visit to the town; its first was in 1932, soon after the movement was started. The clear sky and warm sun made it possible to hold one of the principal sessions of the conference—for the discussion of the place of the health resort in surgery, pre-operative and post-operative—entirely in the open—a tribute to the English climate, and that of the south coast in particular, that such a thing should be possible in mid-March.

The discussion on the place of the health resort in surgery was presided over by Dr. NORMAN GRELLIER, chairman of the Hastings Division of the British Medical Association. It was opened by Mr. W. McADAM ECCLES, consulting surgeon to St. Bartholomew's Hospital, who emphasized in particular the value of the health resort in pre-operative treatment. The public well understood convalescence after operation, but it was as yet hardly aware of the desirable "building up" beforehand, which could be carried out most successfully at the seaside or at a spa. He suggested that some rich benefactor might establish—why not at Hastings?—a preparation home wherein during a year some hundreds of people from London or elsewhere for whom an operation was in prospect might be made fitter, under skilled medical observation, to undergo their ordeal. Mr. Eccles also urged that surgeons, before their patients went to a health resort to recuperate after an operation, should write out their "marching orders," stating exactly what they should and should not do in the way of exercise, bathing, and games. This was a great help to the patient himself, to any doctor or nurse under whose care he might be at the health resort, and, by no means least, to relatives and friends, who sometimes had the most fantastic ideas as to what was right or wrong in these circumstances.

In discussing graduated exercises for the patient recovering from an operation Mr. Eccles recommended putting the golf ball. All health resorts, he said, should have well-laid-out putting greens, surrounded by cheerful flower beds. Croquet also was an excellent pastime for those recovering tone after operation. Bowls was a little further advanced in the scale of graduated exercise. If the patient was having his convalescence in really warm weather seawater bathing was not contraindicated, provided that the length of stay in the water was not too long and the reaction afterwards was good.

Building up a Patient's Reserves

Mr. ZACHARY COPE, surgeon to St. Mary's Hospital, who continued the discussion, also stressed the value of a period of rest at a health resort before operation. The patient who had to undergo a gastric or renal operation, for example, had already gone through a long period of ill-health. Nearly all the viscera had large reserves of function which could be drawn upon in an emergency, but the patient for whom an operation was in prospect had lost his reserve. A stay at a health resort might avail to build up that reserve and so carry him through the emergency. Change of air, bodily rest, freedom from business, and careful dieting were all of special value in this connexion. He spoke particularly of the operation,

in many laboratories. Some work has been done at the Lister Institute on the enhancement of the antiscorbutic potency of canned vegetables and fruits containing vitamin C and the conferment of this activity on products not originally potent by adding synthetic ascorbic acid before processing. Apples have been tested twenty-one months after canning and no perceptible loss in antiscorbutic activity during storage at ordinary temperature was recorded. Attempts are being made to increase the potency of canned peeled apples by adding to them extracts of the peel of the fruit, which contains very much more vitamin C than the remaining portion.

Some other work carried out at the Dunn Nutritional Laboratory, Cambridge, on vitamin C reserves in infective diseases supports the view that infective diseases bring about an increased use of vitamins and a corresponding depletion of the body reserves. The influence of vitamin B₁ on gastric secretion in pregnancy has been studied at the Royal Free Hospital, but the work suggests that the acid content of the stomach varies with the season of the year rather than with the duration of the pregnancy.

An inquiry has been made into the richness of wheat and bread in the various factors which used collectively to be known as vitamin B. The work, done at the Lister Institute, has shown wholemeal flour and bread to be much richer in all the factors than the white flour and bread examined, though the latter were richer in vitamin B₁ than had been expected. All the flours and breads were deficient in lactoflavin, but the wholemeal was superior in this respect to the white. At University College, London, researches have been made into the chemical nature of vitamin E, which is thought to have a constitution similar to some of the polycyclic structures found in the sex hormones and sterols. Attempts have been made to determine the fate of vitamin A when it disappears under certain conditions from the liver, where it is normally stored. There are signs that it may be excreted in urine as a breakdown product with glycuronic acid.

Mental Defect and Disease

The relatively small amount of research in this field supported by the Council is due to the comparative lack of appeal which this difficult branch of research makes to investigators. There are so many environmental and hereditary factors at work, each demanding isolation and close consideration. An inquiry into the causation of mental defect has been undertaken, in co-operation with the Darwin Trust, at the Royal Eastern Counties Institution, Colchester. Defect has been found to be more common among parents and other relatives of simpletons than among those of idiots, although the mental defect occurring in the families of idiots is more likely to be idiocy than that of the simpleton grade. The relation of parental intelligence to the number of offspring has been examined, and it appears that the most fertile parental pairs are those whose average mental ability is subnormal; the effect of this is partly counteracted, however, by the high infant mortality in these families. Mentally defective parents in this investigation were shown to have fewer children than merely dull parents, but the lowest fertility was among the parents of superior grade. Alcoholic parents were very frequently dull, but their children were found no more likely to be defective than children of non-alcoholic parents of similar mental grade.

At Maudsley Hospital a large-scale inquiry has taken place into the incidence of different types of mental disorder among twins. An account of the findings is being prepared for publication. The Council is also collecting records from a number of London and provincial hospitals for a statistical inquiry into the incidence of consanguineous parentage among patients suffering from different conditions (not necessarily mental, of course). Owing to the infrequency of consanguineous marriages very large total numbers are required to show whether particular diseases have a high incidence among the offspring.

Tropical Diseases

A further account is given of a prolonged investigation at the National Institute upon the group of micro-organisms classified as vibrios, which include the "comma" bacillus, postulated as the causal organism of Asiatic cholera. Exact knowledge has been wanting, however, as to the possible existence of other vibrios able to produce cholera. A step has been taken towards the improvement of the diagnostic agglutination test for the "comma" bacillus. The validity of the conclusions reached in English laboratories is being tested by extensive investigation in the field, with the use of reasonably uniform reagents, and there is now hope of an early solution of important outstanding problems in the bacteriology of cholera and in the diagnosis of infection due to it, including the recognition of carriers.

A reference is made to the experimental study of leprosy. Some work has been done at the farm laboratories of the National Institute on the transmission of the bacillus of rat leprosy to Syrian hamsters, small rodents which have become objects of medical study because of their susceptibility to certain other infections. A successful attempt has been made to transmit the organism of human leprosy to these animals, and should further work confirm the early results it will provide the basis of a new attack on the problem of leprosy in man, and in particular it will make possible the experimental study of leprosy by chemotherapeutic methods.

The chemotherapy of malaria has been the special study of the unit for research on malaria at the London School of Hygiene and Tropical Medicine, working in association with the Ministry of Health centre for malaria therapy at Horton. Particular attention has been given to the inhibitory effects of quinine and other drugs upon the respiratory metabolism of isolated malaria parasite substance obtained from infected monkeys. Observations on the chemical dissociation of quinine and atabrin in the body and on the inhibitory action of anti-malarial drugs on body lipases have been published.

An attempt is being made at the Wellcome Bureau of Scientific Research to improve the method of vaccination against yellow fever, and some progress is recorded. The problem of pellagra in Egypt is under investigation by a grantee of the Council. A clinical investigation of over 200 inhabitants in villages of the Nile delta showed 34 per cent. to be suffering from this condition. The general conclusion is reached that pellagra in Egypt results from two concomitant but independent factors—namely, malabsorption due to parasitic infection of the intestines and malnutrition due to a diet insufficient in vitamin B₃ complex. Elsewhere some work is recorded which suggests that nicotinic acid may prove to be an effective preventive and curative agent in pellagra, possibly the elusive pellagra-preventing factor for which scientists have been searching for many years.

Various Work

A few other examples of work supported by the Council can be no more than mentioned. Reference is made in the report to the Lambeth cardiovascular clinic, where experimental studies of the heart have been made and the new grafting operation (cardio-omentopexy) has been carried out by Mr. Laurence O'Shaughnessy in certain cases. The comment is made that this work merits attention, perhaps not so much for its practical importance—though that is by no means negligible—but rather because it illustrates the development of a technique along systematic experimental lines and also provides a method for studying the diseased heart under normal conditions.

The report from one of the clinical research units supported by the Council—namely, that of University College Hospital—is largely occupied with the observations of the director of the unit, Sir Thomas Lewis, on cutaneous hyperalgesia and the sensory response to painful stimuli. Sir Thomas Lewis's observations on the "nocifensor"

Hastings, he continued, had been one of the first places to be visited, and had always loyally supported them. The motto of the B.H.R.A. might be "Co-operation," and this was what they had achieved with the great medical bodies. Sir Stanley then announced that the B.H.R.A. was going in the future to be entirely responsible for the publication of the official handbook. "The County Borough of Hastings" was proposed by Mr. H. L. Attwater, and Mr. M. Hely-Hutchinson, M.P., in response, reminded those present that in all cities the mortality rate was the same—namely, one per person.

On Sunday morning the party was taken by bus to visit the magnificent outdoor bathing pool, Alexandra Park, and St. Clement's Caves, while some were wise enough to take the opportunity of sun-bathing in what is said to be the highest outdoor temperature for this time of the year for ninety years.

MEDICAL LECTURES ON FITNESS

At the request of the Board of Education the British Medical Association has arranged a series of lectures, designed to bring out the medical aspects of fitness measures, which will form an important part of the special programme planned by the Board in co-operation with the National Fitness Council for the Ideal Home Exhibition at Olympia, London, from April 5 to 30. The lectures will be given daily in the fitness section of the Exhibition at 3.15 p.m., with the exception of the Easter holiday period. The following are the lectures which have been arranged:

Date	Subject	Lecturer
April 5	Opening Lecture: Why Education of the Body is Necessary	Introductory remarks by the Chairman, Viscount Dawson of Penn, followed by Capt. S. J. Parker, of the Board of Education
" 6	Nutrition, Food, and Fitness	Major-General Sir Robert McCarrison
" 7	Common-Sense Cooking	Dr. E. H. T. Nash
" 8	The Doctor and National Fitness	Sir Henry Brackenbury
" 9	Safe Motherhood	Dame Louise Mellroy
" 11	Building Healthy Children	Dr. C. K. J. Hamilton
" 12	Fitness and the National Educational System	Dr. E. J. Boome
" 13	Physical Education at Public Schools	Sir Kaye Le Fleming
" 14	The Use and Abuse of Athletics	Dr. Adolphe Abrahams
" 19	Fitness and the Industrial Worker	Dr. L. P. Lockhart
" 20	Fitness and Eugenics	Sir Farquhar Buzzard
" 21	Mental Fitness	Dr. J. R. Rees
" 22	Fitness to Prevent Tuberculosis	Dr. J. H. Harley Williams
" 23	The Dangers of Slimming	Sir Edmund Spriggs
" 25	Sunlight and Seabathing	Sir Henry Gauvain
" 26	The Treasure of Your Eyes	Dr. H. Campbell Orr
" 27	The Prevention of Infection	Dr. Andrew Topping
" 28	Health and Your Local Authority	Dr. W. G. Willoughby
" 29	The Family Doctor and Fitness	Dr. Alfred Cox
" 30	"Summing Up"	Sir Charles Wilson

Dr. Victor E. Levine, professor of biological chemistry and nutrition at the Creighton University School of Medicine, has constructed a laboratory at Point Barrow which is equipped with all the latest apparatus for carrying on medical and biological research in the Arctic.

Reports of Societies

URÆMIA

At a meeting of the Medical Society of London on March 14, with Mr. J. E. H. ROBERTS in the chair, a discussion took place on uraemia.

Medical Aspects

Dr. T. IZOD BENNETT defined uraemia as a physical disturbance resulting from renal failure of severe degree. He chose the words carefully because it was possible to have renal failure of rather severe degree without uraemia, and for recovery from quite severe renal failure to take place without uraemia occurring. The word "uraemia" implied a clinical condition, and they were not justified in using the term merely because renal failure had progressed to a point at which there were demonstrable chemical changes in the blood; there must be symptoms as well. On the other hand, it was equally important to recognize that uraemia could not appear without demonstrable changes in the blood chemistry, the principal change being an increase in the blood urea. He showed diagrammatically the main chemical changes present in uraemia—the great increase in blood urea, the diminution in the amount of calcium in the blood, the increase in phosphorus, and very often the considerable diminution in the alkali reserve. These chemical changes could be related very closely to the various clinical phenomena which constituted the syndrome. These consisted mainly in gastro-intestinal disturbance, very largely in the form of slight, going on to severe, vomiting, sometimes with diarrhoea; drowsiness, proceeding to the type of coma which was the terminal event; neuro-muscular excitability, sometimes proceeding to actual tetany and fits; and certain respiratory phenomena—either increased pulmonary ventilation or the hissing respiration of the classical type. The drowsiness and coma ran very closely parallel with the increase in the blood nitrogen, so that it was difficult to escape the conclusion that they were a direct effect of urea intoxication. The gastro-intestinal symptoms were almost certainly the result of a backward passage of the blood into the alimentary canal.

It was sometimes asked how it could happen that cases occurred with notably high blood urea but without the clinical manifestations of uraemia. If nitrogen retention was sufficiently slow and insidious in its increase it might reach an extreme degree before any great disturbance was produced; the same applied to alkalosis. It merely illustrated the very important physiological axiom that symptoms due to chemical changes in the blood manifested themselves in proportion to the abruptness of the change rather than to the mere degree of the change. For example, the chronic alcoholic was seldom drunk, and the drug addict often exhibited few obvious symptoms. As to the causes of uraemia, it was clear that anything which could precipitate renal failure of severe degree would tend to produce that condition. There was a multiplicity of possible causes, and apart from those which were purely medical there were such things as nervous shock, and it must be remembered that surgery, with all the brilliant results it had brought about in the prevention of uraemia in cases such as those of prostatic obstruction, had occasionally been responsible for the precipitation of uraemia owing to the reflex effects of passing instruments in the lower urinary tract.

Surgical Aspects

Mr. A. DICKSON WRIGHT said that uraemia came into the province of the surgeon in two ways: first in diagnosis, and secondly as a condition which he was sometimes called upon to treat owing to some obstruction of urinary outflow. Uraemia might be the result of long-standing urinary obstruction and produce unusual signs and

in debilitated subjects, which was done in two stages. After the first and relatively minor operation there was an immediate improvement, and an inexperienced surgeon might believe that the second stage could be proceeded with at once. Even laboratory tests might bear out that conclusion, but they never gave the true reserve of the patient. The recovery was sufficient for normal activities but not for emergency demands. If between the two stages of the operation the patient was sent away to a suitable health resort for a few weeks, or even, if possible, months, the chances of a successful issue were greatly increased.

After a serious operation it was also wise, if not absolutely necessary, for the patient to stay at a health resort. From the mental as well as the physical point of view it had a part to play in the rehabilitation of the surgical patient. There were patients so insensitive to the discomforts of operation that they did not appear psychologically to be much affected by the experience, but to the majority of people an operation was a matter for anxiety, and in addition to the physical strain there was a severe mental reaction. The patient who was mentally depressed after operation usually soon recovered, but in older people there often remained slight mental instability for some days or weeks. The fact that only in a few cases did actual alienation occur should not blind us to the mental strain undergone. To combat this nothing was better than a holiday in a health resort with complete change of surroundings.

As to the type of health resort suitable for surgical patients, much depended on the condition from which they had been suffering. Patients with tuberculous glands were often recommended the east coast, and for many conditions inland spas had advantages. But he thought that on the whole the south coast possessed all the essential and many specially appropriate features for the recuperation of the patient. The abundant sunshine, the richness in ultra-violet rays, and the gentle hills whereon the purifying effect of the south-westerly breezes could be fully experienced, combined to make the southern seaboard ideal.

How the Health Resort may Play its Part

Dr. G. R. BRUCE, Medical Officer of Health for Hastings, discussed the means at the health resort whereby patients might be helped to withstand the effects of an operation. He spoke particularly of what the health resorts could do to help in both the treatment and prophylaxis of surgical tuberculosis, and mentioned the work of Alton on Hayling Island, the Bishopstone Seaside Home of the Chailey Héritage, the Margate Sea-bathing Hospital, and, at Hastings, the Shaftesbury Home. Medical men who sent their patients to seaside resorts for convalescence would naturally desire them to be under the general medical care of colleagues whom they knew personally and in whom they had confidence. To ensure this friendly professional association it was important to have in the health resort a flourishing medical society combined with an active B.M.A. Division, where physicians and surgeons and various specialists could come in turn to talk. Practitioners in health resorts should take every opportunity of attending postgraduate courses in London or elsewhere and in other ways meeting consultants in their own territory.

Private nursing homes and convalescent homes were of some importance in relation to this subject. Since the Nursing Homes Registration Act, 1927, he had noted a progressive improvement in the private nursing homes of Hastings, and as regards convalescent homes there were in the town 700 or 800 beds in homes of many types. He suggested that the British Health Resorts Association might consider the compilation of a list of private nursing and convalescent homes, with particulars as to type, cost, and nursing facilities, in health resorts and spas. Many patients of course should be able to go to a hotel or

boarding-house, with a quiet but cheerful room, a modern bed, and a suitable diet. It would be an advantage at hotels at health resorts if the chef or his assistant had some of the training which the hospital dietitian now possessed.

Amenities of Health Resorts

Another session of the conference was devoted to the subject of horticulture at the health resort. Lieutenant-Colonel W. BYAM, chairman of the Medical Advisory Committee of the British Health Resorts Association, urged health resorts to cultivate horticultural individuality. The railway station of a health resort, as of most other places, gave a very unpleasing first impression. Why should not the railway square be made attractive, with a fountain, symbolical of healing waters, in the midst? It was important also at seaside places, for invalids especially, to have abundant stretches of green, a refuge from the prevailing glare. Mr. EDWARD WHITE, past president of the Institute of Landscape Architects, mentioned, among other things, the too prominent cemetery, sometimes on the hillside monopolizing the aspect, and without even the boundary planting which so carefully concealed the public parks from outside view. He said that if English people would only overcome their prejudice against cremation a great civic difficulty would be solved, and it would be easy to make beautiful gardens for the ashes without the depressing attributes of a cemetery.

Other points in the discussion related to the possibility of banishing railings from public gardens and giving some beauty to boundary hedges. A borough surveyor pointed out that it was easy to suggest that roads be tree-lined, and on a superficial aspect an urban road might appear to allow plenty of room for trees, but in fact the multitude of electric and telephone cables and gas and water mains under the road surface often made it impossible to root a tree.

The Amenities of Hastings

A visit was paid to a notable recent possession of Hastings, the White Rock Baths on the front, a very pleasing architectural construction and of surprising extent. The interior decoration is in terrazzo work, and the general colour scheme green, blue, and primrose. There are comfortable waiting rooms and rest rooms. The range of medical baths includes hot sea-water, seaweed baths, with nascent iodine, foam bath, peat bath, sulphur bath, and a spray room where hot and cold sea water at the proper pressure is available in the Aix, Vichy, and Scotch douches. The treatment is carried out by attendants holding the general certificate of the Chartered Society for Massage and Medical Gymnastics, with special experience in medical hydrology. It is claimed for the Turkish baths that they are among the finest in England, the bather proceeding from room to room and from temperature to temperature almost on the conveyor system, reaching finally the sea-water plunge. A large swimming-bath, 165 feet long, adjoins the medical bathing establishment; here the water is continuously filtered and circulated and the air brought to any required temperature. A visit was also paid to the new bathing pool, another example of the way in which modern Hastings has developed its natural advantages. The combination of spa facilities with south coast air and sunshine should be of benefit to many patients.

Official Banquet

On Saturday evening a large company sat down to a banquet as guests of the Mayor and Corporation of Hastings. After the Mayor, Councillor E. M. Ford, J.P., had welcomed the guests Sir Stanley Woodwork reminded those present of the short history of the British Health Resorts Association, which had started as the result of a letter written by the late Colonel Elliot to the *Times*. Since then, he said, the B.H.R.A. had been most happy under the energetic leadership of Dr. Alfred Cox.

manometer, the ophthalmoscope, and the urinometer. Little has been said about the importance of the study of the specific gravity of the urine, but this was very necessary in all cases where the question of renal failure presented itself. In early renal failure polyuria was almost invariably seen with urine of a low specific gravity. It was particularly when his surgical colleagues were called upon to operate in those cases which did not show any increase in blood urea but a free secretion, that they would get the benefit of the infusion of saline to which Mr. Dickson Wright had referred. He agreed with Dr. Jenner Hoskin that if hypertension prevailed great benefit was often afforded by venesection. In a case of impending uraemia without hypertension they would all agree that venesection was to be avoided.

ANTERIOR POLIOMYELITIS

A joint meeting of the Manchester Medical Society and the Liverpool Medical Institution was held at Manchester on March 2, with Professor W. FLETCHER SHAW in the chair. Dr. R. W. BROOKFIELD read a paper on infantile paralysis from the medical aspect.

Dr. Brookfield described the mode of infection and the spread of the virus in the nervous system, and also the symptoms of invasion of the disease. He stressed the importance of early diagnosis in the preparalytic stage if any beneficial effect was to be achieved by specific treatment. The ascending type closely resembled Landry's paralysis; in the early stages distinction was often only possible by finding the excess of cerebrospinal fluid protein without increase in cells which was characteristic of the latter condition. The encephalitic type of the disease, though producing such manifestations of cerebral involvement as stupor, delirium, or convulsions in the acute phase, did not lead to gross spastic paralysis. The lesions found at necropsy in acute cases and the results of experiments with monkeys did not support such a view, and spastic paralysis following an acute illness was almost certainly due to cerebral inflammation of a different aetiology. The need for examination of the cerebrospinal fluid in every suspected case was stressed: a normal fluid did not negative a diagnosis of poliomyelitis. Increased pressure, slightly increased protein, a moderate increase in the cells, and a leucocytosis curve were the main positive findings.

Treatment and Prophylaxis

In treatment lumbar puncture was of value, but there was still a division of opinion as to the usefulness of specific treatment with intramuscular or intrathecal convalescent serum. Many clinicians had been favourably impressed with the results of giving serum in the preparalytic stages in earlier epidemics, but the securing of adequate controls had proved difficult, and so a phase of scepticism had succeeded the initial enthusiasm. Despite some discouraging reports few would wish to neglect the only possible specific measure in such a grave disease. Prevention had been achieved by spraying the olfactory area, where the virus normally found entrance to the body, with certain astringent solutions. Zinc sulphate (1 per cent.) with 0.5 per cent. pantocain when sprayed into the nasopharynx of monkeys had produced immunity to infection by this route for as long as a month; this procedure was at present being evaluated in the human subject. It was essential that the spray should be directed to the right portion of the vault of the pharynx, and some experience and skill were necessary for success. The paper concluded with a summary of the methods employed by Elizabeth Kenny in promoting the recovery of paralysed muscles.

Mr. BRYAN MCFARLAND, in his paper on the relief of crippling due to infantile paralysis of the lower limb, considered mainly the deformities of the foot and gave the indications for resorting to operation in young children. One of the operations discussed was, he

thought, entirely new: he had devised it himself and practised it for five years in order to see if it could be safely recommended. It was designed for the relief of the calcaneus deformity in children, and combined direct correction of the deformity with blocking of dorsiflexion. He illustrated his paper by a cinematograph film.

Dr. R. W. FAIRBROTHER said that the aetiological agent in poliomyelitis was undoubtedly a filterable virus, which attacked nerve cells. There was much evidence to indicate that convalescent serum was useful if given within twenty-four to forty-eight hours of the onset, but after this time satisfactory results were unlikely. Serum therapy was therefore of little value in sporadic cases in view of the difficulty of establishing an early diagnosis. In prophylaxis active immunization had had disastrous results, and had been abandoned; the intranasal administration of zinc sulphate preparations had proved valuable in preventing the experimental disease in the monkey and had recently been tried in man; the final figures were not available, but in the recent Canadian outbreak the results were very disappointing. The administration had to be carried out by experienced workers as the olfactory hairs were exposed in the posterior part of the nasal mucosa, and unless this region was satisfactorily treated the hairs would not be protected. Mr. H. O. CLARKE and Dr. J. F. WARD also joined in the discussion.

At the same meeting Dr. R. J. MINNITT read a most interesting paper on developments in the technique of analgesia and anaesthesia.

HYDATIDIFORM MOLE

At a meeting of the Royal Academy of Medicine in Ireland on February 18, with the president, Dr. J. S. QUINN, in the chair, Dr. J. F. CUNNINGHAM (Master of the National Maternity Hospital) read a paper on the diagnosis and treatment of hydatidiform mole.

Dr. Cunningham stressed the value of the Aschheim-Zondek test and of x-ray examination. At the National Maternity Hospital during the last four years hydatidiform moles had been seen once in every 1,532 cases, but the real incidence was much less. Four methods of treatment had been recommended: rapid dilatation of the cervix and emptying of the uterus with the finger or with ovum forceps; vaginal hysterotomy; abdominal hysterectomy; and abdominal hysterotomy. The ten cases he had seen in the last four years had all been treated by a modified method of induction. In nine cases the uterus responded to the medicinal induction and expelled the mole with very little bleeding. In the case in which induction failed he performed total hysterectomy. Eight of the cases had been followed up and two were still under observation. In no case had chorion epithelioma developed; the absence of all trauma in the evacuation might have played some part in reducing the danger of metastasis. He described briefly the technique of induction. Quinine sulphate, 10 grains, was given at night, and on the following morning from 1½ to 2 oz. of castor oil. A few hours later 10 grains of quinine were given again, and followed by an enema and a hot bath. Pituitary extract in doses of 5 units was then injected at half-hourly intervals, the first dose being given at the same time as the enema; the total amount was never allowed to exceed 30 units.

Dr. T. M. HEALY then showed a specimen of a perforating mole, and Dr. EDWARD SOLOMONS a specimen from a case of chorion epithelioma, the pathology of which was described by Dr. G. DOCKERAY. A general discussion was then opened by the President and Dr. A. H. DAVIDSON (Master of the Rotunda Hospital), and continued by Dr. R. M. CORBET (Master of the Coombe Hospital), and Dr. O'DONEL BROWNE and Dr. A. W. SPAIN. At the same meeting Dr. F. W. DOYLE read some notes on a case of puerperal anaemia with pulmonary infarction.

symptoms, simulating a surgical emergency and luring the surgeon to a somewhat unnecessary and perhaps fatal operation. The principal mistake was in assuming vomiting and distension to be due to intestinal obstruction. The comatose uraemic patient provided a very difficult diagnostic problem at times. If he had localizing neurological signs, such as hemiplegia, and the optic disk showed oedema and haemorrhages, there was a great temptation to open the skull for cerebral tumour.

Medical uraemia, apart from its extreme diagnostic importance, had not very much interest for the surgeon, but occasionally operations were requested for renal decapsulation. Surgical or retention uraemia was almost a different condition, in which one looked in vain for muscular spasm, epileptiform convulsions, and retinal haemorrhages. The commonest type seen was that which followed operations on the urinary tract, and especially on the prostate. A biliary condition which surgeons encountered was in long-standing jaundice due to obstruction of the common bile duct. When this was corrected the patient very often seemed to be doing well, but ten or fourteen days later succumbed to uraemia. The treatment of acute surgical uraemia was to institute at once a continuous intravenous drip; if the chlorides were low normal saline could be used. Any simple procedure likely to overcome the obstruction should be carried out. In chronic uraemia the estimation of the blood urea and the urea concentration test would show what there was to contend with, and the simplest possible surgical procedure should be adopted to tide the patient over the crisis. It must always be borne in mind that an excess of surgery might turn a chronic into an acute uraemia. In all forms of uraemia the sheet-anchor of treatment was the continuous intravenous drip.

Renal Function and Acid-base Equilibrium

Dr. WILFRID OAKLEY said that for clinical purposes the alkali reserve might be taken as a useful guide in the consideration of disturbances of the acid-base balance. These disturbances had been simply classified by J. B. S. Haldane:

Acidosis:

Non-gaseous, due to (a) increased acid formation, (b) administration of acid-producing substances, (c) impaired urinary excretion of acid.

Gaseous, due to (a) depression of respiratory centre, (b) impairment of circulation, (c) pulmonary impairment.

Alkalosis:

Non-gaseous, due to (a) administration of alkalis, (b) loss of chlorine by vomiting.

Gaseous, due to hyperventilation.

Of these four types of disturbance they were concerned only with non-gaseous acidosis and non-gaseous alkalosis. In acidosis it was important to distinguish between cause and effect, for uraemia due to chronic renal disease was almost always associated with acidosis. He directed attention to the cases in which the kidney was structurally healthy but its efficiency was impaired as the result of a severe disturbance of the acid-base balance towards the acid side. This might be due to increased formation of acid—for example, ketone bodies in diabetes—or to the administration of acid-forming substances such as ammonium chloride and mandelic acid. It was not uncommon in severe cases of diabetic coma to find a blood urea of 100 mg. per 100 c.cm. or over, and very rarely the kidneys might be so profoundly affected that they were unable to excrete either ketone bodies or sugar. While healthy kidneys might function well in spite of severe disturbances of acid-base balance, damaged kidneys might be greatly affected by comparatively small fluctuations either to the acid or alkaline side. Intensive treatment of urinary infections by ammonium chloride and mandelic acid might produce a marked rise in blood urea.

So far as he knew, severe renal damage never produced alkalosis, and they were therefore concerned with alkalosis

only as a cause of uraemia. Hardt and Rivers were the first to publish a clinical account of uncompensated alkalosis due to excessive administration of alkalis, and in 1935 the speaker himself published an account of seven cases, two of which died in coma with blood-urea figures of 225 and 250 mg. per 100 c.cm. respectively. The dosage of alkalis need not be very great, and the daily intake in his cases expressed in grammes of sodium bicarbonate ranged between 21.5 and 54.8, with an average of 38.1. With regard to alkalosis due to chlorine-loss by vomiting, he thought it was the loss of chlorine rather than alkalosis which produced the renal failure. When speaking of acidosis he distinguished between this condition as a causative factor in uraemia and as a result of chronic renal disease. His general conclusion was that healthy kidneys functioned well within wide variations of the acid-base balance, though excessive changes in this balance might produce renal failure, especially if the change was towards the alkaline side. Damaged kidneys, however, could function only within much narrower limits, and it was most important in such cases to take the necessary steps to maintain the alkali reserve at a normal figure.

General Discussion

Mr. H. P. WINSBURY-WHITE described a case which illustrated the mechanical advantage which was available from the passage of a catheter. The surgeon's position was a very unsatisfactory one when he was called upon to operate on a patient with a blood urea of 240 mg., and if, as the result of the passing of a catheter, this figure could be brought down to about 20 mg., as in the case to which he referred, the advantage to the surgeon was obvious. There were cases where the renal function was so greatly impaired that the indwelling catheter would precipitate the patient into a state of uraemia, but his own experience was that this happened far less frequently than in cases in which the patient had a simple cystotomy not preceded by indwelling catheter drainage. Dr. GEORGE GRAHAM asked why patients with chronic uraemia so often had a severe anaemia in which iron was of no benefit.

Sir WILLIAM WILLCOX agreed with Dr. Bennett that the onset of the clinical symptoms of uraemia depended not so much on the degree of the uraemia or the level of the blood urea as on the abruptness of the change. A patient might come along with very high blood urea, perhaps 200 or 300 mg. per 100 c.cm., without any symptoms at all, and then an accident or an attack of influenza might precipitate the onset of very acute symptoms. A toxæmic renal condition which would quickly send up the blood urea to a considerable height, but in which recovery was common, was that which might arise from diphtheria, or from an acute streptococcal bronchopneumonia, or, again, from a chemical poison.

Mr. ZACHARY COPE confessed to grave doubts as to what uraemia was. It was not necessarily associated with disease of the kidneys. Perfectly normal kidneys could be found even in a patient dying from uraemia; often with a high blood urea the patient seemed comparatively well. Uraemia was a complex subject, probably comprising several different functional conditions, and he did not believe that they had got nearly to the bottom of it. Until they did so they would not know the difference between surgical and medical uraemia, and yet the two were entirely different. Dr. T. JENNER HOSKIN was rather surprised to have heard no mention of venesection as a treatment in certain cases of uraemia. In one or two cases in which uraemia was associated with severe anaemia he had had venesection done, followed by transfusion, and this he thought had proved beneficial. Dr. G. W. GOODHART said that it was a prevalent doctrine some years ago that although a high blood urea accompanied uraemia it had no causal connexion with it. It was a view he had always questioned, and he gathered that it was not now so current as formerly.

Dr. IZOD BENNETT, in reply, said that the real difficulty was that of sorting out the symptoms due to true uraemia, a chemical process, from the symptoms due to hypertension. He made a plea for the continued and constant use of the simple established aids to diagnosis—namely, the sphygmo-

by accident was 1,661; thirty-nine deaths resulted from injuries and forty-five from drowning. The deaths attributed to excessive drinking numbered seventy-seven.

INDIA

Association of Surgeons in India

It is proposed to create an All India Association of Surgeons with the following objectives: to advance the art and science of surgery in India; to bring together surgeons from all parts of India; to hold periodical meetings in different parts of India where matters of surgical interest will be discussed and social contact established; to publish a journal devoted to surgery in all its branches; and to do such other things as will conduce to the above objectives. It is hoped to hold the inaugural meeting at Bombay in the middle of April to establish the rules of the association and to elect officers. It is announced that the association is purely scientific, and will not take part in politics of any kind; it is entirely independent of any other medical association. The membership is open to those who practise surgery or any of its branches either exclusively or with other branches of medicine. Further information may be obtained from the organizing secretaries of the Association of Surgeons in India, "Binfield," Kilpauk, Madras.

King Edward VII Memorial Hospital, Bombay

The work of this institution continues to expand, and in 1936 there was intense pressure on its out-patient department and 370 beds. In his administrative report for the twelve months ended September 1, 1937, the dean, Dr. J. N. Mehta, mentions the growth in the number of motor accident cases treated in the hospital during the last three years, and expresses the hope that it will soon be made obligatory for the actual cost of treatment of these patients to be paid by the insurance companies or the motor-car owners concerned, on the lines of the provisions in other countries. He remarks that hospitals in India have a legitimate grievance in the fact that larger sums are being claimed in fines by the courts, while the hospitals treating these accident cases are not being reimbursed for the expenses they incur. The number of cases of this kind increased from 309 in 1934 treated in the casualty department to 457 in 1936, while in the same period the number of in-patient cases rose from 107 to 155. An average of 120 more patients attended the out-patient department daily in 1936 as compared with 1935, and there were often forty to eighty extra in-patients over the hospital's complement of beds, requiring the frequent provision of many emergency beds on the floors. Arrangements for enlarging the hospital at a cost of over 15 million rupees have been approved; half of this sum will be provided by the Governor's Hospital Fund. The cost of treatment of both in- and out-patients has fallen slightly during the last three years. The Seth Gordhandas Sunderdas Medical College is attached to the King Edward VII Memorial Hospital; there were 411 male and forty-three female undergraduate students in 1936-7. Various scientific researches are being conducted by the hospital and college, many under the auspices of the Indian Research Fund Association and the University of Bombay. Compulsory physical training having been adopted by the university, arrangements have been made for the regular physical exercise of first-year students under a full-time instructor. The construction of a gymkhana pavilion has been authorized. At the third M.B., B.S. examination of the University of Bombay in December, 1936, the students of this college won all the scholarships, medals, and prizes, while the one candidate who passed the M.D. examination with distinction in that year came also from the college. Postgraduate training is also being provided. The figures for the results of the examination of pupil nurses in the hospital in March, 1937, were the best in the Presidency of Bombay.

Correspondence

Measles

SIR.—It is to be hoped that at the end of the present epidemic of measles there will be forthcoming valuable evidence as to the efficacy of the various methods of preventing and modifying the disease. In the meantime it is safe to say that complete confusion reigns in the minds of parents all over the country, coupled with some resentment. They were told in their daily papers that measles contacts ought to be "given an injection." They demanded this, and school medical officers unable to obtain convalescent serum gave large numbers of children placental extract. From all accounts and some personal observation all these children in due course had measles not markedly different from that of their companions.—I am, etc.,

ARTHUR G. WINTER, M.B.Lond.

Crowborough, Sussex, March 15.

Acriflavine Emulsion

SIR.—May I correct a misapprehension on the part of Mr. W. A. Woodard, whose letter you published on March 19 (p. 648)? The paper by Mr. G. L. Keynes and myself did not say that the B.P.C. acriflavine emulsion has "too high" an oil content, nor did it suggest that any mere reduction in this content would be an improvement. It simply said that this preparation had no demonstrable antiseptic action, and advanced no reason for this except the "intimate admixture" of the active constituent "in an oily basis." That this intimate admixture is obtained with the aid of beeswax and vaseline may well have something to do with it, but all that we said was that the preparation is inert, and I should be grateful for a further opportunity of stating our reasons for this; I say "further," because I described the following simple experiment in both a medical and a pharmaceutical journal some years ago.

The intention in using such an emulsion is presumably that acriflavine shall diffuse out of it while in contact with a wound; if such diffusion does not take place when the emulsion is in contact with a watery medium the acriflavine can have no effect. This action can be tested for quite simply by pouring the emulsion into a tube of broth previously inoculated with bacteria. It floats on the broth, and thus furnishes a simple replica of the conditions produced when it is in contact with a wound. When this experiment is done with the B.P.C. emulsion so little acriflavine escapes into the underlying culture medium during subsequent incubation that the growth of the bacteria is not prevented, although a concentration of 1 part in 100,000 would be enough to achieve this. On the other hand, diffusion does take place to a sufficient extent to prevent growth under these conditions from a simple water-in-oil emulsion made by atomizing acriflavine solution into liquid paraffin. How the emulsions suggested by Mr. Woodard and by Dr. J. Walker Tomb (*Journal*, January 29, p. 256) would behave I do not know.

It will be seen that your correspondents and I are looking at this matter from different points of view. Their reasons for what they propose are either purely pharmaceutical (as presumably were those which added so incongruous an ingredient as beeswax to the B.P.C.

Local News

ENGLAND AND WALES

Postscript to Croydon

The Croydon typhoid epidemic is estimated to have cost the borough £22,261, or the equivalent of a rate of 2½d. in the pound. This sum includes the cost of the public inquiry, with the briefing of counsel, the shorthand notes and printing, and the fees of expert witnesses, also the additional accommodation for typhoid patients at Mayday Hospital and the transference of other patients from Mayday to make room in that institution. It includes also a sum of some £4,500, which is the provision the corporation is making in regard to claims. No one can tell, of course, what is going to be the result of the litigation which is threatened. Up to a recent date thirty-two writs had been served against the corporation, mostly by people who have lost relatives in the outbreak. A writ has been served by a local hotel proprietor whose son contracted the disease, and who had to close his hotel for two days by order of the medical officer of health. There was some talk of the amusement houses in the town taking action to recover their heavy losses, but it is understood that this has been abandoned. It is assumed that should impending actions go against the corporation a loan will be sanctioned, as has been done for other corporations which have found themselves plunged into financial misfortune, and so the indebtedness will be spread over a number of years.

Meanwhile the recommendations of Mr. H. L. Murphy, K.C., who conducted the inquiry, and which were underlined subsequently in a letter to the corporation from the Minister of Health, are bearing fruit. The corporation has agreed, on the recommendation of its special typhoid committee, to set up a water committee of the council, to deal exclusively with matters connected with the water supply. This is a reversion to a former practice. The medical officer of health is to be instructed to attend all meetings of the committee, so that in future there can be no complaint of lack of co-ordination between the public health and the water departments. The corporation has also agreed to a recommendation that, if the members of the local medical profession were in favour of it, medical practitioners should be co-opted on to the public health committee. On the suggestion which figured so largely in the course of the inquiry that a local medical committee should be appointed, it has been agreed that the members of the local medical profession shall be requested by the corporation to consider the suggestion that "in all large areas there should be some committee representing all local practitioners which, upon the occurrence of any outbreak, would be in constant and close touch with the medical officer of health." The object of this committee would be to furnish, pool, and distribute all available information as to symptoms and possible causes. A further proposal is that wherever possible, whether or not on any water-gathering ground, all cesspools in the borough shall be abolished. Croydon cannot be accused of not taking its lesson to heart, but the events and conclusions have more than a local application.

Town Planning for Health

The Royal Society of Medicine, at its reception on March 16, chose a rather unusual subject for discussion—namely, "Garden Cities and Town Planning." Mr. F. J. Osborn, honorary secretary of the Garden Cities and Town Planning Association, in an interesting address said that in the last few years town planners had become convinced that the grouping of enormously large numbers of people in one town had the character of a "development disease." He went on to show that the larger a

town became the more densely built upon must be its centre. In so far as the centre was used for industrial and business purposes the spread of the town imposed longer daily journeys on the inhabitants. London, in fact, was becoming a strap-hanging population. The increased density necessary in the centre of a growing city could be achieved either horizontally or vertically. The vertical extension was seen in the increased height of buildings and in the greater number of tenement houses. While the flats in the modern tenement buildings built for the working classes were often admirably designed, with the intelligent use of playing grounds for children, it did not appeal to him as a satisfactory basis for family life. The health implications of the effect of the modern city upon its inhabitants were obvious, and in this connexion Mr. Osborn referred to the amount of open green space that should be allotted to a certain quantity of population for outdoor exercise, and showed how short of the ideal were most of the big cities in this country. At the end of the lecture he illustrated his remarks with some interesting lantern slides.

General Infirmary at Leeds

The 170th annual report of the Board of Management of the General Infirmary at Leeds states that the expenditure of the hospital during the past year (£119,000) was the highest in its history. Ordinary expenditure was £9,000 more than in 1936, and exceeded ordinary income by £1,457. The rise in prices and the continued expansion of the work of the hospital precluded a balance on the right side. The number of in-patients treated in 1937 was 13,980, the number of new cases in the out-patient department again showed an increase, and during the year more than 60,500 people were treated as out-patients, the total number of attendances being just short of 390,000. The chairman, Mr. A. P. Nicholson, in presenting the report on March 3, drew special attention to the reorganization of the kitchens and laundry, the renewal of the sterilizing plant for the operating theatres, and the setting up of a dietetic department. The Lord Mayor of Leeds, who moved the adoption of the report, suggested that since the daily average number of beds occupied throughout the year by motor-car accident cases was twenty the Infirmary had the right to demand a contribution from the Road Fund.

Sheffield's Hospital Scheme

The voluntary hospitals of Sheffield are preparing to make a joint appeal for £1,000,000 with which to build a central hospital unit on a site near the university, a new maternity section at the Jessop Hospital for Women, extensions at the Sheffield Children's Hospital, and a recovery hospital on a site at Fulwood. The Sheffield Royal Infirmary, now 141 years' old, will in time become redundant, but the Royal Hospital (established in 1832) will be reorganized and used for some years to come. It is also proposed to build a new dental hospital near the university and a radium centre, where cancer research will be undertaken. Mr. Raymond Stephenson has been appointed chairman of the Appeal Fund Committee.

Coroners' Inquests in London

During 1937 the number of deaths reported to coroners in London was 9,006, of which 3,446 occurred in mental hospitals and other institutions. Inquests were held in 3,216 cases. The number of cases of suicide dealt with was 623, or forty more than in 1936. Very nearly half this number were persons over 50 years of age. Post-mortem examinations were ordered in 2,707 of the inquest cases and in 3,755 of the cases in which an inquest was judged unnecessary. A verdict of murder was returned in five cases, and of justifiable homicide in one. Three inquests were held in connexion with executions. Deaths from want of attention at birth increased from twenty-five to thirty-one. The number of people who met their deaths

may be best explained on the basis of a confusion between "remote and provimate" causes.

In dealing with Rous's work on Shope's rabbit tumour I may say at the outset that I am quite unable to appreciate the justification for the application of the term "revolutionary." We have here a case in which a particulate virus, in the fulfilment of its destiny inside the epithelial cells of the rabbit, irritates and stimulates them, causing thereby an increase of their functional activity which is followed by a multiplication of the cells themselves. At first, owing to the cell proliferation, there is formed a simple papilloma which is capable of malignant transformation when more prolonged irritation (the "remote" cause) produces a genetic mutation, which then becomes the "provimate" cause of the subsequent permanent malignant state of the cells. Under such circumstances there is no reason why the virus should not continue as a "guest-passenger" inside the malignant epithelial cell. A somewhat similar condition to that existing here occurs also in the case of coecidial infection of the epithelial cells of the bile ducts of the rabbit's liver.

As long as the condition remains in the simple papillomatous stage there is little necrosis of the epithelial cells, therefore little escape of the virus into the tissues, and hence little formation of antibodies against it. With carcinomatous change, however, there is considerable necrosis, considerable escape of the virus, and, as Rous has shown, though not in this context, the formation of antibodies against the virus. It should not be surprising if, after the process of trituration of such a tumour for the purpose of preparing an emulsion for filtration—in which process the liberated virus must come into intimate contact with the antibodies of blood and tissues—a filtrate is obtained which on inoculation is completely inactive.

This would appear to be a simple, straightforward, common-sense "verbal explanation" of what the virus accomplishes, of the manner in which it induces malignancy, and of the reason for its "absence" in the fully formed malignant lesions. Opposing theories must be considered, however, in regard to these points. With reference to the question of the part played by the virus in inducing malignancy Dr. Gye states that:

"The final proof that the virus acts causatively is more difficult, though it is fair to observe here that if we were now discussing any other subject than cancer the *prima facie* evidence that the virus is acting as the cause of the pathological condition under investigation would scarcely be questioned."

This expression of opinion may be left to others to assess as to its being a suitable basis for some of the dogmatic statements indulged in. In regard to the question of the "absence" of the virus in these tumours, one infers from Dr. Gye's argument that he believes that there is justification for supposing, if one reasons on the basis of analogy, that a virus exists also in mammalian and other tumours in which up to the present a filterable agent has not been demonstrated. Doubtless in this matter he has kept in mind the dangers he has pointed out as inherent in the process of reasoning by analogy. Rous (*Amer. J. Cancer*, 1936, 28, 233) argues along somewhat similar lines. He speculates, however, as to whether the virus may not produce malignancy in virtue of its having mutated, and, having done so, curiously enough embarks on a long indeterminate discussion, which eventually arrives nowhere, as to whether the virus can in fact cause malignancy.

In conclusion I would like to express some curiosity in reference to how such ratiocinations are of superior type to, and afford better results than, the "verbal explanations," "reasoning by analogy," and "pure speculation" which Dr. Gye alleges to be the hall mark of the somatic mutation theory, and which he condemns so heartily by giving expression to the sentiment that "it is unprofitable

to spend time in considering such explanations." One is entitled also to expect some justification of his assertions that the somatic mutation theory "offers no prospect of further advances in knowledge," has "no factual basis," and "ignores some well-established facts."—I am, etc.,

Aberdeen, March 14.

J. P. MCGOWAN.

After-effects of Modern Treatment of Carcinoma

SIR,—I am very glad to have Mr. James Phillips's assurance (*Journal*, March 19, p. 644) that his letter of March 5 (p. 538) was not meant as an attack on x-ray therapy, though two of your correspondents (p. 643), who describe damage apparently due to overdosage with x rays or with radon seeds, seem to agree with my first impression of his observations. In reply to his inquiry as to experimental work bearing on x-ray and radium treatment, the literature was extensive even in 1919, when Wetterer's third edition of his *Handbuch* devoted 166 pages, in chapter 13, to the "biological effects of roentgen rays," and in 1926, when in over 200 pages were summarized the biological and theoretical bases of roentgen and radium treatment, especially of cancer (and of tuberculous lesions), in the *Lehrbuch der Strahlentherapie*. In 1903 Albers-Schönberg showed that sterility could be produced in male guinea-pigs and rabbits by x rays without damaging the skin, the sexual power, or the general health. In 1922 Regaud published observations on the testicle and its response to x rays in animals; upon these was based the "protracted-fractional" x-ray method, found especially valuable in laryngeal cancer. Many other workers here and abroad have made valuable biological observations of use in the practical irradiation of patients; the range is from gene-mutations to total teleroentgentherapy. But if, for example, breast cancer be considered as one of the most promising fields for x-ray therapy, it must be evident that irradiation of the breasts of small laboratory animals cannot help much towards solving the problems met with in patients; the great advances in methods and results in breast cancer have been due to analysis of methods and their variations and the results of treatment in many patients over a long period of years. As in many other departments of medicine the final test is clinical, not experimental.

As regards damage, I remember in my own practice hardly any cases of serious damage, certainly not of internal injury; several skin or superficial injuries resulted from methods long abandoned. It should be generally realized that a large number of experts in radiotherapy can show in their results a considerably less proportion of cases of damage due to the treatment of malignancy than is usual after any other effective treatment. Recent advances in the measurement of dosage should render still more unlikely any serious damage to patients in the future, just as the injuries to operators can now be completely guarded against.—I am, etc.,

London, W.1, March 19.

J. H. DOUGLAS WEBSTER.

STR.—The letters of Mr. James Phillips and others indicate the existence of considerable disquietude regarding the justification of radiotherapy. Criticism in the tone of these letters serves the useful purpose of ventilating such doubts, and acts also as a stimulus, but it is only just to those who are working in this branch of medicine to state that during the last twenty-five years there has been an enormous amount of research on the effects of radiation on animal tissues, and also on the physics of radiotherapy. As this work is highly technical it has been published for obvious reasons in journals specially concerned with the

formula), or they are based on an expectation that the preparation will act in a certain way, without any proof that it does, beyond Dr. Walker Tomb's bare statement that his emulsion is "highly antiseptic." The study of antiseptic methods has made me somewhat sceptical, and I ask that assertion shall be accompanied by proof that an agent does or at least can act in the way alleged. Such proof is sometimes very difficult to devise, but here it is exceptionally easy. It should be a simple matter to estimate the amount of diffusion of acriflavine from an emulsion into water with which it is in contact, the area of contact, time, and other relevant factors being regulated and appropriate; a preparation from which diffusion produces an adequate concentration of acriflavine in the water will be an antiseptic in practice, while one which does not certainly cannot. I hope that when a change is made in the official formula it will be supported by some such study of physical properties, on which antiseptic activity must clearly depend, if not by tests of antiseptic activity itself. I suspect that in any such tests activity will be found to vary inversely with stability; in other words, that the perfect preparation from the pharmaceutical point of view will be almost useless from the surgical.—I am, etc.,

London, E.C.1, March 21.

LAWRENCE P. GARROD.

Chalk and Typhoid

SIR,—We are apt to ignore what we cannot clearly visualize. At the foot of chalk cliffs at low tide large amounts of fresh water are often found gushing up through vertical joints in the chalk. Sometimes a good example of one of the ways in which these chalk springs are fed can be seen in vertical section in low cliffs. Large funnels, apex downwards, have been dissolved out of the chalk by water seeping down, and the funnels have become filled with sandy clay and flints. At the junction of a funnel and its contents there is a layer of highly porous, half-decalcified chalk, which is a water channel in times of rain. In other words, water sinking into chalk tends to take definite channels, which must greatly accelerate its flow downwards into open joints. In the natural elimination of typhoid time is the essence of safety, but the organism can live more than a week in chalk water in the dark. Water gathered into definite channels can go a long way in a short time if there is a good supply of it, like the water from baths draining through a septic tank.

When the number of organisms in the Addington well jumped from 10 per c.cm. in the year 1902 to 3,820 per c.cm. in the year 1903, one and a half tons of sodium chloride were put two miles from the well and washed into the ground with 40,000 gallons of water. The salt began to reach the well in twenty-two and a half hours (Geological Survey Memoir, *Water Supply of Surrey*, 1912). Later a chromogenic bacillus was used with comparable results. Chalk in the neighbourhood of houses and for long distances from them is a highly dangerous formation from which to obtain untreated drinking water. We have had the Worthing, the Stroud-Rochester, the Caterham, the Newport, the Guildford, and other epidemics from chalk water. Chalk areas are becoming more and more built over. Where is the next epidemic going to be? It is time that it was clearly recognized that the water from chalk in populated areas must be chlorinated or stored before use, and that the position of camps on chalk should be properly chosen.—I am, etc.,

London, W.C.1, March 16.

C. M. HEANLEY.

Causation of Cancer

SIR,—In replying to some of the statements in Dr. W. E. Gye's article in the *Journal* of March 12 (p. 551) I do not propose to state formally a case for the view which I, amongst others, hold, that tumour formation, apart from the occurrence of teratomata, etc., is due to a mutation of genes in somatic cells. Dr. Gye seems to regard all such views as mere "verbal explanations." Actually, many firmly established facts in genetics, genies, and embryology form the basis on which the views in question are founded. One infers from Dr. Gye's remarks that something other than "verbal explanations" is the stock-in-trade of the supporters of the view of a virus being the "proximate" cause of malignant growths, in defence of which he quotes two investigations: "one by Foulds, who worked with a dibenzanthracene tumour of a fowl, and the second Peyton Rous's revolutionary work with the Shope papilloma."

With reference to the first item of this programme of justification, it may be said that the form and function of any body cell are determined in the long run by the interaction between specific genes inside the cells and their environment. If these two are normal, a normal cell is the resultant; if, however, the environment is abnormal, this leads to abnormal form and function and, in time, to a mutation of the genes, leading in turn to abnormal form and function of the cell even in a normal environment. It is legitimate to suppose that the genes produce their specific effect by means of hormones of an intimately specific nature. The employment of the term "hormone" in this context possibly requires justification. Where cells are in active process of growth, division, and development, as in the early stages of the embryo, hormones are formed in excess, escape from the cell body and cause primitive undeveloped cells to develop along the lines of the originating cell. These hormones are the "homoiogenetic hormones" of the experimental embryologist. When active growth ceases such hormones, being produced in less quantity, are used up as manufactured in the internal economy of the originating cell. We have, it would seem, an actual application of this process (not an analogy) in tumour formation in birds. The slow-growing fibromata produce no "filterable agent" (homoiogenetic hormone), while the fast-growing sarcomata form considerable quantities of this substance which, acting on the primitive undeveloped cells of the reticulo-endothelial system, cause them to develop along the lines of the originating sarcoma cell.

A tumour cell in regard to form, function, etc., is abnormal or foreign to the normal healthy bodily organism, this being due to an abnormal (mutated) series of genes being in control of its destiny. Such abnormality provokes a reaction on the part of the normal body and, because of this, antibodies of high specificity are formed against the genes themselves or their specific products. As in other immunological spheres, however, there is the production also of group antibodies. Accordingly one may regard the antibodies produced in Dr. Foulds's rabbits subsequent to injection with the Berkefeld filtrate of the dibenzanthracene tumour as being specific antibodies directed against the genes, etc., of the tumour cells but capable, owing to their group reaction powers, of neutralizing the genes, etc., of the cells of a nearly allied tumour, the Rous No. 1 sarcoma.

If this "verbal explanation" of the facts has no other merit it has at least that of attempting to explain the fact of the characteristic specificity of such tumours—a specificity, be it remarked, which represents the very crux of the whole question and which, singularly enough, has been almost totally neglected in the consideration of the subject. In saying this I am not unmindful of the fact that Dr. Gye, in his earliest pronouncements, considered that a specific factor was necessary in addition to a virus in the causation of malignancy. This early view of his

factured in this country in adequate quantities. There are a few important products in the chemotherapeutic class which are not yet made here because they are the subject of foreign-owned patents, but in the event of a national emergency, however, licences could be obtained under British patent law to enable these products to be manufactured here. My association believe that the steps taken by the Government in granting a subsidy for chemotherapeutic research will do much to assist still further in the development of this important field of work.—I am, etc.,

J. DAVIDSON PRATT,

General Manager and Secretary,

The Association of British Chemical Manufacturers.

London, W.1, March 17.

"Gonococcus Antitoxin" for Gonorrhoea

SIR,—Everyone will welcome the paper by E. T. Burke, J. Gabe, A. H. Harkness, and A. J. King in your issue of March 19 (p. 605), but, as your annotation (p. 629) states, there can "rarely have been a flatter contradiction" between the findings of the writers of the above paper and those published by myself. Contradictory results in an attempt to evaluate new forms of treatment are, of course, not unknown. It is to be hoped that the cause of the failures described will be discovered, as obviously the situation cannot be left as it is at present.

The authors of this communication appear to have had a large number of serious reactions, whereas in my own clinic, although reactions are not uncommon, they are easily controlled, and the cases continue to be treated as out-patients. Since December 2, 1937, all the male out-patients attending the venereal department of St. Thomas's Hospital, suffering from acute gonorrhoea, who can attend regularly have been receiving daily doses of 1 c.cm. of the antitoxin as routine, with adjuvant treatment. This could not be done, nor would I permit it, were they obtaining no therapeutic benefit or experiencing the severe reactions described in such a high percentage by E. T. Burke *et al.* At the moment forty-five patients in this current series are under observation and treatment. Since that date not one has necessitated admittance either for a serum reaction or for any extension of the infection as described by your contributors. The only reactions experienced in this series were two cases of urticaria and one stiff buttock. Two other patients defaulted for a reason unknown, but this proportion is not as high as the general default rate throughout the clinic. No case refused further treatment.

The cases described in the article apparently received no other treatment except the antitoxin; the authors purposely avoided giving any additional treatment in order to render the test more rigid. On the other hand, it is possible that the antitoxin acts more effectively when adequate drainage is established. In my own practice at the present time irrigations, dilatation, prostatic massage, etc., are also carried out with this end in view, although in my preliminary paper this procedure was inadvertently omitted from the text, but subsequently discussed in your columns.

Upon analysis of twenty-five consecutive cases treated in the latter part of last year the results are comparable to those already published by myself. As it is impossible to give full details of the protocols here I will gladly submit these records to the authors. They are not from my pen but are the routine observations written by my various medical colleagues in the venereal department at St. Thomas's Hospital.—I am, etc.,

London, W.1, March 21.

T. ANWYL-DAVIES.

Treatment of Acute Poliomyelitis

SIR,—We were indeed surprised to read an article in the *British Medical Journal* of January 22, 1938, written by Dr. F. H. Mills. Dr. Mills, I understand, has been a graduate for four years. During that period I can discover no evidence of his special association with the treatment of those affected with crippling diseases, when such treatment is carried out either by the orthodox method or that evolved by Sister Kenny.

In speaking of those treated by orthodox methods he states: "These cases are complicated by trophic changes and deformities which arise from muscle imbalance." Further on, in speaking of those treated by the Kenny method, "In no instance has trophic change or deformity developed." I would refer him to the report of the Royal Commission appointed by the Queensland Government after observation of cases treated by Sister Kenny extending over a period of two years.

"The Commission witnessed deformities developing in cases actually under Kenny Clinic treatment." Also: "Case of No. 51, who was splinted carefully and with particular reference to the likelihood of hip dislocation. For over four years this dislocation had been avoided and the patient was using a 'walking caliper.' Attending the Elizabeth Kenny Clinic during the surgeon's absence this patient was advised to walk without the 'caliper'—or at least permitted to do so. This resulted a few days later in a dislocation of the hip-joint, and the calcaneo-valgus deformity of the foot (which is always difficult to prevent) was found later on to be increased. In the words of the surgeon concerned, this patient 'represents the loss of a struggle for four or five years to prevent a dislocation of the limb and a calcaneo-valgus dislocation of the foot.' Again, 'The departures from orthodox treatment, especially the present important points of difference, could be, and actually were, responsible for damage beyond and in addition to that already sustained by the patient.'"

Dr. Mills condemns splinting and immobilization, yet later on in his article we read: "Foot drop and external rotation are prevented by an easily adjustable foot block." I suppose this is not splinting? Again, referring to the Commission's findings:

"For the prevention of foot drop she fits on the feet an apparatus which, in her own words, 'has to be rigid to prevent foot drop.' Also, 'Miss Kenny's views regarding the use of calipers are very confused. After roundly condemning their use on account of the evil results depicted in her textbook (page 19) she approaches the views of orthopaedic surgeons when she states that 'all possible power should be restored before calipers are used.' In spite of this dictum, however, Miss Kenny now directs that calipers be used in some of the cases actually attending the clinic for treatment. The Commission has observed that on this question, as well as in other details, Sister Kenny's treatment has undergone a gradual but distinct change towards orthodox methods."

Dr. Mills's discussion of the principles of the Sister Kenny treatment is somewhat confusing, and to me seems to be somewhat original but not convincing. Under the headings "Results of Treatment" and "Summary" I would like to ask Dr. Mills on what he is basing his opinions: on his own personal observations or on the statements made by Sister Kenny? Again, is his criticism of orthodox methods born out of ignorance or after long-continued observation of cases so treated by himself or others? We in Queensland are very surprised that such an article should be published and given such publicity. It is being widely used in the public press by Miss Kenny to condemn the orthodox methods.—I am, etc.,

HAROLD CRAWFORD, M.B., B.S.,
F.R.A.C.S.

Brisbane, March 7.

* Mr. Crawford encloses with his letter an extract from the *Medical Journal of Australia* of January 29, 1938, containing Appendix C of the report of the Queensland Royal Commission on Modern Methods for the

subject. As a result of these experiments it can be confidently stated that:

1. "The trial-and-error method of treatment" (to quote Mr. James Phillips) is unjustifiable and reprehensible.

2. The lethal cancer dose is very near the tissue tolerance dose, and the object of scientific radiotherapy is to apply the dose uniformly to every portion of the new growth; overdosage is followed by necrosis of the surrounding tissues and almost invariably great pain; underdosage by recurrence of the growth.

3. The homogeneous dosage cannot be achieved by haphazard implantation of needles or seeds. Scientific radiotherapy is not just sticking so many needles an equal distance apart into a new growth, or giving a few exposures to deep x rays.

4. Before insertion of needles the size of the tumour should as far as possible be accurately determined, and then the specific amount of radium calculated which, distributed according to certain principles (the clinical application of which has been fully described by Patterson and Parker, *Brit. J. Radiol.*, 1934, p. 592 *et seq.*), will give the lethal dose to every part of the growth but will not destroy the surrounding tissue.

5. If these methods were followed by all who elect to treat cancer by radiotherapy there would be fewer catastrophes such as those mentioned in the recent correspondence on the subject.—I am, etc.,

Sheffield, March 21.

RUPERT HALLAM,
Chairman, Executive Committee,
Sheffield Radium Centre.

SIR,—Mr. James Phillips (March 19, p. 644) asks for research to be carried out on animals on the effects of radiation on normal tissues by one of the cancer research departments. An immense amount of work of this kind has already been done and is going on in many places, but radiotherapy is not by any means in the infantile stage of development that Mr. Phillips's mention of trial-and-error methods suggests. What is lacking is an interest of the profession generally in the scientific side of radiotherapy and the therapeutic as distinct from the accidental effects of radiation. This lack of interest and the consequent lack of knowledge results in the attitude of generalizing from a few cases and condemnation on insufficient evidence which all branches of the profession have doubtless suffered from time to time, often at the hands of the lay public. Moreover, the reputation of radiotherapy is also apt to suffer as a result of its use by the amateur.

In the interests of the patients, what is needed first is free co-operation between surgeons and radiotherapists of experience so that suitable cases are selected for radiation or surgery, and cases unsuitable for treatment are rejected. Secondly, the radiotherapist, a person experienced in the clinical effects of radiation and with a knowledge enabling him to dose accurately, must treat each case on its merits. Thirdly, the rest of the profession must realize that scientific radiotherapy is not merely a possibility but a reality, although, as in other branches of medicine, precision and extension of the range of knowledge (of the reaction of both normal and malignant tissues to radiation) are rapidly increasing. Born of this realization there should develop a more tolerant attitude to the mistakes, bound to occur in every new method of treatment, but less advertised in some branches of medicine.

I should like to bring to the notice of those for whom it is necessary one or two facts concerning radiotherapy. Planning of treatment should always be as precise as is

compatible with clinical and physical considerations. When this has been done the dose to destroy the neoplasm should be uniform and sufficient to cause an inflammatory reaction of the normal tissues. In the skin this goes on to a moist desquamation or, in larger fields, to a dry desquamation, and in the mucosa to a fibrinous reaction. The reaction should heal completely, leaving normal tissue and no neoplasm. Some tumours do not respond to this tissue tolerance dose, while others respond to less. The general effects of radiation on the well-being of the patient depend chiefly on the volume of tissue irradiated and the dose it receives.

Most patients recover from the course of radiation within two or three weeks. There are individual idiosyncrasies and psychological considerations, however, which may be unknown and intractable factors for some time to come. Such considerations apply also to other forms of treatment. For those interested, some idea of the kind of work in progress could be obtained quickly from the *Year Book of Radiology*.—I am, etc.,

Sheffield Radium Centre, March 19.

FRANK ELLIS.

SIR,—The correspondence started by Mr. Percy Furnivall's account of his unfortunate experience (*Journal*, February 26, p. 450) can do nothing but good if it leads to a more careful consideration of all aspects of a particular case before the decision is made between surgery and irradiation as the prime weapon of attack. Is not the heading of this correspondence in itself propagandist and misleading in implying that the "modern" treatment of carcinoma is radiological? Radium and x rays are indeed valuable methods of treatment, in some cases by themselves and in others as adjuncts to surgery. Nevertheless, it is unfortunate when from either enthusiasm or a failure to visualize all aspects of the case surgery is displaced from its proper position in the attack on cancer. The desire of the patient to avoid in any way possible a surgical operation is sometimes responsible for bad judgment. It behoves us to be increasingly careful, now that we have more than one weapon with which to attack the disease, to choose wisely. Let us not forget that our aim is the cure of the patient, with the least possible disturbance of his future well-being.—I am, etc.,

London, W.1, March 18.

E. G. SLESINGER.

Chemotherapeutic Products

SIR,—In order to dispel any public anxiety which may arise from the comments in the Press regarding a possible drug famine in the event of war, I am instructed to submit the following observations on behalf of the members of this association engaged in the production of drugs and medicinal products.

The comments in question relate to the recently published report of the Medical Research Council, in a paragraph of which it is stated that "the special needs of the British Empire in this respect have to be met almost entirely from foreign sources." It is understood that this paragraph was intended to refer exclusively to one class of chemical compounds known as chemotherapeutic products, which are of great importance for the treatment, *inter alia*, of tropical diseases. The comments in the Press show that it is liable to grave misinterpretation, and this we wish to correct. During the last twenty years the British chemical industry, with the stimulus given by the key industry duties, has made such great strides that the position to-day is vastly different from what it was in 1914. Most of the synthetic products which are essential to the health services of the Empire are now manu-

Early Occurrence of High Blood Pressure

SIR,—Dr. E. Joan Rooke's account of a case of coarctation of the aorta (*Journal*, March 12, p. 564), with her quotation of Sir Thomas Lewis's statement in which he mentions the lack of records of these cases in the periods of childhood and adolescence, encourages me to record the following case.

The patient, aged 3 years 10 months, is the female child of an English mother and Italian father. The diagnosis of coarctation of the aorta was made seven months ago. Her history shows nothing of very much importance, except that she has always been a rather pale child. She has an enlarged heart with the apex beat palpable, but not easily visible, in the fifth left intercostal space about 1 cm. outside the mid-clavicular line. She has a systolic murmur audible in the aortic area, and rather more audible at the apex; the murmur is soft and no thrill is present. A systolic murmur is also audible along both sides of the sternum. At the back in the interscapular spaces a much louder and rather more harsh murmur is present, and this is most marked near the left scapula. There is complete absence of the femoral pulses on both sides, and it has been impossible to obtain a popliteal blood-pressure reading. In the right arm the systolic blood pressure is 136 mm. Hg. and the diastolic 85 mm. Hg. In the left arm the systolic pressure is about 10 mm. lower than in the right, but the diastolic is much more difficult to record because there is no sharp line of demarcation in the arterial sounds, which just fade away into inaudibility. It seems, however, to be in the neighbourhood of 70 mm. Hg. I assume that this difference in pressures on the two sides is accounted for by a difference in size of the anastomotic fields into which the vessels of both sides immediately empty; this is perhaps also suggested by the difference in intensity of the interscapular systolic murmurs on the two sides. When the diagnosis was made last year the systolic pressure on the right was 120 mm. Hg. and the diastolic was 85; the difficulty in recording a diastolic pressure in the left arm was also present then. Pulsation can be felt in the interscapular regions and both axillae, but throbbing anastomotic vessels are not visible; the child is well covered with fat. The radial arteries throb very markedly and are easily visible. Capillary pulsation can be demonstrated in the lips.

As in Dr. Rooke's case radiography did not show any erosion of the ribs, but this probably takes several years to develop; the aortic knob was seen to be very poorly developed, and the cardiac enlargement was confirmed. The retinal arteries are already obviously tortuous in this case, and contrast very strikingly with the appearance of the retinal vessels in normal children of the same age.—I am, etc.,

Birmingham, March 12.

HERBERT J. WILLIAMS.

Recurrent Dislocation of Shoulders

SIR,—The following case of recurrent dislocation of both shoulders would seem worthy of publication from the standpoint of symptomatology.

I was called to see a young athletic fellow, 24 years of age, a good swimmer and a fine badminton player, said to be suffering from a fit. On questioning him, his sole complaint was intense pain in both hands. He was resistive to all attempts at examination, so hyoscine hydrobromide, 1/100 grain, was given and instructions left to watch him carefully. About two hours later I received a telephone message that "his shoulders had slipped down," and on arrival I found he had a subgenoid dislocation on both sides. These were reduced by Kocher's method with the greatest of ease and without an anaesthetic. He refused to have any form of fixation, saying that this accident had occurred before and he "put the dislocation right himself." One hour later the right shoulder became dislocated

again with light massage; so he had to submit to having it fixed with plaster.

The points of interest about the case are: (1) the fact that he only complained of the referred pain caused by pressure on the plexus and possibly brachial artery; (2) the fact that he could play a vigorous game of badminton without dislocation taking place, except at rare intervals; (3) the fact that he did not complain of any impairment of movement of the limbs after both had been dislocated.—I am, etc.,

Kingston, Jamaica, Feb. 1.

C. MAXWELL JOYNER.

Chronic Littritis

SIR,—In the *Journal* of March 12 (p. 594) Dr. Sydney M. Laird disputes the part played by excessive pressure in the production of chronic littritis. In my paper (February 26, p. 448) I remarked on the tendency of concentrated solutions to cause urethral damage, but stated that apart from this the hand syringe alone could cause chronic littritis. I cannot agree with Dr. Laird that an admission of the harmfulness of concentrated solutions "cannot be reconciled with the pressure theory." The use of such solutions is commonly associated with the use of the hand syringe. I have notes of several cases in which improper solutions were not used but either the hand syringe, or an excessively elevated douche of the hydrostatic type, had been used, and chronic littritis developed. Dr. Laird speaks of "failure to promote and maintain adequate dilatation of the urethra": the normal function of the urethra is to pass fluids at low pressures, hence the use of high pressures in treatment is unphysiological. Theoretically one would expect high pressure to force material into the glands of Littré, and while the main urethra can empty itself readily and is flushed by the urine, the antiseptic solution forced into the tortuous glands is not easily removed. Thus the glandular epithelium is subjected for prolonged periods to the action of the foreign solution.

The urethroscopic picture of dilated gland mouths, though not conclusive, is suggestive of the part played by pressure. I am unable to agree as to the importance of second infections. I know of many cases of repeated infection, including cases which have been reinfectured while still under treatment, which have not shown subsequent chronic littritis. The high incidence of chronic littritis which Dr. Laird has found when treatment with sulphaniilamide and irrigations is given from the outset has certainly not occurred in my experience. Of eleven cases which he quotes, two had had gonorrhoea previously, one was first seen six weeks after the discharge began, and one had used a home irrigator—the evidence given does not exclude the possible use previously of excessive pressure. The case with phimosis is interesting. I suggest that the mechanism was that the urethra had been irrigated from within with an infected fluid (urine) at an abnormal pressure.—I am, etc.,

Salford, March 14.

R. C. WEBSTER, M.D.

Plantar Warts

SIR,—I read with interest the article by Dr. R. M. B. MacKenna on plantar warts (*Journal*, March 5, p. 509). The single wart can be anaesthetized satisfactorily with a local anaesthetic if the injection is given slowly. The fibro-fatty tissue of the sole of the foot is very unyielding, and a rapid injection of fluid causes local distension and pain. The novocain takes some time to diffuse into the tissues. I have had some instruments resembling a set of cork-borers made. One is chosen slightly larger than

Treatment of Infantile Paralysis, which criticized the article by Dr. Mills in the *British Medical Journal* of August 28, 1937. The summary of the Commission's findings was reproduced in our issue of February 12, 1938 (p. 350).—ED., *B.M.J.*

Infantile Pyloric Stenosis

SIR,—Mr. David Levi (*Journal*, March 19, p. 646) admits in his reply to my letter (March 5, p. 538) that he has no "practical knowledge" of the treatment of pyloric stenosis with eumydrine, yet he describes the account of my personal experience with this line of treatment as "inaccurate." The object of my first letter was not to recommend that all cases of pyloric stenosis should be treated as out-patients, but to refute Mr. Levi's wholesale condemnation of the treatment of the condition with eumydrine, and to assert that hospitalization is not essential to a successful issue. While I cannot boast the extensive acquaintance with the disease that Mr. Levi manifestly has (never in my life have I seen twenty-eight cases in the course of thirteen weeks), I have nevertheless had the care of a sufficient number of these infants to be able to assure him that hospitalization is not necessary so long as an operation is not called for. No one, I suppose, would deny that some degree of dehydration is present in all cases with active symptoms, but it does not necessarily follow from this that saline transfusions must be administered. The question turns entirely on the degree of dehydration, and if the malady is recognized early—which I am pleased to note is occurring with increasing frequency—dehydration will be more often negligible. In any case, surely it cannot be asserted that for the administration of saline transfusions admission to a hospital or a nursing home is a *sine qua non*.

I frankly admit that my opinion of the value of radiology in the diagnosis of pyloric stenosis "is not universally accepted," but this is no proof that it may not be the right opinion. In conclusion, may I be permitted to commend to Mr. Levi the wisdom of gaining some "practical knowledge" of the value of eumydrine in the treatment of this disease as well as of the value of radiology in its diagnosis. It is the only way of acquiring a correct perspective.—I am, etc.,

London, W.1, March 19.

LEONARD FINDLAY.

Mental Disease due to Parasites

SIR,—At a recent meeting in Paris of the Advisory Health Committee of the League of Red Cross Societies the representative of the National Red Cross Society of Colombia, Professor Calderon, drew attention to the importance of the part played by parasites in mental disease. As secretary of this committee I am trying to collect information on this subject, and would be very grateful to any of your readers who would be kind enough to refer me to literature on it.—I am, etc.,

League of Red Cross Societies,
12, Rue Newton, Paris, XVIe,
March 16.

CLAUDE LILLINGSTON.

Classification of Adventitious Sounds

SIR,—As a student, some years ago, I was puzzled at times over the different classifications of adventitious sounds in the lungs as heard through the stethoscope adopted by various authors. I confine my remarks to those sounds usually described as rales and rhonchi, and extract from three books these definitions.

In *Clinical Methods* (1935), Hutchison and Hunter call all adventitious sounds rales, and subdivide them into two types:

dry (rhonchi), which may be sibilant, medium-pitched, or sonorous; and moist (crepitations), which may be (a) non-resonant and toneless, of a fine, medium, or coarse type, and (b) resonant (metallic or consonant) and of a medium or coarse type. Price (*A Textbook of the Practice of Medicine*, 1925) describes rhonchi as sibilant or sonorous; rales as "crackle, bubble, or gurgle"; and crepitations as "fine, hair-like, crackling sounds." Taylor (*Practice of Medicine*, 1922) also describes rhonchi as sibilant or sonorous; rales as "crackle, bubble, or gurgle"; and crepitations as "very fine rales."

Taylor and Price, in these editions, agree on the classification but differ from *Clinical Methods*, the authors of which consider moist rales as identical with crepitations. May I, in all humility, suggest that as a practicable working classification these adventitious sounds cannot be subdivided much further (with any benefit) than into five: (1) crackle, (2) bubble, (3) gurgle, (4) whistle, and (5) wheeze. Or, if it be preferred, into three: (1) a crepitation or a crackle, (2) a rale or bubble, and (3) a rhonchus or wheeze. Most people, I think it will be agreed, almost always confine their descriptive terminology to crepitations, rales, and rhonchi.—I am, etc.,

Reading, March 10.

W. C. D. WALMSLEY.

Use and Abuse of Carbolic

SIR,—At the opening of the Bernhard Baron Laboratories Sir Charles Sherrington is reported as telling us what we might expect Lister's feelings to be if his marble bust could see and hear on that occasion. On another page of the same issue of the *Journal* (December 11, 1937) Mr. Norman C. Lake, in his article on surgical procedures in general practice, opines: "It is unlikely that he [the general practitioner] will follow Lister to the extent of using carbolic. . . ." On the other hand (both hands really), the practitioner is advised to use a 1 in 1,000 solution of biniodide of mercury in industrial spirit for sterilizing his hands. In his report on the preparation of catgut Professor Bulloch condemns in no uncertain terms this self-same spirituous solution, and adds that though most widely used in hospitals it is not as potent as a watery solution, but both are unreliable. Bulloch also demonstrated that spirit in any strength is only weakly antiseptic, yet it is used universally to sterilize syringes.

Mr. Lake recommends spirit for all syringes except those grossly infected. Where is the line to be drawn? Lister used carbolic lotion for the skin and for instruments all his life, but he used it intelligently. Because others did not use it intelligently he found it necessary quite early in the development of the antiseptic system to defend carbolic—one of the many reagents tested—against the groundless objections voiced by a multitude of heedless users. This defence is admirably set out in a clinical lecture.¹ The readiness with which carbolic lent itself to abuse caused Lister to regret his choice of it; for, after all, as he tells us, any active antiseptic will meet the case, but a solution of biniodide of mercury is not one of them. Under these trying circumstances I can only advise the general practitioner to go up to the Royal College of Surgeons in Lincoln's Inn Fields, take a good look at the marble bust of Lister, and say to himself:

"Believe not each accusing tongue
As most weak people do,
But still believe the story wrong
Which ought not to be true."

—I am, etc.,

A. C. F. HALFORD, M.D., F.R.A.C.S.

Brisbane, Jan. 29.

¹ *Lancet*, 1879, 2, 901.

examinations to an absurd degree, and appears to feel an unprecedented respect for their results.

Sir, I am a medical employee, and my employers may at any moment order me to obtain a few more letters to attach to my name; therefore I beg to sign myself

India, March 3.

H. M.

Pneumonitis

SIR,—There are many points calling for criticism in the paper on pneumonitis by Dr. A. Morton Gill in the *Journal* of March 5 (p. 504), but I am proposing to confine my attention to his remarks on tuberculosis. In the first place, he seems to accept a dilution of 1 in 1,000 tuberculin as sufficient for pronouncement on a Mantoux test, although most workers in this country perform a third test (1 in 100) before passing a final opinion: it is impossible on this criterion to credit his apparent proof that some of his cases were non-tuberculous. Dr. Gill doubts whether the allergic secondary lesion of Wingfield is capable of complete disappearance, or, alternatively, if it does disappear whether it can be tuberculous, but in my experience these lesions can and do disappear without leaving any radiological trace. Admittedly, Wingfield's "attractive theory" is lacking in definite proof, but so also is the differentiation of acute simple pneumonitis from bronchopneumonia. Furthermore, it is not generally accepted, as is suggested by Dr. Gill, that "pulmonary lesions containing tubercle bacilli heal by fibrosis, leaving scar tissue which can readily be detected by x-ray examination." While this is true of gross lesions it is quite inapplicable to many small tuberculous deposits of the tertiary or granulomatous type (usually described as "infiltrative"). It is not uncommon to see small patches of infiltration disappear completely in serial radiographs.

There must also be offered criticism of the statement that "those tuberculous pulmonary lesions, believed to be allergic, which occur in childhood invariably leave recognizable foci on healing—for example, Ghon lesions." If by "recognizable" radiological recognition is implied the statement is untrue, for although over 90 per cent. of us have had a Ghon focus, under 5 per cent. will show radiological evidence of it; if pathological recognition is meant, the comparison has no point in the differential diagnosis of pneumonitis, "a disease in which no fatalities have as yet been recorded." It is surely a postulate of the theory of bacterial allergy that the state of allergy cannot be established until the primary infection has been well entrenched if not actually overcome. For this reason the inclusion of the universally accepted primary Ghon focus amongst its own allergic sequelae is manifestly absurd.—I am, etc.,

Brompton Hospital, S.W.3, March 18.

G. S. ERWIN.

X-Ray Film Developing Box

SIR,—Mr. B. Whitchurch Howell (*Journal*, March 19, p. 650) is apparently completely unaware that the process of development which I described in the *Journal* of March 12 (p. 569) dates back in its essentials to the "Ambrotype," the immediate successor of the "daguerreotype," otherwise he would certainly not attempt to credit any particular radiographer with its discovery. The modern version of this process, which originated in the 'sixties, is the ferrotype, well known at seaside resorts. No medical man who happens to be a member of the Royal Photographic Society, as I am, would ever dream of calling one-solution-processing an "invention" just because it is applied to x-ray films. As I said in my original note, we merely

attempted to modify an old process to meet a modern need; this, as the figures show, we have certainly succeeded in doing.—I am, etc.,

Manchester, March 19.

ROBERT G. W. OLLERENSHAW.

Colleagues in Austria

SIR,—In view of recent events we, the undersigned members of the medical profession, desire to express our alarm at the possible fate of our colleagues in Austria. There are in that country many revered physicians and surgeons who are likely to fall into disfavour with the National Socialist Government, either on account of their medical or social views or on account of their belonging to the Jewish race. Judging from what has happened in Germany in the past we are afraid that serious discrimination will be exercised against them and that even the chance to leave a country which is no longer hospitable to them may be refused.

We beg our colleagues in all countries to watch the progress of events with the closest attention and to do all in their power, whether by public protest or by public or private assistance, to stand by any members of our profession who may suffer hardship under the new regime.—We are, etc.

W. RUSSELL BRAIN
W. MACADAM ECCLES
ARTHUR R. ELLIS
RICHARD W. B. ELLIS
DAVID FORSYTH
R. D. GILLESPIE
DONALD HUNTER
ARTHUR HURST
ROBERT HUTCHISON

HORDER
ALAN MONCRIEFF
J. P. MONKHOUSE
E. P. POULTON
H. E. ROAF
JOHN A. RYLE
ADRIAN STEPHEN
C. P. WILSON
W. H. WYNN.

March 21.

Obituary

D. L. STEVENSON, M.A., M.B.

We regret to announce the death on March 12 of Dr. David Lyon Stevenson at his home in Larkhall, Lanarkshire. He was born in 1871, and from Glasgow High School went to study medicine at the University of Glasgow, graduating M.A. in 1892 and M.B., C.M. in 1896. For the past forty years he had practised in Larkhall and district. Throughout that time he was a popular and deeply respected figure, and his excellent work for the medical profession was well known far beyond Lanarkshire.

Dr. Stevenson joined the British Medical Association in 1912, and was chairman of the Lanarkshire Division in 1929-30; he represented his Division at the Annual Representative Meeting on many occasions, and was recently a member of the Scottish Committee and of the Central Council. He had been a member of the Insurance Acts Committee and of the Insurance Acts Subcommittee for Scotland continuously from 1921 onwards, and was for a time secretary of the Lanarkshire Panel Committee. Dr. Stevenson also took a prominent part in the public life of his district: he was a Justice of the Peace and had been vice-chairman of the Larkhall School Board and chairman of the School Management Committee. His interest in the educational welfare of his younger neighbours never ceased, and in practical proof of this he presented annually for the past thirteen years a gold medal to the dux of Larkhall

the wart, which is then punched out, using a rotatory movement of the "borer." When a sufficient depth is reached it will be found that on withdrawing the instrument the wart stands out two or three millimetres from the surface of the foot and can be pulled out with forceps, the base being cut through with fine curved scissors or a tenotomy knife. The usual dressing is then applied. Another method, more prolonged, is to apply a few crystals of salicylic acid to the moistened wart, cover with elastoplast, and leave for a week. Bandaging the foot will prevent the plaster from curling off. The wart and its immediate surroundings are white and mushy on removal of the elastoplast. The debris is curetted and the treatment repeated. The wart completely comes to the surface after four or five applications, and is finally completely curetted away. One advantage of this method is that there is no post-operative pain.—I am, etc.,

R. F. WYNROE,

Flight Lieutenant R.A.F.

Cranwell, March 15.

Pasteurization of Milk

SIR,—Dr. James Kirkland, in the *Journal* of February 5, states that "the *B. coli* found in pasteurized milk are almost invariably of the non-faecal type." If the *B. coli* from manure survives pasteurization, it is obvious that the contaminated milk has not been effectively pasteurized. This raises the question whether *B. coli* can survive a higher temperature than the tubercle bacilli. I would like to know.

My chief objections to pasteurized milk are that it gives a false security and sterilizes the stimulus to produce clean milk and T.T. milk. Moreover, would it not have been advisable in the B.M.A. advertisement to have warned the public that in 1927 an outbreak of typhoid in Montreal was traced to a typhoid carrier working in a pasteurizing plant? There were 5,014 cases and 500 deaths.

Again, with all respect to those who claim to speak on behalf of 37,000 doctors, I cannot understand why no weight is given to the opinion of Dr. Chalmers Watson, one of our leading dietitians, that pasteurization affects the nutritive value of milk apart altogether from its vitamin content. The Economic Advisory Council's Committee on Cattle Diseases have reported that pasteurization has a destructive effect on vitamins C and D in milk.

Sir Leonard Hill's letter in to-day's *Journal* is further proof that the shadow of depopulation and national decline is looming in the near future. Milk is a staple food, and before pasteurization is adopted as a national policy I suggest that it would be wise to test the effects of pasteurization on the fertility vitamins. This could be done by feeding one group of rats on fresh milk and another group on pasteurized milk. It would be interesting to know if this affected their fertility. Let us experiment on animals before experimenting on the nation.—I am, etc.,

London, W.8, March 12.

HALLIDAY SUTHERLAND.

Multiplicity of Special Diplomas.

SIR,—Recently an advertisement appeared in the medical press inviting medical men to sit for the examination of the Fellowship of the British Association of Radiologists, the examination being limited to registered medical practitioners who have held a diploma in radiology for two years. I am not a radiologist nor do I intend to become one, but I feel that it is high time that some medical man rose to protest against the absurd number of diplomas

and examinations that are being introduced and to which we are allowing ourselves to become subjected.

It is not many years since the holding of a recognized qualifying degree or diploma and the possession of suitable experience under a competent member of our profession was all that was required to obtain an appointment in a hospital or other medical institution. Alas! those days have passed away. The fact that one is widely experienced in any branch of the profession or can produce recommendations and testimonials from the leaders of any particular branch of medicine is useless, and what is required is the possession of the fashionable series of letters after one's name. There was a time when the letters M.D. were the hall-mark of medical respectability, but fashions change, and to-day M.R.C.P. or F.R.C.S. hold the field; it is the letters that matter, what they signify seems unimportant. I know of two cases where appointments to ophthalmic surgeons' positions were made because of the possession of the magic symbol F.R.C.S., though in one case it was obtained in gynaecology and obstetrics and in the other with oto-rhino-laryngology as the main subject, in neither case ophthalmology being included; for, as these Fellows told me, the examiners in ophthalmology held ideas different from their own and certainly would not pass them.

The last few years have seen the foundation of the College of Obstetricians and Gynaecologists and the British Association of Radiologists. No one can dispute the desirability of these societies so long as they limit their activities to promoting the growth of knowledge in their specialty, but when they start by presenting each foundation member with an imposing series of letters to be attached to his name, and then setting up an examination board to present these same letters to those who were not smart enough or old enough to apply for them at the beginning, one wonders whether they are not exceeding their usefulness. This is not all, for the College of Obstetricians and Gynaecologists, which yet had hardly recovered from its own birth pains, is already attempting to limit appointment to certain positions to its own members or fellows, while the Association of Radiologists, though not yet taking this step, sets itself up to re-examine those who already possess a recognized diploma in radiology.

Medicine is a rapidly growing subject, and the possession of specialist knowledge is undoubtedly of value, but are the holders of the diploma in child health, the diploma in anaesthetics, the diploma in psychological medicine, in tuberculosis, in tropical medicine, or in radiology better than their brethren who have practised these subjects for years and have never bothered to collect the fashionable letters? Personally I doubt it. Our sister profession of Law does not insist on an LL.D. before taking silk, or a D.C.L. for a seat on the bench. Yet the legal system does not seem to suffer. British medicine alone seems to find the multiplicity of special diplomas necessary; in America and on the Continent, where medical science is equally advanced, a primary medical qualification and adequate experience appear to be all that is required for senior medical appointments.

It will of course be argued that the possession of a postgraduate diploma is merely to show that a certain standard of knowledge has been obtained, and that appointments are made on previous experience. Of late the results of even the simplest examinations have been shown to be entirely fallacious as a test of knowledge, and it has never been even suggested that any examination is a test of ability. Yet the medical profession, which should be the leader of modern thought, has multiplied

UNIVERSITY OF LIVERPOOL

The Council of the University has appointed Dr. Rupert Montgomery Gordon, director of the Sir Alfred Lewis Jones Research Laboratory, Freetown, Sierra Leone, to the Dutton Memorial Chair of Entomology, in succession to Emeritus Professor W. S. Patton, who retired in December. Professor Gordon graduated M.B., B.Ch. at Trinity College, Dublin, in 1916, and after serving in the war took the diploma in tropical medicine and worked on the Amazon. In 1924 he was transferred to Freetown. Last year he was awarded the Chalmers Gold Medal by the Royal Society of Tropical Medicine and Hygiene for research in tropical medicine and hygiene.

The following candidates have been approved at the examinations indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—Part A: G. E. Church, N. A. Lawler, W. Niven, F. Pygott.

DIPLOMA IN PUBLIC HEALTH.—Part I: S. Ball, A. Cathcart, M. B. Conzanon, L. R. L. Edwards, A. J. Gill, A. L. Smallwood, Margaret C. Winter.

DIPLOMA IN TROPICAL MEDICINE.—F. Bastawros, P. J. Bourke, O. Einstein, N. Q. Hesse, F. Jacusiel, K. Jilani, *J. Kay, E. Kohlschütter, J. L. Lanceley, B. Nyan.

DIPLOMA IN TROPICAL HYGIENE.—J. L. Dales, V. G. Patwardhan.

* Recommended for the Milne Medal.

Medico-Legal

LIABILITY OF THE RADIOLOGIST

A Mock Trial

The Society of Radiographers held a mock trial at Cowdroy Hall on March 19 entitled "Martin v. The Northside Hospital and Violet Wray," in order to indicate the possible liability at law of a radiographer making a diagnostic exposure. The proceedings were written by Dr. J. Duncan White and Dr. E. Rohan Williams, and the play was produced by Mr. Cuthbert Andrews.

"Mr. Crawford Snoop, K.C." (Mr. Andrews), for the plaintiff, said that on July 12 the plaintiff's youngest child had fallen and hurt his arm. She had taken him to the Northside Hospital, where the arm had been x-rayed. The mother had received a shock and had been burned on the head and her mental equilibrium had been impaired. She had had three weeks' holiday at Southend-on-Sea. She claimed damages and her expenses.

"Sir Archibald Head" (Dr. Duncan White) submitted on behalf of the defendants that there was no case against the hospital, as the governors were not responsible for properly qualified assistants. The other defendant held the certificate of membership of the Society of Radiographers. She had taken all proper precautions in carrying out her work.

"Mr. Justice Likely" (Mr. J. A. Crowther) cited *Hillier v. St. Bartholomew's Hospital* (1909, 2 K.B. 820) and *Strangeways v. Lesmere v. Clayton* (1936, 1, E.R. 484), and applied the words of Lord Justice Kennedy to all experts exercising skill in work in which the governors could not properly interfere. Radiographers were, he said, included, and he dismissed the hospital from the action, but ruled that the Court must hear evidence of fact in the case against "Miss Wray."

"Mrs. Maria Martin" (Miss A. E. Madden), the plaintiff, a widow aged 29, said that she had felt a dreadful pain and known no more. She had awakened with an awful pain in her head. Defendant had given her a restorative, and put a bandage on her head. Since then she had "been all to pieces," and had not had a good night's sleep for months. "It was like as if some of them rays 'ad got into me inside and I'm all spasms," she added. Cross-examined, she admitted she had never consulted a doctor; she did not believe in doctors. Defendant had told her to keep quite still during the examination.

"Miss Amelia Hobbs" (Miss M. V. Sprague), a friend of the plaintiff, testified to the change in her friend after the shock; she "seemed all broke up." In cross-examination she admitted that she also had gone to Southend.

"Dr. O. H. Maloney" (Dr. Rohan Williams), honorary radiologist to the Northside Hospital, testified to the character and reliability of the defendant.

"His Lordship" remarked that witness's catalogue of the requirements for a good radiographer sounded like an amalgamation between the Admirable Crichton and a member of the angelic chorus.

"Miss Violet Wray" (Miss M. M. T. Aleyn), the defendant, described her training and experience. She had told plaintiff to sit on a chair, hold the child still, and sit still herself. Plaintiff had jumped forwards and upwards at the moment of exposure and sustained mild burning on her scalp and beneath her suspender button. The house-surgeon had examined her and said she might go home.

Counsel for the plaintiff suggested that the use of 100 mA was dangerous, but witness replied that he was misinformed, as the only danger was to the tube, and not to the patient.

"Professor Nathaniel Percy Littlar" (Dr. G. W. C. Kaye), an expert witness, expressed the opinion that defendant's handling of the case had been in accordance with usual practice. Risks were inseparable from x-ray work. He explained to the Court the mechanism of production of electrical shock, while the judge slept.

"His Lordship," summing up, said that the action was unique; there had been no case before the courts in which the defendant had been a radiographer. The jury had to decide whether or not defendant had been negligent. He asked whether it was wise to allow plaintiff to hold the child during the examination, since she could have no acquaintance with the risks of x rays.

The jury returned a verdict for the defendant.

The production and acting were first-class; the atmosphere was realistic and the situations were amusing. With improvised scenery Mr. Andrews nevertheless suggested very skilfully the atmosphere of the High Court, and in certain details, such as the demeanour of the attendant and the completely detached absorption of the associate in his own clerical work during the proceedings, he gave evidence of careful observation. The legal aspect, however, was rather deplorably scamped. Perhaps the position of the hospital was not necessary for the purpose of the argument, and its discussion would certainly have prolonged the play, but the grounds for dismissing the hospital from the suit were very inadequate. The charge of negligence against the radiographer was not supported by any evidence at all. Her qualifications and duties were, however, clearly set out in the evidence, and the necessity for some form of collective legal defence was stressed by the judge in his summing-up.

The Services

COMMISSIONS IN THE R.A.M.C.

Applications from medical men for appointment to commissions in the Royal Army Medical Corps are invited by the War Office. Candidates will be selected for commissions without competitive examination, and will be required to present themselves in London for physical examination and interview on or about April 22. They must be registered under the Medical Acts, and normally must not be over the age of 28 years.

Successful candidates will, in the first instance, be given short service commissions for five years. During the fourth year of this period they will be given the opportunity of applying for permanent commissions in either the Royal Army Medical Corps or the Indian Medical Service. Those not selected will retire on completion of five years' service with a gratuity of £1,000.

Full particulars of the conditions of service and emoluments, also forms of application, may be obtained on application, either by letter or in person, to the Assistant Director-General, Army Medical Services, the War Office, London, S.W.1.

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers to the Naval Medical Compassionate Fund will be held on April 22, at 3.15 p.m., at the Medical Department of the Navy, Admiralty, S.W.1, to elect six directors of the Fund.

Academy. A noted athlete in his younger days, he played cricket for his university and football for Queen's Park F.C. He was also keen on bowls and lawn tennis, and regularly visited Wimbledon to watch the championships. He is survived by his wife and one son, with whom deep sympathy is felt in their bereavement.

By the death of JOHN MCALISTER BOYD on March 11 Wigan has lost one of her outstanding personalities and medicine a pioneer of those ethical rules and unwritten social observances which have unified the local profession as we see it to-day. Born at Aghadowey, Co. Derry, in 1867, he was educated at the Coleraine Academical Institution, Magee College, Londonderry, where he was the Ironmongers' Scholar, 1885-7, Queen's College, Cork (medical exhibition, 1889), and Queen's College, Belfast, graduating B.A. in 1892 and M.B., B.Ch., B.A.O. of the Royal University of Ireland in 1897. He came to Wigan in 1898, shortly afterwards joining the British Medical Association, of which he was a staunch supporter. He was president of the Wigan Medical Society. A sportsman in the best sense of the term, "J. M. B." played rugby for Magee and Cork Colleges as a student, and later took up golf, at which he was no mean performer. A lover of the classics and good literature, erudite, and a brilliant raconteur with a charming manner, it is not surprising that John Boyd was greeted with acclamation by his vast circle of friends. A sound clinician, his aptitude extending to the literature of his profession, he was well versed in modern medical thought. He will be greatly missed by his patients, among whom were many who deemed it an honour to be called his friend. He married in 1898 Margaret Elizabeth, only daughter of the late Francis Furey of Killyleigh, Co. Down, who survives him.—W. E. C.

We regret to report the death, on March 2, of Dr. THOMAS BRETT YOUNG, who had practised in Halesowen, North Worcestershire, for over fifty years. Born in 1856, he was a medical student at Queen's College, Birmingham, obtaining the diplomas L.R.C.P., L.R.C.S.Ed., and L.M. in 1883 and the M.R.C.S.Eng. five years later. He graduated M.D.Brux. in 1888. Dr. Brett Young went from Somerset to Halesowen, and was appointed first medical officer of health to that town when it became the centre of a rural district forty-three years ago. He was a certifying surgeon under the Factory Act for many years, tuberculosis officer for the Halesowen area of Worcestershire, and contributed largely to the success of the child welfare clinics in the town. He was for a time warden at the parish church, and was interested in Freemasonry. He had been a member of the British Medical Association for thirty-nine years. Despite increasing illness during his latter years he continued actively at his work, being widely popular and highly respected. He was the father of the well-known novelist, Francis Brett Young, who graduated in medicine in 1906, and of the late Eric Brett Young, also an author. Dr. Thomas Brett Young, who had married twice, leaves a widow.

Dr. WILLIAM HENRY DAVIS, formerly of Wrekenton, whose death has been reported from Carlisle, received his medical education at Newcastle-on-Tyne, and qualified L.S.A. in 1880. Nearly fifty years ago he followed his brother in the practice founded about 130 years earlier in Wrekenton and Low Fell by their grandfather. He continued to practise there until 1934, when he retired and went to live at Carlisle with his married daughter. He joined the British Medical Association in 1893. While devoting himself to the responsibilities of the large private practice which extended through Wrekenton, Low Fell, and Gateshead-on-Tyne, Dr. Davis found time to interest himself actively in the work of the Church of England and the fortunes of the Conservative Party in politics. He was buried at Lamesley on March 8.

Mr. FREDERICK SHANN, consulting surgeon to the York County Hospital, died on March 8 at Farnham, Knaresborough, aged 88. After studying medicine at Cambridge and St. George's Hospital he took the M.R.C.S. in 1875 and the L.R.C.P. in 1876, and served as clinical assistant at the Brompton Hospital, house-physician at St. George's, and house-surgeon at the Seamen's Hospital, Greenwich. He practised in York for many years, and in 1902 was appointed sheriff of the city, and two years later a magistrate. Mr. Shann served with the 1st Volunteer Battalion of the West Yorkshire Regiment and attained the rank of surgeon lieutenant-colonel, receiving the Volunteer Officers' Decoration. He retired from active work in 1927.

Dr. THOMAS WILLIAM SCALE, who died at Aberdare, South Wales, after a short illness, aged 82, had been a member of the British Medical Association for nearly sixty years. Born at Merthyr Tydfil on April 12, 1856, the son of Edward W. Scale, he spent his schooldays at Alston College, Lancashire, and studied medicine at the Middlesex Hospital and Newcastle-on-Tyne. He became L.S.A. in 1879, M.R.C.S. in 1880, L.R.C.P. in 1897, and M.D.Durh. in 1898. Before settling in practice in Glamorganshire, Dr. Scale had been house-physician at the Middlesex Hospital and assistant medical officer at the Royal Portsmouth Hospital. He was for many years surgeon to the Aberdare General Hospital.

Dr. CHARLES KIRK TOLAND, who died suddenly on March 14 after a medical meeting at Leicester, was in practice at Ullesthorpe, Rugby. He had received his medical education at the University of Glasgow, where he graduated M.B., C.M. in 1895, and proceeded M.D. in 1912. He was surgeon to Chief Baron Smith's Almshouses, and had previously been on the medical staffs of the Dunstable Isolation Hospital and the ophthalmic department of the London County Council School Treatment Centre. He joined the British Medical Association in 1910, and was president of the Leicester and Rutland Branch during the current year. He contributed a report of a case of ruptured kidney to the *British Medical Journal* in 1897.

The death is announced of the Swedish ophthalmologist Professor HANS GERTZ of the Karolinska Institute in Stockholm. He was born in 1876. Much of his research as an ophthalmologist was concerned with purely physiological problems, and he was particularly interested in the mechanism of the movements of the eyes. Special mention should be made of his investigation of the mechanism enabling the eyes to remain looking at a certain object in spite of various movements of the head.

Universities and Colleges

UNIVERSITY OF OXFORD

Mr. G. R. Girdlestone, F.R.C.S., Nuffield Professor of Orthopaedic Surgery, has been elected to a Supernumerary Fellowship at New College.

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

Bucknill Scholarship

The examination for the Bucknill Scholarship, value 160 guineas, and for two exhibitions, value 55 guineas each, will begin on May 9. The subjects for the examination are chemistry, physics, botany, zoology, and English essay. The scholarship and the two exhibitions are tenable at University College, London. Entry forms should be obtained from the secretary of University College, Gower Street, W.C.1, and returned not later than April 27.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 12, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 125 great towns (i) in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns (ii) in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	40	—	11	1	2	21	4	8	3	2		
Deaths	3	—	2	—	—	—	—	1	—	—		
Diphtheria	1,492	170	267	57	42	1,086	155	187	40	50	1,137	176
Deaths	40	5	9	2	—	34	6	4	4	1		
Dysentery	142	38	48	—	—	25	3	20	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Encephalitis lethargica, acute	5	—	—	1	—	3	—	1	—	—		
Deaths	3	—	—	—	—	—	1	—	—	—		
Enteric (typhoid and paratyphoid) fever	17	—	3	9	3	30	6	3	6	3	29	—
Deaths	1	—	1	—	—	—	—	—	—	—		
Erysipelas	—	—	62	4	2	—	—	93	5	6		
Deaths	—	1	—	—	—	—	1	—	—	—		
Infective enteritis or diarrhoea under 2 years	50	17	4	6	2	48	14	6	4	1		
Deaths	—	—	—	—	—	—	—	—	—	—		
Measles	55	13	1,718	1	171*	9	—	114	1	3		
Deaths	—	—	16	—	18	—	—	—	—	—		
Ophthalmia neonatorum	114	8	35	—	—	81	4	20	—	1		
Deaths	—	—	—	—	—	—	—	—	—	—		
Pneumonia, influenzal †	1,430	172	10	14	14	1,209	89	32	21	5	1,726	160
Deaths (from Influenza)	76	12	3	3	1	144	12	14	7	1		
Pneumonia, primary	—	—	287	9	—	—	—	247	14	—		
Deaths	—	31	—	39	19	—	17	—	27	20		
Polio-encephalitis, acute	—	—	—	—	—	2	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Polio-myelitis, acute	4	—	—	—	—	3	1	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Puerperal fever	1†	1	12	5	—	54	5	15	2	1		
Deaths	—	—	—	—	—	—	—	—	—	—		
Puerperal pyrexia	180	21	30	—	—	110	12	13	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Relapsing fever	—	—	—	—	—	—	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Scarlet fever	2,515	196	411	102	104	1,664	172	378	89	42	1,917	269
Deaths	6	—	1	1	—	3	—	4	3	—		
Small-pox	—	—	—	—	—	1	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths	—	—	—	—	—	—	—	—	—	—		
Whooping-cough	14	3	70	2	17	26	6	767	4	5		
Deaths	—	—	—	—	—	—	—	27	—	1		
Deaths (0-1 year)	401	76	74	44	26	480	75	112	46	26		
Infant mortality rate (per 1,000 live births)	67	63	—	—	—	76	62	—	—	—		
Deaths (excluding stillbirths)	5,559	1,147	750	238	181	5,781	1,115	821	266	175		
Annual death rate (per 1,000 persons living)	13.7	14.4	14.1	16.1	16.0	14.4	13.9	15.5	18.1	16.8		
Live births	6,899	1,271	962	327	254	5,357	1,277	839	295	193		
Annual rate per 1,000 persons living	17.0	16.0	19.6	22.1	22.5	15.8	15.9	17.2	20.1	19.0		
Stillbirths	270	55	—	—	—	305	46	—	—	—		
Rate per 1,000 total births (including stillborn)	38	41	—	—	—	46	35	—	—	—		

(i) 122 great towns in 1937.

(ii) " " " " " "

* 168 cases in Belfast alone.

† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

DEATHS IN THE SERVICES

Major DONALD JOHN MACDOUGALL, M.C., R.A.M.C., died suddenly at Bombay on February 18, aged 46. He was born on April 28, 1891, and was educated at Glasgow, where he graduated M.B., Ch.B. in 1915. Immediately afterwards, on October 28, 1915, he took a temporary commission as lieutenant in the Royal Army Medical Corps, became temporary captain after a year's service, and took a permanent commission as captain from June 1, 1920, and became major on October 28, 1927. He served in the war of 1914-18, in which he received the Military Cross.

Colonel WILLIAM ADAIR QUAYLE, Madras Medical Service (ret.), died at Budleigh Salterton, Devon, on March 16, aged 82. He was born on December 9, 1855, the son of Francis Quayle, farmer of Ballyculter, County Down, was educated at Queen's College, Belfast, and graduated M.D., M.Ch. in 1877. He entered the Indian Medical Service as surgeon on March 30, 1878, attained the rank of colonel on April 1, 1908, and retired on April 30, 1911. He had been a member of the British Medical Association for forty-three years.

Lieutenant-Colonel CHARLES NORMAN BENSLEY, Bengal Medical Service (ret.), died at High Wood, Cookham Dean, on March 16, aged 74. He was born at Raipur, Central Provinces, India, on October 20, 1863, the son of Assistant Surgeon, afterwards Surgeon Major, C. E. N. Bensley, I.M.S., and was educated at Edinburgh, where he graduated M.B., C.M. in 1885. He entered the Indian Medical Service as surgeon on September 30, 1886, became lieutenant-colonel after twenty years' service, and retired on November 12, 1911. During the war of 1914-18 he rejoined for service in India on February 19, 1915, and served for two years.

Colonel CECIL BIRT, late R.A.M.C., died at Sydenham on March 18, aged 78. He was born at Leamington on February 10, 1860, the son of the late Dr. Thomas Birt, was educated at Birmingham and at University College, London, and took the M.R.C.S. in 1881 and the L.R.C.P. in 1882. After filling the post of surgical assistant at the General Hospital, Birmingham, he entered the Army as surgeon on August 2, 1884, received a brevet lieutenant-colonelcy on August 22, 1902, for service in South Africa, became lieutenant-colonel on August 2, 1904, and colonel on January 1, 1914, and retired on December 26, 1917. He served in the Sudan campaign of 1885, at Suakin (medal with clasp, and Khedive's bronze star); in the Chitral campaign of 1895, with the relief force (medal with clasp); in South Africa in 1901-2, in operations in Cape Colony, the Orange River Colony, and the Transvaal (mentioned in dispatches in the *London Gazette* of July 29, 1902, Queen's medal with five clasps, and brevet of lieutenant-colonel), and in the war of 1914-18. He won the Alexander Memorial Gold Medal in 1894 and 1897.

EPIDEMIOLOGICAL NOTES

Diphtheria and Scarlet Fever

Compared with the figures recorded last week, there has been a decrease in the incidence of diphtheria except in Northern Ireland, where 42 cases were notified, compared with 38 in the previous week; the number of deaths was also lower, except in Scotland, where 9 were recorded, compared with 7 in the previous week. Despite these reductions, the figures for England and Wales remain much higher than the median value for the last nine years, while for London they are slightly lower. On the other hand, scarlet fever appears to be increasing in prevalence both in England and Wales and in London. As in respect of diphtheria, figures for England and Wales are greatly in excess of the median value for the corresponding weeks of the last nine years, while in London they are appreciably less.

Measles

In the 125 Great Towns there were 50 deaths from measles, compared with 44 in the previous week; of these 13 occurred in London, 1 less than in the previous week. Other centres from which deaths were reported are: Liverpool 7 (3), Sheffield 4 (0), Manchester 3 (1), Croydon 2 (0), Bristol 2 (1), Plymouth 2 (2). The epidemic of measles in London continues to spread; 2,521 cases were reported in the L.C.C. elementary schools during the week

under review, compared with 2,165 in the previous week, and the average daily admissions to the L.C.C. fever hospitals were 101, compared with 86 in the previous week, while the number of cases of measles under treatment in these hospitals on Friday, March 11, was 1,892, compared with 1,542 in the previous week. On the same day there were under treatment in the L.C.C. fever hospitals 1,275 (1,277) cases of diphtheria, 840 (819) of scarlet fever, and 271 (277) of whooping-cough. The figures in parentheses refer to the numbers in the previous week. Figures are available of notifications of measles for the week ended March 12 in the metropolitan boroughs in which notification is in force: Battersea 143, Bermondsey 54, Finsbury 27, Fulham 51, Greenwich 68, Hampstead 69, Lambeth 355, St. Pancras 172, Shoreditch 17, Southwark 207, Stepney 51. In Scotland 1,718 cases were notified, compared with 1,747 in the previous week; the figures in Glasgow being 1,188 (11), Edinburgh 105 (1), Paisley 79, Dundee 140, Aberdeen 51. The figures in parentheses denote the deaths. In Northern Ireland there were 171 cases, compared with 237 in the previous week; the figures for Belfast were 168 against 217, while deaths were 18, compared with 13 in the previous week. During the week one death from measles was recorded in Dublin, the same number as in the previous week.

Small-pox

It is reported in the Press that a man suffering from a mild form of small-pox was admitted to the isolation hospital at Gravesend on March 21.

Reports from Hong Kong indicate that there is at present a small-pox epidemic of some magnitude. The disease is almost entirely confined to the natives, only 3 European cases so far being reported, 1 of which was fatal. In the week ended March 12 there were 214 cases (128), compared with 185 (188), 164 (132), 228 (199), in the three weeks immediately preceding. The figures in parentheses refer to deaths in the same week. The first case was notified on November 24, 1937, and from that date until February 2, 1938, the total number of cases notified was 259, with 159 deaths. An energetic vaccination campaign has been in progress since the beginning of the outbreak. Minor small-pox epidemics are usual in the cold season in Hong Kong. In the six-year period 1932-7 the average number of cases in each year was 190, varying from 566 in 1933 to 23 in 1936. The increase of cases this season is due mainly to the large influx of refugees from other parts of China, with consequent overcrowding of urban areas in and around Hong Kong.

Enteric in Spain

The Sanitary Administration of the Spanish Republic at Barcelona has prepared a table in which for a certain number of provinces, occupied wholly or in part by the Republican troops, a comparison has been made between the number of cases and deaths from typhoid fever in 1935 and 1937. From this has been calculated the rates of morbidity and mortality per 100,000 inhabitants during the two years, showing the increase or decrease in these rates for 1937 as compared with 1935. Among the 19 provinces from which data were available 10 showed in 1937 increases and the remaining 9 decreases in typhoid morbidity as compared with 1935, while mortality was seen to have increased in 13 of the provinces and decreased in 6. It was pointed out that the figures can only be regarded as approximate on account of the exceptional circumstances obtaining throughout Spain on account of the civil war.

Typhus in Africa

Typhus seems to be on the increase in Morocco. There were 418 cases notified in the week ended March 5, compared with 298 in the previous week, the highest incidence being in Marrakesh 98, Casablanca 29, Chaouia 54, Rabat 30. In the same week there were in Tunisia 100 cases, compared with 59 in the previous week, and in Egypt 36 cases were recorded.

Home Secretary to instruct the police not to bring actions of this kind against them or, alternatively, to take steps to get the law altered.

Mr. GEOFFREY LLOYD replied that the law relating to the obstruction of the highway applied to all vehicles alike. The Home Secretary had no authority to advise the police to refrain from enforcing it against any particular class of the community, nor did he on present information see grounds for the introduction of legislation on the lines suggested. So far, however, as was consistent with their duty to prevent obstruction of the highway, the police already endeavoured to allow a reasonable latitude to drivers who had good reason to leave their vehicles waiting on the streets for short periods.

Marriage Allowances for Naval Officers

Presenting the Navy Estimates on March 17, Mr. SHAKESPEARE said the Admiralty had re-examined the claim of the married officers. In future marriage allowance would be payable to the married officer at the age of 30, and was applicable to all officers up to the rank of captain in the Navy or up to the rank of lieutenant-colonel in the Royal Marines. A reduction of 2s. a day would be made in the full pay of all officers of these ranks with the exception of the few lieutenants concerned. Marriage allowance for a captain R.N. would be 5s. 6d. a day and for other commissioned officers 4s. 6d. The allowances for children would be 2s. a day for the first child and 1s. a day for each subsequent child. The Admiralty had to reserve for further consideration the applicability of the present scheme, with or without some special modification, to the medical branch. He sympathized with the natural disappointment which all Royal Naval medical officers would experience when they heard this statement. Every effort was being made to arrive at an equitable arrangement for all naval medical officers at a very early date.

Extent and Cost of Vaccination

On March 21 Mr. GROVES asked the Minister of Health if he would supply particulars for each of the last five years for which complete figures were available of the number of public vaccinations and revaccinations, the expenditure of local authorities on vaccination, and the expenditure on the Government lymph establishment.

Sir KINGSLEY WOOD replied that the information desired was as follows:

Public Vaccinations and Revaccinations (England and Wales)

Year ended September 30	Public Vaccinations	Revaccinations
1932	207,543	16,624
1933	189,857	9,628
1934	184,137	14,802
1935	183,917	9,267
1936	176,618	11,434

Net Expenditure on Vaccination of All Local Authorities (England and Wales)

	£
1931-2	136,714
1932-3	136,365
1933-4	128,339
1934-5	125,646
1935-6	126,775

Net Expenditure of Government Lymph Establishment

	£
1932-3	12,583
1933-4	11,752
1934-5	11,492
1935-6	12,263
1936-7	12,069

Water Supply from Addington Well, Croydon.—On March 21 Mr. GROVES asked the Minister of Health whether the water from the Addington well at Croydon was still under suspicion, and, if so, what was the cause of the suspected contamination of the water. Sir KINGSLEY WOOD replied that it was considered that, in view of the situation of this well, the water should, as a precautionary measure, be subjected to an effective method of treatment.

Medical News

Mr. J. E. H. Roberts will read a paper on "The Surgical Treatment of Pulmonary Cavities" before the North-Western Tuberculosis Society in the physiology theatre of the Medical School, Manchester University, on Thursday, March 31, at 3.15 p.m. Medical practitioners interested are cordially invited to attend.

A sessional meeting of the Royal Sanitary Institute will be held at Yeovil Council Chamber on Friday, April 8, at 5 p.m., when discussions will take place on "Milk and Pasteurization," to be opened by Sir William Savage, and on "The Administration and Management of Housing Sites," to be opened by Mr. Ivor F. Shellard.

The dinner-discussion arranged by the West London Medical-Chirurgical Society for April 1 has had to be postponed until Friday, April 8, at 7.45 p.m. Dr. J. F. Halls Dally will introduce the discussion on "Recent Advances in Rheumatism." Dr. W. S. C. Copeman will show a cinematograph film, and Dr. C. B. Dyson will speak on serology. The place of meeting is the De Vere Hotel, Kensington Road, W.

The thirty-first congress of the Italian Society of Dermosyphilography will be held in Rome from April 22 to 24, when the subjects for discussion will be: (1) foci and dermatoses; (2) foci and the urogenital apparatus; and (3) non-gonococcal urethritis. Further information can be obtained from the secretary, Professor V. Montesano, Via Campo Marzio 69, Roma.

The seventh French Congress of Gynaecology will be held at Nice from April 19 to 23, when the subject for discussion is gonorrhoea in the female. The congress will be followed by an excursion to Corsica from April 24 to 28. Further information can be obtained from Dr. P. Gasquet, 47, Boulevard Victor-Hugo, Nice.

The fourteenth Congress of the German Pharmacological Society will be held in Berlin from April 24 to 28, when the following subjects will be discussed: local anaesthesia, carcinogenic substances, and coffee and caffeine. Further information can be obtained from Professor Flury of Würzburg, the president, or Professor Behrens of Kiel.

The Bath International Conference on Rheumatic Diseases will open on the evening of Thursday, March 31, and will continue till midday, April 3, under the presidency of Lord Horder. Professor F. R. Fraser, Sir Humphry Rolleston, and Sir Walter Langdon-Brown are presidents of sessions. There is no fee for participation in the congress, but anyone wishing to attend should communicate immediately with the honorary secretary, 6, The Circus, Bath in order to book accommodation and obtain the programme and invitations to the social functions.

On March 3, at the New York Academy of Medicine, Dr. James Alexander Miller, the president, presented the Academy medal to Dr. Bela Schick on the occasion of the twenty-fifth anniversary of the publication of his work on immunity in diphtheria. The Schick test, first described in the *Münchener medizinische Wochenschrift*, 1913, 60, 2608, "laid the basis for the present-day effective campaign of prevention against this dreaded disease." Dr. Schick, born at Boglar, Hungary, in 1877, took his M.D. at Graz in 1900, and, after a distinguished career in Vienna, went to the United States of America in 1923 as paediatrician-in-chief at the Mount Sinai Hospital, New York.

Dr. Burgess Barnett, who was curator of reptiles under the Zoological Society of London from 1930 to 1937, has been appointed superintendent of the Rangoon Zoological Gardens, and will take up his new duties in June. Dr. Barnett intends to continue his research work on snake venom and its applications to medical practice.

Medical Notes in Parliament

In the House of Lords on March 22 the National Health Insurance (Amendment) Bill was read the third time and passed. The Housing (Financial Provisions) Bill was read a second time.

Unemployment and foreign policy were debated by the House of Commons this week on the Consolidated Fund Bill and the Estimates for the Defence Services were debated on report.

On March 22 accounts of the income and expenditure of the General Medical Council and of the Branch Councils for 1937, and also of the Dental Board of the United Kingdom for the same year, were presented to Parliament. There was also laid on the table a return of the visits made and patients seen by the Commissioners in Lunacy during the six months ended December 31, 1937.

The Registration of Stillbirths (Scotland) Bill passed through a Standing Committee of the House of Commons, with one amendment, on March 17.

The Children and Young Persons Act (1933) Amendment Bill was reported to the House of Commons on March 22 from standing committee with amendments and with its title changed to the Children and Young Persons Bill.

In the House of Commons on March 22 Mr. Elliot presented a Bill to amend the law relating to marriage in Scotland.

Infanticide Bill

In the House of Lords on March 22 Viscount DAWSON OF PENN moved the second reading of the Infanticide Bill. He said that the intention of the Bill was to secure recognition by Parliament that in certain circumstances the killing of infants was provoked by illness and not always by criminal intent. The subject had vexed the minds of lawyers and the public for seventy years. In 1861 a Bill created the offence of concealment of birth. In 1909 a Bill passed through the House of Lords providing that should a judge think proper he could direct a jury to acquit a defendant of murder and convict that person of manslaughter, and the sentence was left to the judge. Even up to 1909 there was no comprehension that there was a group of cases in which the cause was illness rather than criminal intent. In 1922 there came the Infanticide Act, a more far-seeing measure. Thus theory lagged behind practice by no less than sixty years. It could not be in the interests of justice that courts should be forced to find loopholes to get away from Acts of Parliament, and, when they could not find them, be forced to put up wretched people on charges of murder and pass sentences of death, which both judges and juries knew would not be carried out.

The Act of 1922 provided that in cases where at the time a mother caused the death of her child she had not fully recovered from the effects of giving birth to a child, and the balance of her mind was thereby disturbed, she would be guilty of manslaughter. There was, however, no definition in the Act of what was meant by a "newly born" child. In his Bill the term "newly born" had been omitted and a time-limit of a year inserted. The second clause of the Bill gave a jury power to bring in a verdict of infanticide on their own initiative. When a defendant appeared in a court of first instance it was neither fair nor necessary that she should be remanded to prison. Where possible bail should be allowed, but where that was not possible she should be remanded to a hospital or home. It was damaging to such a defendant and to her prospects of recovery that she should be remanded to prison. In a large proportion of these cases, except in the severe ones, there was a complete recovery. Forty-two per cent. of the female admissions to Broadmoor were for child-destruction, and half of these cases recovered. It was an unfortunate thing that those women should have the Broad-

moor stamp. It directed attention to the desirability of treating them as cases of illness.

In their desire to be impartial the House must be careful not to provide means of escape for the murderer of the unwanted child. That was one reason why he had limited the provisions of the Bill to one year. A group of influential people thought he ought to have extended the period beyond one year. It was rare to find cases of insanity following childbirth which did not recover within a year. The Bill implied that certain offences could be due to mental illness, and when that illness amounted to irresponsibility for the offences charged the patient should neither be punished nor dubbed as a lunatic, but should be bound over for appropriate treatment. It would be a practice more in harmony with present-day thinking and sound humanity.

Lord SNELL said the Labour Party gave the Bill their general support, but that if a patient of this kind was sent to a hospital they were concerned to know what sort of hospital it would be. A criminal lunatic asylum was not the right place, nor was a mental hospital. The MARQUESS OF CREWE, Lord ATKIN, and the ARCHBISHOP OF CANTERBURY supported the Bill. Lord ARNOLD suggested that consideration should be given to the extension of the Bill to cover cases of mental disturbance due to distress and despair arising from solicitude for the child or extreme poverty, or either of these.

The EARL OF MUNSTER said that everyone would sympathize with the object of the Bill in so far as it was intended to reduce the number of cases in which sentence of death had to be pronounced by the court on a woman who had killed her child in distressing circumstances, and for whom it was clear that a reprieve would be granted. The proposal in the Bill was to get rid of the limitation under the Act of 1922 to cases where the child was "newly born," and to substitute a limitation to cases where the child was not more than 12 months old. The term "newly born" had been criticized on the ground that it was somewhat indefinite, but experience did not suggest that the difficulty would, in fact, be felt. In cases where a verdict of infanticide was returned the death of the child generally occurred within the first few hours of birth. He was advised that the courts had had no difficulty whatever in interpreting the term. The question for how long a period childbirth might be liable to have a disturbing effect on the mother's balance of mind was a medical one. In exceptional cases it might be a very long time, with possibly lasting effects on the mental balance. In considering these cases, however, it was necessary to have regard to what was normal. The Bill would not enable verdicts of infanticide to be substituted for verdicts of murder in any considerable number of cases. Nevertheless the Government would not oppose the second reading, and would be prepared to give it most careful consideration in committee.

Lord DAWSON said that when this question was first brought up after a painful case at the Central Criminal Court he did not go into the matter in his personal capacity, but took care, as President of the Royal College of Physicians, to refer it to a committee of experts. They went into the matter, and the conclusions which he had put forward in the debate were a result of that united wisdom. When their report was in his hands he brought it to a gathering of leading K.C.s and some medical men, and there was agreement such as he had indicated. Infanticide, happily, was not a common thing. The Bill dealt with quality rather than quantity. A number of his distinguished colleagues had assured him that the cases of insanity which were delayed and occurred during lactation were far more numerous than he had imagined.

The Bill was read a second time.

Doctor's Obstruction of the Highway

Sir CHARLES EDWARDS asked, on March 11, whether the Home Secretary knew that a medical practitioner of Peckham was summoned for leaving his car outside a house for fifteen minutes when visiting a patient, and was fined 10s. at the Old Street police court on February 25; Sir Charles, in order that doctors could carry on their professional duties, asked the

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

244 Familial Syphilis and Tuberculosis

RÖSSLE (*Schweiz. med. Wschr.*, January 1, 1938, p. 3) discusses the occurrence of syphilis and tuberculosis in families. As a pathologist, his series is necessarily smaller than that of a clinician. Morphological changes in the disease, geographical differences in distribution, and an increase of late manifestations of syphilis tend to confuse the issue, but he was able to show that syphilis does not attack the same organs in the same family and that its forms are becoming less numerous, the disease tending to become more localized in a few organs. The investigation of the occurrence of tuberculosis in families showed that the disease does not appear or develop with any marked similarity in members of the same family. Post-mortem examinations of married couples brought evidence of the relatively high immunity to tuberculosis in adults. The same is not true of children, but whether this is due to age or to hereditary disposition remains an open question. The author is of the opinion that the existence of a specific disposition to tuberculosis is by no means proven. The dangers of exogenous infection in families have not been efficiently overcome yet, and until they are, the possibility of a "tuberculous disposition" cannot be accepted as a factor in the production of tuberculosis.

245 Liver Diet in Diabetes

L. PINELLI (*Rass. Clin. Terap.*, November-December, 1937, p. 334) records his investigations on the effect of a liver diet in diabetes. According to him only 30 to 40 per cent. of diabetics show any pancreatic lesion, though there may be extensive lesions in the pancreas without diabetes. On the other hand, the liver is often affected in diabetics, and some authors have gone so far as to speak of actual "hepatic diabetes"; others have described a hypoglycaemia following the administration of liver or liver extracts. Pinelli gives details, with comparative blood-sugar curves before and after treatment by liver and other diets, of sixteen cases of diabetes, which he divides into severe, moderate, and mild types; two normal individuals acted as controls. He concludes that: (1) in normal individuals and mild diabetics a liver diet tends to produce hypoglycaemia, though not to a very marked extent; (2) in moderate diabetes there is a delayed response with some degree of hypoglycaemia; (3) in severe diabetes there is a definite hyperglycaemia.

246 Encephalomyelitis following Rubeola

L. HALLÉN (*Nord. med. Tidskr.*, January 8, 1938, p. 54) gives an account of three cases of encephalomyelitis observed during an extensive epidemic of rubeola which broke out in the spring of 1937 in Uppsala. The ages of the patients were 13, 15, and 13, and in all three cases there was a history of measles at an earlier date. The intervals between the appearance of the rubeola rash and the fulminating onset of signs of encephalomyelitis were four, five, and two days respectively. Headache, fever, loss of consciousness, convulsions, cervical rigidity, and certain abnormalities of the reflexes were among the salient features indicative of encephalomyelitis. The complete recovery recorded in the first two cases and the great improvement in the third case, which is still under observation, were effected in a comparatively short time. The author's survey of fourteen similar cases he has discovered in the literature shows how closely they resembled each other. The recovery rate is so high that in only one case has it been possible to conduct a post-mortem examination. The interval between the appearance of the rash and that of signs of encephalomyelitis

ranged within the narrow limits of one and six days, and was in most cases only three to four days. In eight cases the encephalomyelitis was heralded by headache and vomiting. As many as nine of the patients were under the age of 15, and all were under the age of 33. There would seem to be no sex preference.

Surgery

247 Haematuria in Appendicitis

D. C. COLLINS (*Urol. cutan. Rev.*, January, 1938, p. 22) states that haematuria accompanies appendicitis more often than is generally supposed. In 1,402 unselected consecutive cases of acute appendicitis at the surgical department of the College of Evangelists, Los Angeles, haematuria was found in 124 (8.84 per cent.). The presence of haematuria caused an average pre-operative delay of four hours before primary genito-urinary disease could be excluded, with the result that the mortality in this group was 6.2 per cent., as compared with 4.7 per cent. for the whole series. About 84 per cent. of the cases of haematuria were associated with a fixed retrocaecal appendix. The haematuria disappeared usually on the fourth day after operation, the extremes varying from the first to the twenty-second day.

248 Nephrolithiasis

J. SCHMIDT (*Münch. med. Wschr.*, January 14, 1938, p. 51), who practises in a small town in Yugoslavia, since 1919 has seen thirty-two patients suffering from nephrolithiasis among a population of 2,000. He believes that the drinking-water is to some extent responsible for this high incidence of renal stone. The water comes from deep artesian wells, and contains a reddish sediment not unlike that found in the urine of the patients. Another predisposing factor was the diet, which is rich in meat and alcohol and poor in vegetables. In the majority of cases there were no complications, but in a few cases there supervened pyelitis, anuria, and uraemia.

249 Branchiogenic Fis'tula

M. SPITZY (*Zbl. Chir.*, January 15, 1938, p. 114) records the results of electrocoagulation in five cases of branchiogenic fistula. A preliminary cauterization of the fistulous track is indispensable, and always requires a general anaesthetic. The track is usually 11 to 14 cm. long, and its course can be investigated radiographically with the sonde *in situ*. An active electrode then takes the place of the sonde and a current of 0.7 to 0.8 ampere is passed while the electrode is being moved gently up and down. The resulting small wound at the opening of the canal usually heals within five weeks. There were no complications following this treatment in the five cases reviewed; it should not be attempted, however, after an unsuccessful operation.

Therapeutics

250 Staphylococcal Septicaemia

J. BERGER and R. WORMS (*Bull. Mém. Soc. méd. Hôp. Paris*, January 31, 1937, p. 141) record the case of a man who developed staphylococcal septicaemia as the result of a whitlow. There were foci in the lungs, in the epididymis, and possibly in the perirenal tissue. Four blood cultures showed the presence of staphylococci, which were also present in the fluid of a pleural effusion and in the urine. He was treated by Ramon's anatoxin, anti-staphylococcal serum, and disarticulation of the finger, and ultimately recovered. The infection reached

The Committee of the Athenaeum has elected Sir John Ledingham, F.R.S., under Rule II of the Club, which empowers the annual election of a certain number of persons of distinguished eminence in science, literature, the arts, or for their public services.

Mr. W. McAdam Eccles, M.S., F.R.C.S., has been appointed chairman of the United Kingdom Council of the International Hospital Association, a post vacant since Mr. H. L. Eason resigned on becoming Principal of the University of London.

King Edward's Hospital Fund for London has received a donation of £5,000 from the League of Mercy for distribution to the London hospitals. This is the fortieth contribution received from the League of Mercy since its foundation in 1899, and the amount of money it has provided for the London hospitals now totals more than £570,000.

Dr. Frederick Price has been elected a Corresponding Member of the Société Française de Cardiologie.

Hawaii has recently had the severest and most virulent epidemic of measles in its history. The number of reported cases from November, 1936, when it started, until September, 1937, when it ended, equalled the number reported during the preceding twenty years. The number of deaths from measles during the first three months of 1937 exceeded that for any cause except heart disease and pneumonia, and the respective rates per 100,000 of population were 102, 110, and 135.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Cardiac Massage

The anaesthetists committee of the Glasgow Royal Infirmary would welcome information on instances of cardiac massage as a resuscitative measure for cardiac failure during anaesthesia. Descriptions of cases with special points of interest, or other references, may be sent to Dr. W. B. Primrose, at 10, Park Quadrant, Glasgow, C.3, or at the Infirmary.

Painful Heel

"D. C." writes: I have a patient, aged 76, whose only recreation is walking. For the past three months he has complained of pain under the os calcis; this comes on after walking for some time. The time interval is getting less, and now little exertion brings on pain. I have tried rubber pads, a raised heel, and massage without appreciable effect. X-ray examination shows "some minute points of calcification just below the os calcis; no definite bony spur." I should be glad of any advice as to treatment of this condition.

Income Tax

Allowable Expenses

"S. M." has, during the past year, (a) bought a share in a partnership, (b) bought and furnished a house, and (c) sold his old car and bought a new one. He asks what relief from income tax can be claimed in respect of these transactions.

** In respect of (a) and (b) none, for in both cases the expenditure represents an outlay of capital and consequently gives rise to no claim. As regards (c), if the old car had been used professionally we are of opinion that our correspondent can deduct as an expense the net cost of replacement, less any amount due to "improvement." For example, if an old car costing £200 has been sold for £50 and a new one purchased for £225, he can claim the net cost of renewal, £225 - £50 = £175 (the amount expended) less £25 (the improvement element)—that is, £150 net. We assume that he has not been allowed depreciation in respect of the car sold and does not intend to claim it on the new car.

LETTERS, NOTES, ETC.

Posture of Children

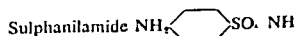
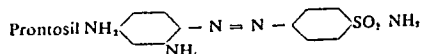
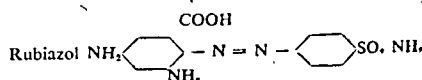
In these days when the need for physical fitness is being stressed by all and sundry, anything that helps to achieve this desirable end is to be welcomed. Not least among the matters conducive to physical fitness is the maintenance of a correct posture. The evils, for example, of any abnormal relation of one part of the axial skeleton to another are not limited to the deformed region, but extend from the top of the head to the soles of the feet. Once incorrect posture has been adopted as the result of faulty habits, bad health, fatigue, the wrong physical attitude tends to persist. It is therefore essential that those who have the care of children should do what they can to encourage the adoption of such a posture as will make for good health. To this end we welcome the twenty-three-page pamphlet entitled *Posture and Exercise for Young Children*, by Dr. John Gibbens, and published by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality. It can be obtained for 6d. on application to Carnegie House, 117, Piccadilly, W.1.

Dr. Nash's Cookery Book

Simpkin Marshall, Ltd., Stationers' Hall Court, E.C.4, inform us that they are receiving applications from medical officers of health for various boroughs and county councils for copies of *Dr. Nash's Cookery Book* for free distribution. Under the agreement of the Publishers' Association they are permitted to give a special discount to such councils providing the books are given away free. Medical officers of health can obtain from Messrs. Simpkin Marshall the terms they are prepared to grant for redistribution. A notice of the book appeared in our issue of December 11, 1937 (p. 1172).

Corrigendum

ROUSSEL LABORATORIES LTD. write: In the leading article in the *Journal* of March 5 (p. 552) it is stated that, "According to de Leon prontosil will cure malaria. . . ." May we point out that the preparation used by de Leon in the treatment of fifteen cases of malaria was Rubiazol Roussel, not prontosil or sulphanilamide. Rubiazol is an azo dye possessing a carboxylated function, and has the formula 6 carboxy- 2, 4 di-amino-4 sulphamide-azo-benzene. It differs from both prontosil and sulphanilamide.



Sulphanilamide is, we understand, the generic term applied to para-amino-benzene-sulphamide, which is a white body without any azoic molecule. Prontosil differs from rubiazol in that it does not carry the COOH group.

mates to that seen in the adult diabetic. White describes a large series of juvenile diabetics and their management with protamine insulin; some of the children did well with only one dose a day. From the data available the author concludes that protamine insulin has a more beneficial effect upon growth and development than ordinary insulin. Heights and weights of children treated by the two kinds of insulin are given and compared at intervals of a year. The undernourished child seems to do especially well on protamine insulin and grows and gains weight rapidly. Diabetic coma occurs less frequently with protamine insulin and dietary indiscretions have less harmful results. Sufficient time has not elapsed to allow of any opinion being formed as to the effect of protamine insulin upon the progress of the diabetes.

257 Bronchopneumonia in Infancy

J. SIEGL (*Wien. klin. Wschr.*, February 4, 1938, p. 141) states that in the first three years of life, while croupous pneumonia has in general a favourable prognosis, the mortality from bronchopneumonia is 30 to 50 per cent.; those forms are most dangerous which are accompanied by marked circulatory involvement or by anorexia, vomiting, and diarrhoea, or which complicate a pre-existing disturbance of nutrition. The prognosis of that form of bronchopneumonia in infancy which is associated with the formation of pulmonary abscesses, followed by pleural effusion or pyopneumothorax, is practically hopeless. Otitis media is often present, without materially affecting the prognosis. In treatment general nursing measures are specially important. The trunk should be somewhat raised and the head bent slightly backwards; the carrying of an infant—in the upright position in the mother's or nurse's arms—for short periods in the open air is helpful. Fresh-air treatment in recumbency, continuous in warm and intermittent in cold weather, is of therapeutic value. Sedatives are urgently called for when there is pronounced restlessness. Circulatory impairment should be treated by camphor, by adrenaline, or by caffeine (0.03 to 0.05 gramme in infants, 0.1 to 0.2 gramme in children, thrice daily) combined with sedatives. All these should be given orally if possible, except in acute circulatory failure. Incipient pulmonary oedema calls for venesection from the superior longitudinal sinus or ante-cubital vein, or—if the required amount (up to 60 c.cm. in an infant) cannot be thus obtained—for arteriotomy, the temporal being preferable to the radial artery. In the most serious cases, especially when the liver is much swollen, 20 to 40 c.cm. of 20 per cent. dextrose solution may be given intravenously; in severe collapse one or two applications of cold water (20° to 25° C.) may be made with the child immersed in a warm bath (37° C.). Meteorism should be treated by rectal intubation or irrigations, or by the injection of pituitrin. Serotherapy is less useful than repeated intramuscular injections of 10 to 20 c.cm. of adult blood; quinine is not advocated. The diet should in general be that appropriate to the age; compulsory feeding is to be deprecated.

258 Chronic Pancreatitis and Pyloric Stenosis

J. L. NICOD (*Schweiz. med. Wschr.*, January 29, 1938, p. 105) describes a condition of the pancreas the symptoms of which closely simulate those of hypertrophic pyloric stenosis. In one child symptoms appeared at 3 months, in another they were present at birth. Both cases terminated fatally. In both vomiting persisted in spite of treatment. The stools were frequent and soft, and showed an increase of fat over the normal. Pregnancy and the confinement were normal. In neither case was syphilis present. At necropsy the head of the pancreas was enlarged and thickened in both cases. In one the islets of Langerhans were atrophied; in the other they were normal. Microscopically chronic duodenitis and cystic pancreatitis were found to be present. Malforma-

tions and syphilis are the most common affections of the pancreas in the newborn. The aetiology of these two cases could not be ascertained. The author is of the opinion that chronic cystic pancreatitis is a definite clinical entity. It is a condition in which the pancreatic inflammation is primary, the duodenal secondary. The repeated and serious vomiting is the result of a mechanical factor—enlargement of the head of the pancreas—and an inflammatory factor—duodenitis.

259 Convalescent Serum in Scarlet Fever

M. FOX and M. HARDGROVE (*Arch. intern. Med.*, September, 1937, p. 494) record their observations on 1,028 cases of scarlet fever, of which 139 were treated with commercial antitoxin, 589 with human convalescent serum, and 300 received neither antitoxin nor immune serum. The sex and average age were approximately the same for all the groups. The doses of convalescent serum ranged from 10 to 100 c.cm., the average being 33.6 c.cm. in cases treated at home and 32.7 c.cm. in hospital patients. The incidence of reactions after convalescent serum was only 1 per cent., as compared with 35 per cent. after the use of commercial antitoxin. When the convalescent serum was given early in adequate doses there was an apparent decrease in the mortality rate as well as a reduction in the incidence of complications and in the length of time before a normal temperature was reached.

260 C. R. HYLAND and L. R. ANDERSON (*Amer. J. Dis. Child.*, September, 1937, p. 504) state that of 102 children exposed to scarlet fever and given convalescent serum in doses of 10 c.cm. for those under 10 years of age and of 20 c.cm. for those over 10, only four developed the disease, which was mild in three and moderately severe in one. In all four cases the incubation period was prolonged. Of forty-seven cases to which convalescent serum was given therapeutically all but one showed improvement. The writers came to the conclusion that the percentage incidence of complications, especially adenitis, otitis, and nephritis, increased with each day's delay in the therapeutic administration of serum.

261 Rickets Resistant to Vitamin D Therapy

F. ALBRIGHT, A. M. BUTLER, and E. BLOOMBERG (*Amer. J. Dis. Child.*, September, 1937, p. 529) record the case of a boy, aged 16, who had suffered from rickets since the age of 1 year in spite of treatment with vitamin D. Histological evidence demonstrated that the condition was true rickets, and the changes in the calcium and phosphorus metabolism were similar to those of infantile rickets. Evidence is also given that the cause of the disorder was not hyperparathyroidism. It was shown that the resistance to vitamin D was not due to failure to absorb the vitamin, and it was only when massive doses were given that the disorder of metabolism was corrected and healing of the rickets took place. Evidence is also presented which suggests the necessity for observing such patients carefully lest in healing the rickets too large doses of vitamin D produce hypervitaminosis. Cases of this type seem to be extremely resistant to the antirachitic vitamin, but this resistance can be broken down by massive doses. Ultra-violet irradiation was of no value in this case. This patient's condition is an example of a type of rickets of as yet unknown origin; six similar cases had been recognized at the Boston Children's Hospital.

262 Increase in Rickets

E. ROMINGER (*Med. Klinik*, January 7, 1938, p. 1) points out that recently there has been a marked increase in the number of cases of rickets reported not only in Germany but in all parts of the world, including some countries in which this disease was supposed to be practically unknown. Rickets has been observed both in

the blood through the veins rather than through the lymphatics. There was no lymphangitis or adenopathy. The digital veins showed endophlebitis and thrombosis extending well beyond the focus of suppuration. Numerous subcrepitanr rales were heard over various areas of the lungs, and abnormal shadows in several areas were shown by radiography. The left epididymis was greatly swollen. The pulmonary lesions subsided without suppurating and the epididymis recovered without operative interference. The serum used was that of the Pasteur Institute. In ten days 280 c.cm. of this serum was injected. Of the anatoxin, seven injections were given in amounts rising from 0.25 c.cm. to 2 c.cm. Three blood transfusions were administered, the third causing a violent reaction which seemed to produce an abrupt cessation of the pyrexia. The authors admit the difficulty of proving that the cure of the disease was due to specific therapy, but maintain that the gradual improvement coincided with the administration of the anatoxin and the serum, and claim that such treatment is helpful in the cure of this condition.

251 Carbon Dioxide Baths in Graves's Disease

A. VILKOMIRSKY and E. RESNITZKY (*Méd. soviétique*, 1937, 12, 30) have investigated the effect of carbon dioxide baths (Nauheim treatment) in patients suffering from Graves's disease. The effect of the treatment was unfavourable in practically every case.

252 Myasthenia Gravis

H. VERBIEST (*Nederl. Tijdschr. Geneesk.*, February 5, 1938, p. 622), who records five cases of myasthenia gravis in patients aged from 20 to 46, of whom four were women, discusses the part played by the ductless glands in the causation of the disease. The administration of suprarenal preparations was without effect, and oestradiol made the symptoms worse. In Verbiest's experience prostigmin causes only a temporary relief of a few hours' duration. Verbiest also observed some patients who became habituated to this drug. Prostigmin is of great value, however, when the symptoms are sufficiently severe to endanger life. In all other cases ephedrine is preferable and may give rise to permanent improvement.

Diseases of Children

253 Gierke's Disease

Under this name F. PARADISO (*Pediatrics*, Naples, January, 1938, p. 32) describes a disease of childhood characterized by retarded physical development, hepatic enlargement, and a disturbed carbohydrate metabolism, with an abnormally high hepatic glycogen content and a tendency to hypoglycaemia. Gierke's two cases, reported in 1929, concerned children aged 4 and 8 respectively; the diagnosis was made at necropsy, which showed the liver parenchyma and renal tubules to have a high glycogen content. Cases so far noted appear to number twenty-four, of which seventeen have been in males. In Paradiso's case, a mentally normal child showed from the age of 3 to 7 physical development corresponding to that of a child two years younger, with retarded carpal ossification; the liver was palpable well below the umbilicus, and the diagnosis was established by microscopic examination of a fragment of liver (removed at laparotomy), which showed perilobular and intercellular infiltration by cellular connective tissue, and an enormous excess of glycogen in the hexagonal cells. Other features present, and noted also in some other cases in the literature, were a plump, lunar facies, shortness of the limbs, obesity recalling that of dystrophia adiposo-genitalis, and diastasis of the coronary suture; cardiac enlargement, probably connected with a local accumulation of glycogen; muscular hypotonia; a constant hypoglycaemia

and ketonuria during fasting, occasional hypoglycaemic attacks, an irregularity of the blood-sugar curve after feeding tests or the administration of adrenaline, and hypersensitivity to insulin; and hypercholesterolaemia. Diminution of carbohydrate tolerance, glycosuria, jaundice, and splenomegaly were absent, and hepatic functional tests gave normal findings; Pettenkofer's test for bile-salts in the urine was positive, and a reduction of Fehling's solution by the concentrated, hydrolysed urinary residue suggested the presence of glycogen. Diagnosis at present would seem to be dependent on biopsy or necropsy, and is made more difficult by the occurrence of a similar syndrome in which the enlarged liver is infiltrated not by glycogen but by fatty substances. Prognosis is uncertain; the infants are very sensitive to intercurrent infections, but spontaneous cures have been recorded, as well as the development of diabetes mellitus. Cure was reported by Unshelm after treatment of the liver with x rays in a child aged three months.

254 Skin Tests in Whooping-cough

A. R. THOMPSON (*J. Hyg.*, Camb., January 1, 1938, p. 104) reviews the literature and records his observations with the intradermal test in 1,300 cases of whooping-cough. He was unable to support the claim that the intradermal response to Sauer's vaccine in the strength commonly employed (10,000 million organisms per c.cm.) was of value either in demonstrating immunity to whooping-cough or in the early diagnosis of the disease. The bacterial content of the vaccine appeared to be too high for skin-testing purposes, giving rise to inflammatory lesions of a non-specific character rather than to specific allergic reactions. The intradermal response to pertussis endotoxin, on the other hand, produced a reaction resembling that seen in the Dick and Schick tests. Similar reactions, however, could be elicited in the skin of about 30 per cent. of individuals with no history of the disease, but this might have been due to latent immunization. Thompson concludes that the pertussis endotoxin test is of some value in assessing the immune state of the individual, and also as a diagnostic reaction in early, atypical, or late whooping-cough.

255 Staphylococcal Bacteraemia

J. WU (*Chin. med. J.*, December, 1937, p. 807) records forty-three cases of staphylococcal bacteraemia in Chinese children admitted to the Peiping Union Medical College Hospital. The condition is most often found in young children and infants, and the mortality is very high. The infection could usually be traced to some sort of skin lesion in the summer, or to respiratory diseases in the winter. Premature infants and those rendered delicate by other conditions were specially susceptible. Skin infections resulting from abrasions, or from skin punctures for diagnostic or therapeutic purposes, may at times lead to bacteraemia, and two cases to illustrate this point are reported. Although specific therapy was not available, energetic treatment along general lines at times gave gratifying results. Prompt surgical treatment of all local conditions, such as empyema, osteomyelitis, and suppurative arthritis, is needed, together with repeated blood transfusions.

256 Protamine Insulin Treatment of Juvenile Diabetes

P. WHITE (*Sth. med. J.*, Le Grange, January, 1938, p. 15) states that the fundamental characteristics of juvenile diabetes, differentiating it from the adult type, are its severity, its rapid progression, and the development of complications. The W-shaped curve of the blood sugar in juvenile diabetes is also characteristic, and shows three high points and two low points when insulin is administered twice a day. When an injection of ordinary insulin is given in the morning and one of protamine insulin in the evening the W-shaped curve is flattened and approxi-

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Sunday	1 8 15 22 29	
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Lapland and in the Tropics, at high altitudes and in the plains, in countries where the sun is hardly seen for three months in the year and in Egypt. What is perhaps even more remarkable, it would seem to prevail even in those countries where breast-feeding is the universal rule. At first sight these facts would appear to negate the firmly established view that rickets is a deficiency disease largely due to improper feeding and lack of sunshine, and hence that breast-feeding is the best prophylactic against it. Rominger has shown, however, that other factors have to be considered. Thus in some countries where breast-feeding is the rule the mother's diet is grossly deficient in vitamins, while, on the other hand, in some tropical countries the children never have a chance of seeing the sun until they are old enough for rickets to have developed; for instance, in Nyasaland the inhabitants build their houses on piles, and the children are shut up in them until they are old enough to climb down the ladders by themselves. The author concludes that rickets is not a pure D avitaminosis, but, as Glisson wrote even in 1650, the result of a number of adverse factors, which are usually first brought to light by a deficiency in vitamin D or a lack of sunshine.

Obstetrics and Gynaecology

263 Squamous Epithelium in the Corpus Uteri

According to F. SIEGERT (*Arch. Gynäk.*, December 28, 1937, p. 135) the areas of squamous epithelium sometimes found in the endometrium are now known to be derived not from remnants of the Müllerian ducts but from the basal layer of the columnar epithelium of the adult—in all probability as a result of hormonal imbalance. It is only in combination with hyperplastic conditions of the myometrium, endometrium, or both that squamous epithelium is found—for example, in general glandulo-cystic endometrial disease, or when there is circumscribed glandular hyperplasia around a mucous polypus or myoma, or occasionally in uterine endometriosis. These are all conditions associated with excessive secretion of the ovarian hormones. As well as others, Grumbrecht in normal and Migliavacca in castrated rats have experimentally induced the formation in the endometrium of squamous epithelium by prolonged administration of follicular hormone. It may now be regarded as almost certain that in the human subject such endometrial metaplasia is due to excessive stimulation by folliculin. Clinical evidence pointing in this direction is scanty, for the findings usually come from curetting without an abdominal operation. Siegert records a case in point. A patient, aged 30, was treated for irregular bleeding by curetting of a glandulo-cystic endometrium and removal of a left parovarian cyst. Thirteen months later similar symptoms led to a second curetting of the hyperplastic endometrium, which contained a polyp showing adenocarcinomatous changes and islands of squamous epithelium, including cell nests. The right ovary was then found to be enlarged and was removed; it showed small cysts, fibromatous nodules, but no trace of a corpus luteum. Siegert leaves open the question of a connexion between excess of follicular secretion and the genesis of carcinoma of the body of the uterus; he does not doubt, however, that when squamous epithelium is found in a corpus uteri which is carcinomatous it is not a secondary but the precedent condition.

264 Peritonitis and Post-partum Menstruation

G. KAHLENBERG (*Zbl. Gynäk.*, January 29, 1938, p. 241) records the case of a primipara, aged 31, who four days after spontaneous delivery, in which only one vaginal examination had been made, was operated on for purulent peritonitis, abdominal drainage and intraperitoneal sero-

therapy being undertaken. An adnexal tumour which was not tender was palpable on discharge from hospital on the forty-second day. Five weeks later the occurrence of the first menstrual period was followed immediately by a second attack of peritonitis, which was treated like the first and was also caused by the *Staphylococcus albus*; cure followed. The adnexal tumour, although showing no gross changes at the second operation, was regarded as the source of the second peritoneal infection. The menstruation which followed, observed in hospital, was uneventful. Similar cases are said to be absent from the literature, although the onset of peritonitis during the menses is not altogether exceptional. Schneider in 1923 recorded a case of lethal peritonitis immediately following the second menstruation after a normal labour and puerperium.

Pathology

265 Leucocyte Count in the Pleurisy of Artificial Pneumothorax

H. HALLÄNDER (*Hygiea*, Stockh., December 31, 1937, p. 904) has during the past three years investigated the behaviour of the leucocytes in response to the induction of a pneumothorax, with special reference to the development of a pleural effusion. By means of the leucocyte count he hoped to ascertain early whether a pleural effusion in any given case was a trivial matter or a sign of extension of the disease within the lung. His material consisted of twenty-seven cases of artificial pneumothorax complicated by pleurisy, before the onset of which most of the patients had been afebrile. The pleurisy had begun within eight months of the induction of a pneumothorax. In every case blood counts had been undertaken from the time of the induction of the pneumothorax, and when the pleurisy was developing they were repeated daily or every other day, and later at intervals of a week or a fortnight. They were undertaken in the fasting state in the morning, and on each occasion 400 cells were counted. In sixteen of the twenty-seven cases the evolution of the pleural effusion was unassociated with any progress of the pulmonary disease, whereas in the remaining eleven cases there was an exacerbation or an extension of the pulmonary disease. Common to all the cases in which the disease progressed in the lungs was a displacement to the left of the Arneth count, and in only two cases had the count returned to normal on the patients' discharge. Checking up this feature of the blood count with the temperature chart, the rate of sedimentation of the erythrocytes, and the x-ray findings, the author considers that none of these three tests was as consistently reliable as the leucocyte count from a prognostic point of view, for in five of the eleven cases both the temperature and the sedimentation rate returned to the original figures, and in two cases the radiological evidence of progress of the disease came comparatively late.

266 Allergic Pulmonary Phenomena

H. E. MEYER (*Med. Welt*, December 25, 1937, p. 1808) reports eight cases of transitory pulmonary infiltration accompanied by an increase in the number of the eosinophils in the blood. With W. Löffler he believes that these infiltrations are in fact allergic phenomena produced by a number of substances, but mainly by the tubercle bacillus, although none of the cases developed later a tuberculous lesion. In a number of cases the allergic phenomena and the pulmonary infiltration were produced by pollen. The infiltration and the other allergic manifestations quickly subsided following the intravenous administration of calcium. The author believes that his cases belong to the category described by Engel of Shanghai under the name of "privet cough," and by American workers under the name of "laurel fever."

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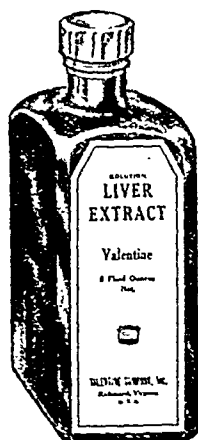
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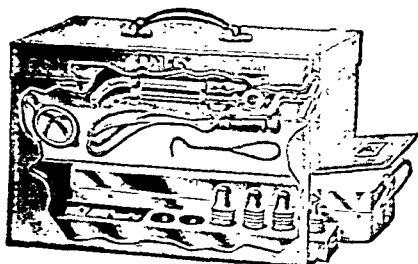
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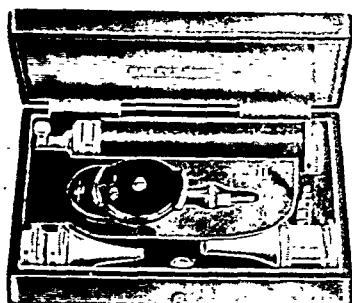
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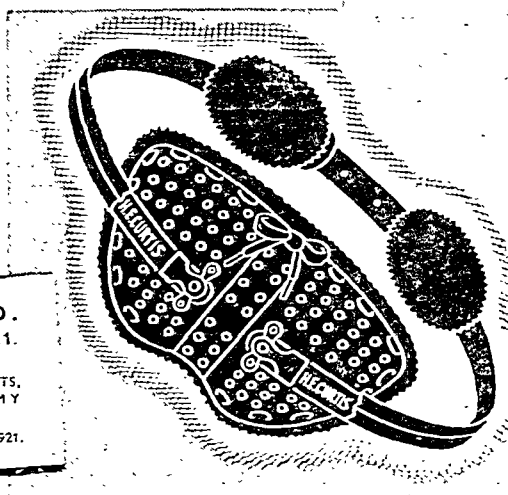
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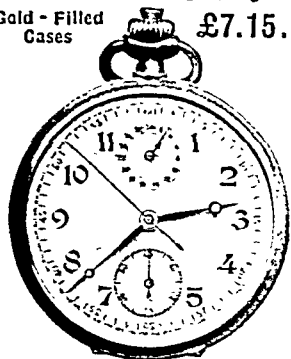
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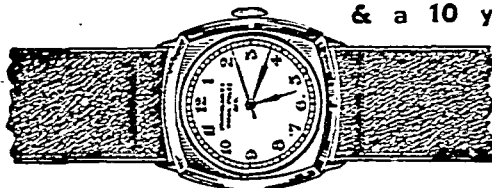
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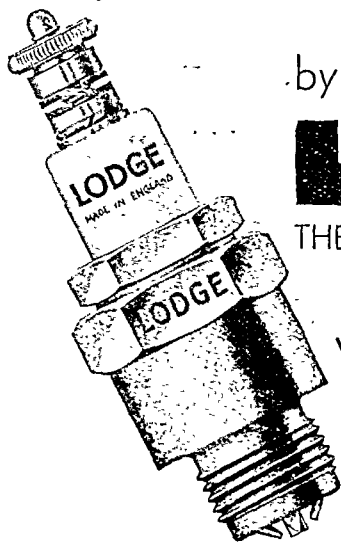
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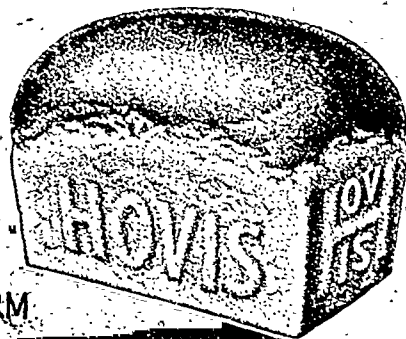
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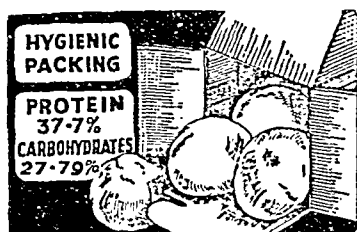
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For terms and further particulars apply to the Medical Superintendent (Telephone No. 2356 and 2357 Northampton) who can be seen in London by appointment.

NORTHUMBERLAND HOUSE, GREEN LANES, FINSBURY PARK, N.4

A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Six acres of ground, highly situated, facing Finsbury Park. Voluntary and Temporary Patients received without certification. Occupational Therapy, Psychotherapy, and other modern forms of treatment.

Telephone: STAMFORD HILL 2688. Telegrams: "SUBSIDIARY, LONDON." Convalescent Home, KEARSNEY COURT, DOVER. For further particulars apply to the Medical Sup.

COURT HALL, KENTON, near EXETER,

for the treatment of eight Ladies, voluntary, temporary, or certified patients. Large gardens and own dairy

CLIFFDEN, TEIGNMOUTH, for early and convalescent cases. A well-appointed house, with spacious balconies, and extensive views of the South Devon coast. Sub-tropical gardens, own dairy in 25 acres. Private road to beach.

Telephones: STARCROSS 59, TEIGNMOUTH 289. Resident Physicians: BERTHA M. MULES, M.D., B.S. ANNE S. MULES, M.R.C.S., L.R.C.P.

THE COPPICE, NOTTINGHAM HOSPITAL FOR MENTAL DISEASES

This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Occupational Therapy. Voluntary and Temporary Patients received.

Tel.: 64117. For terms, etc., apply to the Medical Superintendent.

HAYDOCK LODGE

NEWTON-LE-WILLOWS, LANCASHIRE

Tele.: Street, Ashton-in-Makerfield.

Phone: Ashton-in-Makerfield 7311.

For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER AND MIDDLE CLASSES suffering from mental and nervous diseases, either voluntarily, temporarily, or under Certificate. Patients are classified in separate buildings according to their mental condition.

Situated in park and grounds of 450 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply MEDICAL SUPERINTENDENT.

BARNWOOD HOUSE GLOUCESTER

A REGISTERED TREATMENT OF NERVOUS DISORDERS. Within two miles of the G.W. Railway and L.M. & S. Railway Stations at Gloucester, the Hospital is easily accessible by rail from London and all parts of the United Kingdom. It is beautifully situated at the foot of the Cotswold Hills, and stands in its own grounds of over 300 acres. Voluntary Patients of both sexes are also received for treatment. Special accommodation for Lady Voluntary Patients is also provided at the MANOR HOUSE, which has its own private grounds and is entirely separate from the Main Hospital. For particulars as to terms, etc., apply to G. W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M., Medical Supt. Telephone: No. 6207 Barnwood.

CHISWICK HOUSE, PINNER, MIDDLESEX

Telephone: PINNER 231.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes.

A modern country house, 12 miles from Marble Arch, in beautiful secluded grounds. Fees from 10 guineas per week, inclusive. Cases under Certificate. Voluntary and Temporary patients received for treatment.

Douglas Macaulay, M.D., D.P.M.

BAILBROOK HOUSE, BATH.

For sufferers from Nervous and Mental Disorders with or without certificates.

The house is gloriously situated in wooded grounds of 20 acres with magnificent views of the City and the Avon Valley. (See Medical Directory, page 2322.)

For terms apply A. GUARDIAN, M.A., D.M., B.Ch., D.P.M., Resident Physician.

Telephone: Bathaston 5189.

HEIGHAM HALL, NORWICH

A PRIVATE MENTAL HOME, situated in 11 acres of well-wooded grounds. For Ladies and Gentlemen suffering from Nervous or Mental Illness. Voluntary Patients, Temporary Patients, and Patients under Certificate are admitted for treatment. Fees: from 4 guineas a week upwards, according to requirements. A few vacancies exist for Ladies and Gentlemen at reduced fees on the recommendation of the Patient's own Physician. Apply to Dr. J. A. SMALL. Telephone: 80 Norwich. Telegrams: Small 80 Norwich

FENSTANTON, CHRISTCHURCH ROAD, Streatham Hill, S.W.2

A Private Home for the Care and Treatment of a limited number of Ladies with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Large Mansion with 12 acres of grounds. (See Medical Directory, p. 2312.) Apply, Resident Physician. Telephone: Tulse Hill 7181.

STRETTON HOUSE, Church Stretton, Shropshire.

A PRIVATE HOME for the treatment of Gentlemen suffering from Mental and Nervous Illness, including the allied disorders of Alcoholism and the Drug Habit. All types of early Mental and Nervous cases are received without certificates as Voluntary Patients under the provisions of the Mental Treatment Act, 1930. Dracing hill country. See Medical Directory, p. 2328. Apply to the Medical Superintendent. Phone: 10 P.O. Church Stretton.

HILL END HOSPITAL AND CLINIC FOR THE PREVENTION AND TREATMENT OF MENTAL AND NERVOUS DISORDERS. (20 miles from London)

Ladies suffering from all forms of MENTAL ILLNESS are received for treatment, on modern lines, as Voluntary, Temporary, or Certified Private Patients at the Hill End Hospital. Convalescent or mild cases can be treated in a delightful country mansion with extensive grounds known as

HIGHFIELD HALL, situated about a mile away from the Hospital. FEES: TWO TO THREE GUINEAS PER WEEK. For further particulars, apply to the Medical Supt., W. J. T. KIMBER, L.R.C.P., D.P.M. ST. ALBANS, HERTS.

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Sir,—Please send me a copy of your "Guide
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Address

Examination in which interested }

ROYAL MEDICAL BENEVOLENT FUND

11, CHANDOS STREET, CAVENDISH SQUARE,
LONDON, W.1.

THE ANNUAL MEETING OF THE MEMBERS OF
THE ROYAL MEDICAL BENEVOLENT FUND
will be held at 5 p.m. on TUESDAY, April 5th,
1938, at 11, Chandos Street, Cavendish Square,
London, W.1, when the Financial Statement for the
year ended December 31st, 1937, will be presented,
and the Officers and Committee for the current year
elected.

R. M. Handfield-Jones, Honorary Secretary.
March 15th, 1938.

F.R.C.S. (Edin.)

EDINBURGH POSTAL COURSES.

Full details of above and Oral Classes—
H. C. OARIN, F.R.C.S., Surgeon's Hall, Edinburgh.

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Hamstead Road, N.W.1. Applicants, together
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Medical Prospectus gratis along with list
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UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.

FACULTY OF MEDICAL SCIENCES.

AN EXAMINATION for the following will be
held in May next:

1. BUCKNILL SCHOLARSHIP, value 160 Guineas.
2. and 3. TWO EXHIBITIONS, value 55 Guineas
each.

Intending candidates should apply to the under-
signed for particulars and entry forms as early as
possible: the entry forms must be returned not later
than April 22nd, 1938.

C. O. G. DOUIE, Secretary,
University College, London (Gower Street, W.C.1).

UNIVERSITY OF OXFORD LORD NUFFIELD'S BENEFACTION FOR THE ADVANCEMENT OF MEDICINE

FIRST ASSISTANT IN THE DEPARTMENT OF CLINICAL MEDICINE

Applications are invited for the whole-time post
of First Assistant in the Department of Clinical
Medicine.

The successful candidate will be required to
assist the Nuffield Professor of Clinical Medicine
in the wards and outpatient department at the
Radcliffe Infirmary and to carry out research work
in the Department of Clinical Medicine. The
appointment is for two years in the first instance,
but will be renewable thereafter annually for not
more than three further years. The initial salary
is £650 a year.

Candidates, who must hold a medical qualifica-
tion recognizable in Great Britain, are requested to
send ten copies of their applications and of not
more than three recent testimonials to the Secretary
of Faculties, University Remedy, Oxford, so as to
reach him not later than Saturday, April 16th, 1938.

BRITISH POSTGRADUATE MEDICAL SCHOOL

DEPARTMENT OF PATHOLOGY.

A LABORATORY COURSE ON CHEMICAL
PATHOLOGY, conducted by Dr. EVEL J. KING,
M.A., Ph.D., will commence on April 15th, 1938.
The Course is whole-time and will last for six
weeks. Fee £9 9s.

This Course is part of the Course for the Diploma
in Clinical Pathology and only a limited number of
students can be accepted.

Early application for enrolment should be made to:
The Dean, British Postgraduate Medical School,
Ducane Road, London, W.12.

BRITISH POSTGRADUATE MEDICAL SCHOOL

Applications are invited for the post of HOUSE
SURGEON, to commence duty on April 1st, 1938.
Salary at the rate of £105 per annum, with board,
residence and laundry.
Applicants should have held previous House
appointments.

Applications, with copies of testimonials, should
be sent as soon as possible to the Dean, British
Postgraduate Medical School, Ducane Road,
Shepherd's Bush, London, W.12.

CITY OF PLYMOUTH MEDICAL OFFICER OF HEALTH'S DEPARTMENT.

THE CITY ISOLATION HOSPITAL.

ASSISTANT RESIDENT MEDICAL OFFICER

Applications are invited from registered medical
practitioners (unmarried, male) for the above
appointment, which is for a period of twelve
months, terminable by one month's notice on either
side.

The salary will be at the rate of £340 per annum,
with full residential emoluments, and any fees
received by the officer must be refunded to the
Council.

The successful candidate will be required to
work under the direction of the Medical Super-
intendent and will devote the whole of his time
to local duties, which will consist mainly of work
in the hospital and assisting at certain venereal
disease clinics. In addition to the above he will
be required to perform any other duties allotted
to him from time to time by the Medical Officer of
Health.

Applications, stating age, qualifications and ex-
perience, together with copies of not more than
three recent testimonials, must reach the undersigned
not later than Tuesday, April 12th, 1938.

Town Hall T. PEIRSON,
Stonehouse, Plymouth. Medical Officer of Health.

CITY OF NOTTINGHAM.

ASSISTANT MEDICAL OFFICER FOR MATER- NITY AND CHILD WELFARE WORK.

Applications are invited for the above post from
women medical graduates experienced in practical
midwifery and ante-natal and infant welfare work.
The duties will be chiefly in the ante-natal and
infant welfare clinics under the administrative
control of the Medical Officer of Health.

Salary £250, rising by annual increments of £25
to £370. The salary is subject to deduction under
the Superannuation Scheme of the Corporation.
The successful candidate will be required to submit
to a medical examination and to reside within the
City of Nottingham.

The appointment will be subject to one month's
notice on either side.

Application forms may be obtained from the
undersigned, and must be returned to me not later
than April 14th, 1938. Candidates will be a
disqualification.

Gouldhall, J. E. RICHARDS,
Nottingham. Town Clerk
March 15th, 1938.

CITY OF LIVERPOOL

CITY BACTERIOLOGIST'S DEPARTMENT

Applications are invited for a TEMPORARY
JUNIOR ASSISTANT BACTERIOLOGIST in the
above department. The appointment will be for
one year. Candidates will be required to possess a
reasonable medical qualification and evidence of
special bacteriological training is desirable. The
salary will be at the rate of £200 per annum. The
person appointed will be required to devote the
whole of his time to the work of the department.

Applications accompanied by copies of three
recent testimonials, together with details of training,
experience and research work, should be addressed to
The Town Clerk, Manchester Building, Duke
Street, Liverpool, 2, enclosed Temporary Junior
Bacteriologist, and be delivered not later than
April 9th, 1938.

Canvassing of members of the City Council will
be regarded as a disqualification.
W. H. BAILES,
March 21st, 1938. Town Clerk

POST-GRADUATION SCHOOL

CENTRAL LONDON THROAT, NOSE & EAR HOSPITAL

GRAY'S INN ROAD, W.C.1

COURSES FOR THE D.L.O. EXAMINATION

Two weeks' Course in Anatomy and Physiology for Part I commences on April 25th. Two weeks' Clinical Course for Part II commences on May 9th. The latter Course includes Peroral Endoscopy and Pathology, and Bacteriology Classes.

Full Syllabus of these Courses and of the routine clinical teaching, which meets all the requirements of Students for the D.L.O. Examinations, may be obtained from—C. Gill-Carey, F.R.C.S.Ed., Dean.

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OPHTHALMOLOGY (Royal Eye Hospital, March 28th to April 9th, afternoons); FEVERS, week-end (April 2nd and 3rd, all day Saturday and Sunday); PSYCHOLOGICAL MEDICINE (Maudsley Hospital, April 25th to May 28th, afternoons); CANCER, week-end (Royal Cancer Hospital, all day Saturday and Sunday, April 23rd and 24th); CHILDREN'S DISEASES, week-end (Infants' Hospital, April 23rd and 30th, all day Saturday and Sunday); PROCTOLOGY (Gordon Hospital, May 2nd to 6th, all day).

Apply FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.1. (Langham 4266.)

Post-Graduate Teaching, West London Hospital.

Continuous Clinical Instruction daily from 10 a.m. to 4 p.m.—Post-Graduates may enrol at any time for any period from 1 week to 3 months.—Special facilities for "Study Leave," and for those wishing to take a course under the "Grant-aided Scheme for Post-Graduate Study by Insurance Practitioners."—Anaesthetic Courses.—Clinical Assistantships.—Annual Membership Tickets at Special Terms available for General Practitioners who wish to attend the Hospital Practice at irregular intervals.

Prospectus from the DEAN, West London Hospital, Hammersmith, W.6.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

MARYLEBONE ROAD, N.W.1

Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing Obstetrical Complications and Operative Midwifery (about one half of the total admission being primiparous cases). Over 2,700 patients are admitted to the Wards annually, and in the Ante-natal department there are over 20,000 attendances per annum. Clinical demonstrations are given by the Staff daily.

For rules, fees, etc., apply H. B. STOKES, Secretary-Superintendent.

CITY OF LONDON MATERNITY HOSPITAL

(Incorporated by Royal Charter)
CITY ROAD, E.C.1.

The Hospital offers facilities to POSTGRADUATES for observing the work of its Antenatal, Postnatal and Dental Clinics; and to male MEDICAL STUDENTS (and Practitioners desiring a Refresher Course) a two or four weeks' Midwifery Course (Residential). Nearly 2,000 patients annually.

RALPH B. CANNINGS, Secretary.

**DIPLOMA IN ANAESTHETICS—D.A.
DIPLOMA IN CHILD HEALTH—D.C.H.**

Courses of Postal and Oral preparation for these examinations may now be commenced.

For full details write to the SECRETARY, Medical Correspondence College, 19, Welbeck Street, London, W.1.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1880. Cases non-resident, treated at 39, Earl's Court Sq., S.W.5, and in residence, in the Summer holidays at Miss BEHNKE's house on the Chilterns. "Pre-eminent success in education and treatment of stammering and other speech defects."—"Times." "Thoroughly physiological principles."—"Lancet." "The method is scientifically correct and perfectly effective."—"Guy's Hospital Gazette."

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TEN SCHOLARSHIPS AND EXHIBITIONS**

(not open to members of College or Junior School). These include five of £100; "James of Hereford" Scholarship of £35 for boys born or brought up in Herefordshire; R.A.M.C. Scholarship of £50 (preference to sons of regular Officers). Awards made for all-round excellence, or special proficiency in any main subject, including Music. Candidates must be over 13 and under 15 years of age on September 22nd, 1938. Preliminary Examination (at Candidates' own Schools), Tuesday, May 17th, 1938. Final Examination (at Cheltenham), Tuesday and Wednesday, May 24th and 25th, 1938. Apply, BURSAR, The College, Cheltenham.

**DIPLOMA IN PUBLIC HEALTH
The Royal Institute of Public
Health and Hygiene**

The Course of Instruction can be commenced at any time. Special provision is made for students who can give only part time to the work.

A prospectus and further particulars can be obtained from the Secretary.

Telephone: Langham 4200.
28, Portland Place, London, W.1.

Preliminary Examinations

The COLLEGE OF PRECEPTORS holds Preliminary Examinations for Medical and Dental Students in London and at Provincial Centres in March, June, September, and December. For Regulations, apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1.

ROYAL ARMY MEDICAL CORPS

Applications are invited from medical men for appointment to commissions in the Royal Army Medical Corps.

Candidates will, for the present, be selected for commissions without competitive examination, and will be required to present themselves in London for physical examination and interview on, or about, 22nd April, 1938. They must be registered under the Medical Acts, and normally must not be over the age of 28 years.

Successful candidates will, in the first instance, be given short service commissions for five years. During the 4th year of this period they will be given the opportunity of applying for permanent commissions in either the Royal Army Medical Corps or the Indian Medical Service. Those not selected will retire on completion of five years' service with a gratuity of £1,000.

Candidates who are successful will, unless they are seconded to complete a hospital appointment, assemble at the Royal Army Medical College, London, on 2nd May, 1938.

Particulars of the Conditions of Service in the Royal Army Medical Corps, pay and allowances, and forms of application, may be obtained on application, either in writing, or personally, to the Assistant Director General, Army Medical Services, The War Office, London, S.W. 1.

ROYAL NAVAL MEDICAL SERVICE.

Vacancies exist for Medical Officers in the Royal Navy, and applications are invited for entry in July, 1938.

Candidates below the age of 28 years are preferred, and they must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board.

Selected candidates will be entered for Service for a period of three years, which if desired is usually extended to five years at the discretion of the Admiralty.

At the end of three years' service, officers may retire with a gratuity of £400, but those who serve for five years will receive £1,000.

At the end of five years' Short Service permanent commissions will be given to selected officers who wish to make the Naval Medical Service their permanent career. Officers transferred to the permanent list will receive a gratuity of £1,000 (less Income Tax).

Full opportunities exist for transfer to the permanent list, and periods of unemployed or half pay are very rare. The assistance of private income is not necessary for the purpose of supplementing official pay and allowances.

Opportunities are available for officers on the permanent list for post-graduate study, to specialise, to take higher examinations and to obtain further qualifications.

Copies of the regulations for entry and conditions of Service, including rates of pay, allowances and retired pay may be obtained from the Medical Director-General of the Navy, Admiralty, S.W. 1, and from the Deans of all Medical Schools.

Applications for entry from intending candidates must be received not later than 31st May, 1938.

COUNTY BOROUGH OF BLACKBURN. LADY ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.

Applications are invited from duly registered women practitioners for the appointment of Assistant Medical Officer of Health and Assistant School Medical Officer to act under the direction and supervision of the Medical Officer of Health who is also School Medical Officer.

The maximum salary will be £700 per annum. The commencing salary will not be less than £600 per annum, and will be fixed according to the qualifications and experience of the successful applicant, and will rise by annual increments of £25 to the maximum of £700.

The person appointed must have had at least three years' postgraduate experience in the practice of her profession and special experience of midwifery and ante-natal work. Special postgraduate experience in the treatment of venereal diseases and of diseases of children, and the possession of a registrable degree or diploma in Public Health will be deemed additional qualifications.

Applications to be made on forms to be obtained from the Medical Officer of Health, Victoria Street, Blackburn, and returned to him not later than Wednesday, March 30th, 1938, endorsed "Assistant Medical Officer of Health."

Canvassing, directly or indirectly, will be a disqualification.
Town Hall, Blackburn, Chas. S. Robinson, Town Clerk.
March 7th, 1938.

COUNTY BOROUGH OF BOLTON. RESIDENT ASSISTANT MEDICAL OFFICER. BOROUGH ISOLATION HOSPITAL.

Applications are invited from duly qualified medical men for the position of RESIDENT ASSISTANT MEDICAL OFFICER.

Candidates must have held resident hospital appointments and have had experience in the treatment of infectious diseases. The duties will include the medical care of patients in the Isolation Hospital and assisting the Male Venereal Diseases Officer in his work.

The person appointed will be required to reside at the Isolation Hospital. The salary will be £450 per annum, together with board and residence, valued at £150 per annum. Married quarters are not available. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and to the selected candidate passing a medical examination.

Forms of application, with particulars of the duties, may be obtained from the Medical Officer of Health, Howell Croft North, Bolton, and completed applications, with copies of three recent testimonials, should be sent to the undersigned not later than April 5th, 1938. Canvassing, either directly or indirectly, will be a disqualification.

HAROLD B. ASHFORD, Town Clerk.
Town Hall, Bolton, March 19th, 1938.

CITY OF SHEFFIELD. CITY GENERAL HOSPITAL. ASSISTANT MEDICAL OFFICER.

Applications are invited from duly qualified medical men for the appointment of ASSISTANT MEDICAL OFFICER, Grade 2, at the above Hospital.

The Medical Officer appointed will be required to take duty in the Medical, Surgical or Maternity Departments as directed by the Medical Superintendent.

The appointment will be for one year only, and the salary offered is £300 per annum, with the usual residential allowances.

Previous hospital experience desirable. Applications, stating age, qualifications and experience, and accompanied by not more than three testimonials of recent date, should be sent to the Medical Superintendent, City General Hospital, Sheffield, 5, as soon as possible.

CITY OF NORWICH ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER, etc.

Applications are invited for the post of Assistant Medical Officer of Health and Assistant School Medical Officer with residence at the Isolation Hospital. Salary £600 per annum (including emoluments, valued at £150 per annum), rising by annual increments of £25 to £700 per annum. Board allowance at the rate of £60 per annum granted when absent from hospital on leave. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922. For particulars apply to the Medical Officer of Health, 63, St. Giles Street, Norwich, by whom applications for the post must be received not later than April 11th.

COUNTY COUNCIL OF MIDDLESEX. VISITING ANAESTHETIST.

Applications are invited for the appointment of Visiting Anaesthetist at the COUNTY SANATORIUM, HAREFIELD. Candidates must be medical practitioners devoting the whole or the major part of their time to anaesthetics and must be specially skilled in the administration of anaesthetics by modern methods to patients undergoing thoracic operations.

The officer appointed will be required to attend one session per week, at a fee of £3 3s. 0d. per session. The appointment, which does not carry any superannuation rights, will be held during the pleasure of the Council and is terminable by one month's notice on either side.

Applications, stating age, qualifications and experience, together with copies of not more than three recent testimonials, must be received by the undersigned not later than April 9th, 1938. Relationship to any member or officer of the Council must be disclosed in the application. Application forms are not provided. Envelopes must be endorsed "Visiting Anaesthetist, Harefield."

Canvassing, directly or indirectly, will be a disqualification.

C. W. RADCLIFFE, "Z," Clerk of the County Council.
Middlesex Guildhall,
Westminster, S.W.1.
March 17th, 1938.

DERBYSHIRE COUNTY COUNCIL. WOMAN ASSISTANT MATERNITY AND CHILD WELFARE MEDICAL OFFICER.

The Derbyshire County Council require the services of a fully qualified whole-time woman Assistant Maternity and Child Welfare Medical Officer, experienced in Ante-Natal work, Midwifery and Children's Diseases, to hold under the direction of the County Medical Officer of Health consultations at the Ante-Natal and Maternity and Child Welfare Centres of the Derbyshire County Council and (under the like direction) to perform such other duties as appertain to the office.

The salary will be £600 per annum, rising by £25 per annum to £700 per annum.

The appointment will be a designated post under the Local Government and Other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from the undersigned, to whom they must be returned, together with copies of not more than three recent testimonials, not later than April 4th, 1938.

W. M. ASH, County Medical Officer of Health.
New County Offices,
St. Mary's Gate, Derby.
March 10th, 1938.

PORTSMOUTH EDUCATION COMMITTEE. SCHOOL MEDICAL SERVICE.

The Committee invite applications from fully qualified candidates for the appointment of a male ASSISTANT MEDICAL OFFICER OF HEALTH and ASSISTANT SCHOOL MEDICAL OFFICER.

Salary £500-£25-£700 per annum. Experience in Refraction, Orthopaedics, Mental Deficiency, Diseases of the Ear, Nose and Throat, or any other branch of the work will be deemed a recommendation. D.P.H. an advantage.

The selected candidate will be required to pass a medical examination and contribute to the Council's Superannuation Scheme.

Forms of application obtainable from the Chief Clerk, Education Offices, Guildhall, Portsmouth, and should be returned not later than the first post on April 6th, 1938, to the undersigned. Canvassing in any form will disqualify.

Guildhall, F. J. SPARKS, Town Clerk and Clerk to the Education Committee.
Portsmouth, March 17th, 1938.

COUNTY BOROUGH OF HUDDERSFIELD. APPOINTMENT OF ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from registered Medical Practitioners (ladies) who have had special experience in ante-natal work and in the care of infants. Salary £500-£25-£700, initial salary according to experience.

The post will be designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination before being appointed to the position.

Applications, stating age, full particulars regarding training, qualifications, and appointments held since qualification, should be forwarded to the Medical Officer of Health, Public Health Department, Huddersfield, along with copies of two recent testimonials, so as to reach him not later than Friday, April 1st, 1938.

Town Hall, SAMUEL PROCTER, Town Clerk.
Huddersfield, March, 1938.

LANCASHIRE COUNTY COUNCIL. PUBLIC ASSISTANCE COMMITTEE.

LAKE HOSPITAL AND DARNTON HOUSE INSTITUTION,
Ashton-under-Lyne, near Manchester.

(1) APPOINTMENT OF SENIOR RESIDENT MEDICAL OFFICER.

Salary £250 per annum, together with the usual residential emoluments. The person appointed will be required to take up duty on June 1st, 1938.

(2) APPOINTMENT OF JUNIOR RESIDENT MEDICAL OFFICER.

Salary £225 per annum, together with the usual residential emoluments. The person appointed will be required to take up duty on May 2nd, 1938.

Applications are invited from Registered Medical Practitioners for the above appointments at the Lake Hospital and Darnton House Institution, Ashton-under-Lyne, comprising 300 and 525 beds respectively.

The Hospital is recognised as a complete Training-School for Nurses.

Candidates must be unmarried. Preference will be given to candidates having previous hospital experience, especially in midwifery, and in the administration of anaesthetics.

The appointments will, in the first instance, be for a period of six months, the successful candidates being eligible for reappointment for a further period of six months at the end of that period.

Forms of application may be obtained from the County Medical Officer of Health, Public Assistance (Hospital and Medical) Department, County Offices, Preston, to whom all applications, accompanied by copies of not more than two recent testimonials, must be forwarded not later than Friday, April 1st, 1938.

GEORGE ETHERTON, Clerk of the County Council.
County Offices, Preston.
March 14th, 1938.

LANCASHIRE COUNTY COUNCIL. BIDDULPH GRANGE ORTHOPAEDIC HOSPITAL.

Applications are invited from duly qualified and registered medical practitioners for the post of ASSISTANT VISITING ORTHOPAEDIC SURGEON at the above Hospital, which contains 88 beds. Salary is at the rate of £250 per annum.

Candidates must have had special training and experience in orthopaedic surgery, and must possess the diploma of F.R.C.S. (Eng.). The successful candidate will be required to visit the hospital twice weekly. The appointment will be for a period of three years, terminable by one calendar month's notice on either side.

Applications, with copies of two recent testimonials, should be sent not later than April 2nd, 1938, to Dr. F. Hall, School Medical and Child Welfare Department, County Offices, Preston.
GEORGE ETHERTON, Clerk of the County Council.

SALOP COUNTY COUNCIL. Medical Inspection of School Children and Maternity and Child Welfare Schemes ASSISTANT MEDICAL OFFICER.

Applications are invited from registered medical practitioners for the post of ASSISTANT MEDICAL OFFICER to work under the above Schemes, at a commencing salary, according to experience—scale £500 per annum, rising by annual increments of £25 to a maximum of £700 (with travelling and out-of-pocket expenses), subject to a deduction of 5 per cent. for superannuation under the Local Government and Other Officers' Superannuation Act, 1922. The successful candidate will be required to pass a medical examination.

Preference will be given to candidates with a Public Health qualification, and experience in refraction work is desirable.

Applications, accompanied by a copy of three recent testimonials, should be received not later than April 13th, 1938, by the County Medical Officer, County Health Offices, Shrewsbury, from whom the necessary forms and conditions of service can be obtained.

W. L. EDGE, Clerk of the Council.
Shirehall, Shrewsbury, March 14th, 1938.

CITY AND ROYAL BURGH OF EDINBURGH. PUBLIC HEALTH DEPARTMENT.

ASSISTANT MEDICAL OFFICER required for Gogarburn Certified Institution (563 beds), Easterphine, Edinburgh. Salary at the rate of £591 per annum, rising by annual increments of £10 to £159, plus board and lodging. For superannuation purposes the holder of the position will come under the Asylums and Certified Institutions (Officers' Pensions) Act, 1918.

Applications should be addressed not later than April 1st, 1938, to the Medical Officer of Health, Johnston Terrace, Edinburgh.

D. ROBERTSON, Town Clerk.

ELIZABETH GARRETT ANDERSON
HOSPITAL,
Easton Road, N.W.1

OPHTHALMIC DEPARTMENT—Out-patients

Applications are invited from fully qualified medical women for the post of **CLINICAL ASSISTANT—Thursday evening clinic—honorary £50 per annum.**

Further particulars of the post may be obtained from the undersigned, to whom applications with copies of three testimonials, should be sent not later than March 31st, 1938.

JEAN R. MURRAY

Secretary

BATTERSEA GENERAL HOSPITAL
Battersea Park, S.W.11

Applications are invited for the post of **PART-TIME CASUALTY OFFICER** four mornings a week from 9 a.m. till 12 noon. Salary at the rate of £60 per annum. Candidates must be fully qualified and registered, and preference will be given to candidates working for a higher medical or surgical degree. The appointment is for six months with the possibility of extension for one further period.

Applications, accompanied by copies of two testimonials, to be sent to the Secretary not later than Saturday, April 2nd, 1938.

CHARING CROSS HOSPITAL
CANCER AND RADIUM REGISTRAR

The Council invite applications from candidates who must be registered Medical Practitioners (male) for the post of **Cancer and Radium Registrar** (honorary) £100 per annum. Applications, together with copies of three testimonials, must be submitted not later than first post on Monday, March 28th, 1938.

GEORGE J. JONES

Secretary

Charing Cross Hospital, Strand, W.C.2.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH.
60, Grove End Road, N.W.8

Applications are invited for the post of **RESIDENT HOUSE SURGEON (male)**. The post is recognized for the degree of M.S. London University. The appointment will be for six months from May 1st, 1938. Salary at the rate of £75 per annum, with full board. Applications, together with copies of three testimonials, should reach the undersigned on or before Friday, April 1st.

F. DUDLEY HOBBS, B.A.

Secretary

LONDON HOSPITAL, E.1

There is a vacancy for the post of **CLINICAL ASSISTANT in the X-Ray Department**. Candidates must be fully qualified medically. Experience in Radiology is essential. The honorarium of the post is £100 per annum.

Applications, with testimonials, should be sent to the House Governor and should arrive not later than Saturday, April 9th.

ARTHUR G. ELLIOTT

House Governor

ST. BARTHOLOMEW'S HOSPITAL
PART-TIME CHIEF ASSISTANT IN THE
X-RAY DIAGNOSTIC DEPARTMENT.

Applications are invited for the post of **Part-time Chief Assistant in the X-ray Diagnostic Department**. Candidates must be registered medical practitioners and possess a Diploma in Medical Radiology. The officer appointed will be required to attend in the Department on four half-days a week.

Appointment will be made for a period to expire at the end of 1938, on a 2 months re-election.

Applications, with testimonials (copies only), should be left with the undersigned not later than Monday, March 28th, 1938.

C. C. CARUS-WILSON

March 19th, 1938. Acting Clerk to the Governors

NATIONAL HOSPITAL FOR DISEASES OF THE HEART
Westminster Street, Marylebone W.1

RESIDENT MEDICAL OFFICER

Applications are invited for the post of **Resident Medical Officer (male)**. The appointment is for a period of six months from May 1st, but may be renewed for a further period not exceeding six months.

Salary at the rate of £150 per annum with board, residence and washing.

Candidates who must be duly registered Medical Practitioners will not be expected to call on the Hon. Medical Staff but should send their applications with copies of three recent testimonials to me at the Hospital not later than Friday, April 8th.

ROBERT G. E. WHITNEY

Secretary

PADDINGTON GREEN CHILDREN'S HOSPITAL (Incorporated), London, W.2

HOUSE PHYSICIAN
HOUSE SURGEON

These appointments will become vacant on May 1st, 1938. Gentlemen (unmarried) are invited to send in their applications with copies of three testimonials, to the undersigned not later than Friday, April 8th, 1938. Salary of each at the rate of £150 per annum, with board and residence. Candidates who have held a responsible Resident Hospital appointment are preferred. The appointments are for a period of six months.

JAMES A. HAMLIN

Secretary

ROYAL FREE HOSPITAL.
Gray's Inn Road W.C.1

Applications are invited from duly qualified and registered medical men or women for the following post.

RESIDENT CASUALTY OFFICER

Duties to commence May 1st, 1938, for six months. Salary £150 per annum. Candidates must have held previous resident hospital appointments. Application form may be had from the undersigned and should be duly filled in and returned on or before April 5th, 1938.

RICHARD T. BARTLEY, Secretary*

ST. PAUL'S HOSPITAL FOR UROLOGICAL AND SKIN DISEASES.
Endell Street, London, W.C.2.

Applications are invited for the post of **HOUSE SURGEON**. Candidates must be qualified and registered. Salary £160 per annum, with board and residence. The appointment is for three months in the first instance, and the holder will later be eligible for the post of Resident Medical Officer.

During his appointment as House Surgeon the duties involve work in the surgical wards and in the out-patient department. Applications, with copies of recent testimonials, to be submitted not later than April 9th. The successful candidate will be required to take up duty about April 23rd.

J. P. KEY CHISLETT

Secretary

KING EDWARD MEMORIAL HOSPITAL, EALING. (145 Beds)

Applications are invited for the post of **HOUSE SURGEON (male)** to act in the Eye, Gynaecological and Ear, Nose and Throat Departments. Six months' appointment from May 1st, 1938, with possibility of re-election for a further period. Salary £150 per annum with usual residential emoluments.

Applications, stating age, experience and qualifications and accompanied by copies of two recent testimonials, to be sent to the undersigned not later than Tuesday, April 5th, 1938.

R. A. MICKELWRIGHT

House Governor

THE ELIZABETH GARRETT ANDERSON HOSPITAL.
Easton Road, N.W.1

The Managing Committee invite applications from fully qualified medical women for the appointment of **HONORARY ASSISTANT ANAESTHETIST** (honorary £10 per annum).

Particulars of the duties may be had from the undersigned, to whom applications, with copies of three recent testimonials, should be sent before April 2nd, 1938.

JEAN R. MURRAY

Secretary

THE LONDON CHEST HOSPITAL.
Victoria Park, E.2.
(Bus, Tram and Rail, Cambridge Heath L and N.E. Railway)

A vacancy for a **HOUSE PHYSICIAN (male)** will occur on May 1st. Six months' appointment. Salary at the rate of £100 per annum. Board, residence, and laundry provided.

Applications, with copies of testimonials (three), should be sent to the Secretary on or before Saturday, April 2nd.

THE INFANTS HOSPITAL
Vincent Square, Westminster.

Applications are invited for **TWO CLINICAL ASSISTANTS** (tenable for a period of one year). Suitable for D.C.H. candidates. Fee payable to the Postgraduate Medical School, Fifteen Guineas. Applications to be addressed to the Dean.

THE HOSPITAL FOR SICK CHILDREN, GT. ORMOND ST., LONDON, W.C.1

APPOINTMENTS

TO BE MADE
PREPARATORY TO THE
OCCUPATION OF THE

NEW HOSPITAL

A RESIDENT MEDICAL SUPERINTENDENT

**Two HOUSE PHYSICIANS
and
Two HOUSE SURGEONS**

AN OUT-PATIENT AURAL REGISTRAR (part-time)

who is to be the Senior Resident Officer, is required on the 1st May, 1938. Salary £200 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

The duties will include the medical administration of the Hospital and medical supervision of the Nursing and Domestic Staffs.

Candidates must be unmarried, possess a legal qualification to practise, and have held a responsible resident appointment at a General Hospital. Special experience in infectious diseases is desirable.

Candidates for the above appointments must attend at the Hospital to appear before the Joint Committee at 4.45 p.m. on Wednesday, 6th April, 1938. Further particulars and forms of application, which must be completed and returned by noon on Monday, 4th April, 1938, are obtainable from the undersigned.

March, 1938.

are required on the 15th April, 1938.

These appointments are tenable for six months. Salaries at the rate of £50 per annum.

Candidates must be unmarried, possess a legal qualification to practise, and have held a responsible resident appointment at a General Hospital.

is required on the 1st May, 1938. Salary £175 per annum.

This appointment is tenable in the first instance for one year, but may be held for a period of two years, subject to re-election.

Candidates must possess a legal qualification to practise and have held a responsible resident appointment at a General Hospital.

HERBERT F. RUTHERFORD, Secretary.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing to undermentioned positions. Candidates must have held resident appointment in a general hospital for at least six months. Married quarters not available.

ASSISTANT MEDICAL OFFICERS (Grade I).—Salary £350-£25-£425, with board, lodging and washing.

(a) **BETHNAL GREEN HOSPITAL**, Cambridge Road, E.2.—Duties mainly surgical.

(b) **ST. PETER'S HOSPITAL**, Fulbourne Street, Whitechapel, E.1.—Medical and part surgical duties.

ASSISTANT MEDICAL OFFICERS (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(a) **AL. St. Dunstan's Road**, Duties mainly medical.

(b) **HOSPITAL**, Dartmouth Park Hill, N.19.—Duties mainly medical.

(c) **NORWOOD HOSPITAL FOR CHILDREN**, Elder Road, West Norwood, S.E.27.—Duties mainly medical. Children's experience desirable. Only women candidates eligible.

(d) **PRINCESS MARY'S CONVALESCENT HOME**, Cliftonville, Margate.—General duties in a female convalescent hospital.

(e) **QUEEN MARY'S HOSPITAL**, Sidcup, Kent.—General duties in a male convalescent hospital.

(f) **ST. CHARLES' HOSPITAL**, St. Charles' Square, Ladbroke Grove, W.10.—Duties mainly medical. Children's experience desirable.

(g) **ST. GILES' HOSPITAL**, St. Giles' Road, Camberwell, S.E.5.—Duties in children's ward, ante-natal clinic, and anaesthetics.

(h) **ST. PETER'S HOSPITAL**, Fulbourne Street, Whitechapel, E.1.—Duties mainly medical.

* No accommodation for a woman.

Application forms obtainable (stamped, addressed (foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2A, County Hall, S.E.1. returnable by April 4th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing to undermentioned positions. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

ASSISTANT MEDICAL OFFICER (Grade I).—Salary £350-£25-£425, with board, lodging and washing.

(a) **KING GEORGE V SANATORIUM**, near Godalming, Surrey.—Experience in pulmonary tuberculosis desirable.

(b) **ST. LUKE'S HOSPITAL**, Lowestoft, Suffolk.—Experience in non-pulmonary tuberculosis desirable. (No accommodation for a woman.)

ASSISTANT MEDICAL OFFICER (Grade II).—Salary £250 a year, together with board, lodging and washing. Appointment for one year only in first instance (renewable for a second year under certain conditions).

(c) **GROVE PARK HOSPITAL**, Lee, S.E.12.—Experience in pulmonary tuberculosis desirable.

(d) **ST. ALFEGE'S HOSPITAL**, 48, Vanbrugh Hill, Greenwich, S.E.10.—Casualty officer, experience in anaesthetics desirable. (Candidates must have held resident appointment in a general hospital for at least six months.)

Application forms obtainable (stamped addressed (foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2A, County Hall, S.E.1. returnable by April 11th. Canvassing disqualifies.

LONDON COUNTY COUNCIL.

Applications invited from medical practitioners of at least one year's standing to undermentioned position. Experience in a resident appointment in a general hospital for at least six months desirable. Married quarters not available.

SENIOR ASSISTANT MEDICAL OFFICER (Grade II).—Salary £500-£25-£600, with board, lodging and washing.

GROVE PARK HOSPITAL, Lee, S.E.12. Experience in the treatment of pulmonary tuberculosis essential, administrative experience desirable.

Application forms obtainable (stamped addressed (foolscap envelope necessary) from Medical Officer of Health, Staff Division, 2A, County Hall, S.E.1. returnable by April 4th. Canvassing disqualifies.

THE BELGRAVE HOSPITAL FOR CHILDREN (Incorporated), 1, Clapham Road, S.W.9.

The Committee of Management invite applications for the positions of two **HOUSE PHYSICIANS** and one **HOUSE SURGEON**, which will become vacant on April 30th.

Applicants must be fully qualified and registered. The appointments are for six months with board, residence, and washing provided. Salary at the rate of £100 per annum in each case. Applications, with copies of testimonials, stating age, to be forwarded on or before Thursday, April 7th. By order,

THOMAS CLAPHAM,

Secretary.

WORCESTERSHIRE COUNTY COUNCIL.

ASSISTANT COUNTY MEDICAL OFFICER.

Applications are invited from registered Medical Practitioners for the post of Assistant County Medical Officer, whose duties will include those connected with the School Medical Service and Maternity and Child Welfare, together with any other health duties the Council may require.

Applicants must be between the ages of 25 and 45, and preference will be given to candidates possessing the D.P.H. and with experience in the administration of dental anaesthetics.

The officer appointed will work under the supervision of the County Medical Officer, and will be required to reside in the district assigned to him by the County Council, and to devote the whole of his time to the work.

The salary will be at the rate of £500 per annum, rising by annual increments of £25 to £700 per annum, with an allowance of £60 per annum for the use of the officer's own motor car.

The post is designated under the Local Government and Other Officers' Superannuation Act, 1922, and the successful applicant will be required to pass a medical examination.

The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer, County Buildings, Worcester) accompanied by not more than three recent testimonials, must be received by 12 noon on Wednesday, April 20th, 1938, addressed to the County Medical Officer, County Buildings, Worcester.

Canvassing disqualifies, and neither the names of the members of the County Council, nor of the Committee, will be supplied.

(Signed) C. H. BIRD,
Clerk of the County Council.

Shirrell, Worcester.

March 26th, 1938 [K.216.]

HOLLAND (LINCS.) COUNTY COUNCIL.

ASSISTANT MEDICAL OFFICER OF HEALTH.

Applications are invited from duly qualified and registered medical practitioners holding the Diploma in Public Health or an equivalent qualification, for the post of Assistant Medical Officer of Health (male). Candidates must not exceed 40 years of age.

The person appointed, who must have had postgraduate experience in radiology and in the diagnosis and treatment of tuberculosis, will be required to carry out all the duties assigned to him by the County Medical Officer, under whose direction and supervision he will act. He will not be allowed to engage in private practice.

The salary will be £600 per annum, rising by increments of £25 per annum to £750, together with travelling expenses according to the Council's scale.

The appointment will be a designated post under the Local Government and other Officers' Superannuation Act, and the successful candidate will be required to pass a medical examination.

The appointment will be determinable by three months' notice on either side.

Forms of application may be obtained from the County Medical Officer, County Hall, Boston, by whom they must be received, together with copies of three recent testimonials, not later than 10 a.m. on April 11th, 1938.

County Hall, H. C. MARRIS,
Boston, Clerk of the County Council.
March 21st, 1938.

WEST RIDING OF YORKSHIRE MENTAL HOSPITALS BOARD.

APPOINTMENT OF AN ASSISTANT MEDICAL OFFICER.

WADSLEY MENTAL HOSPITAL, near Sheffield.

Applications are invited for the appointment of an Assistant Medical Officer in the Board's service at the above Mental Hospital, at a commencing salary of £350 per annum, rising by annual increments of £25 to a maximum of £450, together with emoluments (board, apartments and laundry) valued at £120 per annum. The Board will allow an extra £50 per annum to the successful candidate who (whilst on this scale) holds or obtains the Diploma in Psychological Medicine, for which this Hospital affords special study facilities.

It will be an advantage if candidates have had at least one year's experience in general medicine after qualification.

The appointment is subject to the provisions of the Asylums Officers' Superannuation Act, 1909, Class 1.

Applications, with copies of not more than two recent testimonials, stating age and full particulars, to reach the Medical Superintendent, West Riding Mental Hospital, Wadsley, Sheffield, 6, not later than April 11th, 1938.

There is no printed form of application.
Board Offices, G. L. BANNER,
Wadsley, Clerk of the Board.
March, 1938.

CITY AND COUNTY OF BRISTOL.
ASSISTANT MEDICAL OFFICER OF HEALTH.

The Council invite applications for a whole-time male ASSISTANT MEDICAL OFFICER OF HEALTH. Age not exceeding 40 years. Salary £500 per annum, rising by annual increments of £50 to £700. The appointment will be subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922. The Diploma of Public Health is essential.

Candidates having experience in refraction work, and who are recognized by the Board of Education as Certifying Officers under Section 55 of the Education Act, 1921, and Section 31 of the Mental Deficiency Act, 1913, will be given special consideration.

Particulars of the duties of the Assistant Medical Officer may be obtained from the undersigned.

Applications, which must be on the form provided for this purpose, should be accompanied by not more than three recent testimonials, and must be received by the undersigned not later than Saturday, April 2nd, 1938. Envelopes should be endorsed "Assistant Medical Officer of Health." Canvassing will disqualify.

JOSIAH GREEN,
Town Clerk.

Council House, Bristol, 1.
March 15th, 1938.

CITY OF YORK.

ASSISTANT MEDICAL OFFICER OF HEALTH (Woman).

The York Corporation invite applications for the above post.

The duties will consist chiefly of Maternity and Child Welfare work, and the successful applicant will be provided with board and residence in the Maternity Hospital. She must have had the necessary experience in Ante-Natal Clinic duties to satisfy the Ministry of Health's requirements and must, therefore, have had postgraduate experience in midwifery. She may be required to perform any other duties as Assistant Medical Officer.

Salary £350 per annum, together with emoluments (board-residence, etc.), valued at £150 per annum. The appointment is for six months in the first instance.

The Medical Officer of Health is Medical Superintendent of the Hospital, and there is a Consultant Medical Officer.

Applications should be made to the undersigned not later than April 9th, giving name, age, address, qualifications (with dates) and experience. Copies of testimonials or references should also be furnished.

P. R. McNAUGHT, M.D., D.Sc., D.P.H.,
Medical Officer of Health and Medical Superintendent, Maternity Hospital,
50, Bootham, York.
March 22nd, 1938.

CITY OF LEICESTER.

RESIDENT MEDICAL OFFICER.

The Health Committee of the City of Leicester invite applications for the position of Resident Medical Officer (male) at their CITY GENERAL HOSPITAL for a period of six months, renewable if satisfactory for a further six months. The successful candidate will be required to commence as soon as possible. Preference will be given to those with, or reading for, higher qualifications.

The hospital is a modern building with 550 beds, four Resident Medical Officers and one Deputy Medical Superintendent. The work that will be required of this Resident Medical Officer will be chiefly medical; there may, however, be some general surgical work. Salary £300 per annum, together with full residential emoluments.

Further particulars of the appointment may be obtained from the undersigned, and applications (on forms supplied) accompanied by copies of three recent testimonials, must be received not later than April 4th, endorsed "R.M.O." addressed to the undersigned.

E. K. MACDONALD,
Medical Officer of Health.
Health Department,
Grey Friars, Leicester.

COUNTY BOROUGH OF WEST HAM.
PLAINSTOW FEVER HOSPITAL.
(210 Beds)

Applications are invited for the post of JUNIOR ASSISTANT MEDICAL OFFICER (male) at the Plainstow Hospital. Salary £300 per annum, together with residence, board and laundry. Preference will be given to candidates who have held a resident appointment in a general hospital. Grad resident appointment in a general hospital. Grad facilities for postgraduate study are available. The appointment is for one year only.

Application forms can be obtained from the Medical Officer of Health, Municipal Health Offices, Romford Road, Stratford, E.15, and should be returned, together with copies of not more than three recent testimonials, to the Town Clerk, Town Hall, West Ham, E.15, not later than April 5th, 1938.

APPOINTMENTS—Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1 (in the case of Scottish appointments, with the Scottish Secretary, 7, Drumsheugh Gardens, Edinburgh).

(a) British Islands

Town or District	Town or District	Town or District
CONTRACT PRACTICE	CONTRACT PRACTICE—(contd)	CONTRACT PRACTICE—(contd)
ABERTYSSWO MEDICAL AID SOCIETY (Medical Officer.)	MID-RHONDDA MEDICAL AID SOCIETY (Assistant Medical Officer)	OAKDALE, MON. (Medical Officer for Medical Aid Association.)
GILFACH GOCH, GLAMORGAN (Workmen's Medical Scheme.)	NEATH AND DISTRICT (Medical Aid Association)	PUBLIC HEALTH
LILWYNYPPIA, CLYDACH VALE, PENYGRAIG, GLAMORGAN (Workmen's Medical Scheme)	OGMORE VALLEY, GLAMORGAN. (Wynham Colliery Medical Aid Society) (Workmen's Medical Scheme)	SALOP MENTAL HOSPITAL, SHREWSBURY (Assistant Medical Officer, Male.)

(b) Overseas

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column or with the Secretary to the British Medical Association, B.M.A. House, Tavistock Square, W.C.1.

Town or District	Hon. Sec. of Division or Branch.	Town or District	Hon. Sec. of Division or Branch.	Town or District	Hon. Sec. of Division or Branch.
NEW SOUTH WALES (All Friendly Society Appointments.)	The Medical Secretary, New South Wales Branch, 135, Macquarie St., Sydney, N.S.W.	VICTORIA (All Institute or Medical Dispensaries)	The Honorary Secretary, Victorian Branch, British Medical Association, Medical Society Hall, Albert St., East Melbourne, Victoria	WESTERN AUSTRALIA (Contract and Lodge Practices.)	Hon. Sec. Western Australian Branch, British Medical Association, "Semi House," 205, St. George's Terrace, Perth, Western Australia.
QUEENSLAND (Brisbane Associate Societies Institute.)	The Hon. Sec., Queensland Branch, British Medical Association, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17				

March 23, 1938.

By order of the Council.

G. C. ANDERSON, Secretary.

CITY MENTAL HOSPITAL, Humberstone, Leicester.

ASSISTANT MEDICAL OFFICER (Male)

Residential General Hospital experience is desirable. Salary £550, rising by £50 per annum to £650 per annum, together with board, lodging, washing and attendance, valued for purposes of superannuation at £150 per annum. If the applicant be married he will be permitted to live out, and the salary will commence at £600, rising by £50 per annum to £650. An additional £50 per annum will be paid for possession of a D.P.M. The appointment is subject to the provisions of the Asylum Officers' Superannuation Act, 1909. There is a good laboratory and two active Psychiatric Clinics, one attached to the Leicester Royal Infirmary.

Duties will include attendance at a mental deficiency colony. Applications, giving particulars of experience, etc., together with names of three references (one of which should be non-professional) and marked "A.M.O." to be sent to the Medical Superintendent before March 31st.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN, (64 Beds.)

Wanted, April 9th, 1938, a RESIDENT HOUSE PHYSICIAN (Lads). Salary £130 p.a. The appointment is for six months, but may be extended by mutual arrangement. Applicants must be fully qualified. Applications, with three testimonials, to be sent to the undersigned on or before March 30th to the Secretary, Arthur N. Whiston, Secretary.

BEDFORD COUNTY HOSPITAL.

Wanted, FIRST HOUSE SURGEON to take over his duties on April 8th for a term of not less than six months. He must be fully qualified, male, unmarried. Salary £155 per annum, together with board, lodging and laundry. Applications, stating age, nationality and qualifications, together with three recent testimonials, to be sent to the Secretary, Hon. Medical Staff Committee.

MANCHESTER ROYAL INFIRMARY MEDICAL OFFICER TO OUT-PATIENTS

The Board of Management invite applications from registered medical practitioners for the above appointment. The duties are to assist in the treatment of Medical Out-patients on three mornings a week, from 9 o'clock. The appointment is for one year. Salary £105 per annum.

Candidates must state age and send fifteen copies of their application and testimonials to the undersigned on or before 9 a.m. on Thursday, March 31st, 1938.

By Order,

A. L. M. YOUNG, Assistant Secretary.

WEST KENT GENERAL HOSPITAL (Incorporated), Maidstone. (135 Beds.)

Applications are invited for the post of HOUSE SURGEON, who must be a male of British nationality and unmarried. Salary at the rate of £175 per annum, with board, apartments and laundry. Candidates must possess registered qualifications.

Applications, stating qualifications and experience, together with copies of testimonials, should be sent to the undersigned on or before March 31st, 1938. The successful candidate will be required to take up residence in early April.

EDWARD J. GREGG,

House Governor and Secretary.

PRINCESS ALICE HOSPITAL, EASTBOURNE (Voluntary General Hospital, 120 Beds; Two House Surgeons)

RESIDENT HOUSE SURGEON (Male) required on April 5th, 1938. Salary at the rate of £150 per annum, with board and laundry. Applications from registered practitioners, accompanied by copies of three recent testimonials, should be delivered to the undersigned by the first post on Wednesday, March 30th, 1938.

W. RUSSELL RUDALL,

March 9th, 1938.

Secretary.

STOCKTON AND THORNABY HOSPITAL, Stockton-on-Tees. (140 Beds.)

SENIOR HOUSE SURGEON (male) required for a period of at least six months. Duties to commence on or about April 15th, 1938. Salary £175 per annum, with board, residence and laundry. Candidates must be duly qualified and unmarried.

Applications, stating age, nationality and experience, together with copies of three testimonials, to be sent to the undersigned.

J. WILKINSON, Secretary.

COSHAM MEMORIAL HOSPITAL, Kingswood, Bristol.

A vacancy will occur at the end of March for a JUNIOR RESIDENT MEDICAL OFFICER. Salary £160 per annum, with board and laundry; to remain for six months in the first instance. Applicants (male) should be of British nationality, fully qualified and registered.

Applications, with copies of recent testimonials, to be sent to the Secretary.

KING GEORGE HOSPITAL, ILFORD. (Over London—207 Beds.)

HOUSE SURGEON (male) required for six months, from April 1st. Salary at the rate of £160 p.a. Forms of application may be obtained from the undersigned, to whom they should be returned, duly completed, not later than April 4th.

G. AUSTIN HEPWORTH,

Secretary and Superintendent.

MANCHESTER ROYAL EYE HOSPITAL

HOUSE SURGEON required. Salary £120 per annum, with residence, board, etc.

Applications (with copies of testimonials) ordered "House Surgeon" to be addressed to the Chairman of the Board of Management.

H. R. NORTON,

Gen. Supt. and Secretary.

(Appointments continued on p. 21)

CHESTERFIELD AND NORTH DERBYSHIRE ROYAL HOSPITAL, Chesterfield.

APPOINTMENT OF HONORARY PHYSICIAN.

The Elective Committee of this Hospital is prepared to receive applications for the appointment of an Honorary Physician.

Candidates must be Graduates in Medicine of a University of Great Britain or Ireland, or possess the Diploma of a Member of the Royal College of Physicians of London.

The appointment is for a period of five years, and may be further extended.

Candidates must make written application for the appointment and must deliver same to the undersigned on or before Friday, April 8th, 1938. Candidates shall not canvass members of the Committee, but may send 70 copies of applications and testimonials for distribution to them.

M. H. BOONE,

Superintendent and Secretary.

March 18th, 1938

BARROWMORE TUBERCULOSIS SANATORIUM AND SETTLEMENT, Gl. Barrow, near Chester.

Male JUNIOR ASSISTANT MEDICAL OFFICER required. Salary £200 per annum, with board, residence and laundry. The appointment will be made in the first instance for a period of six months, renewable for a further six months, not renewable afterwards.

The Institution deals with all stages of Pulmonary Tuberculosis, and comprises Hospital accommodation, extensive workshops for graduated work, and a Settlement.

Special treatment, Sanocrysin and Artificial Pneumothorax given.

Applications, marked "Junior Assistant Medical Officer," with copies of three testimonials, should be sent to the Medical Director at the above address by Wednesday, April 6th, 1938.

BIRMINGHAM AND MIDLAND EYE HOSPITAL. (114 Beds.)

Applications are invited from duly qualified Medical Practitioners for the post of HOUSE SURGEON at the above Hospital, which becomes vacant on April 30th next.

Salary £130 per annum (rising to £150 at the end of six months' satisfactory service) and £10 laundry allowance.

The Resident Staff consists of a Resident Surgical Officer and three House Surgeons.

Applications, with testimonials and evidence of registration, should be forwarded immediately to the undersigned.

J. W. PEARCE,

General Superintendent.

Church Street, Birmingham, 3.

BURSLER HAYWOOD AND TUNSTALL WAR MEMORIAL HOSPITAL, High Lane, Tunstall, Stoke-on-Trent. (66 Beds. Approved Training School for Nurses.)

Applications are invited for the post of RESIDENT HOUSE SURGEON. Salary £175 per annum, with board, residence and laundry.

The appointment is for six months in the first instance; reappointment may be applied for. Applications, stating age and experience, with copies of three recent testimonials, to be sent to the undersigned immediately.

C. E. LOWNDES,

Secretary.

HULL ROYAL INFIRMARY.

Applications are invited for the post of SECOND HOUSE PHYSICIAN (male), vacant April 30th. Salary at the rate of £150 per annum, plus board, residence and laundry. The post is recognized by the University of London for the M.D. Branch 1 (Medicine) Examination.

The appointment will be for a period of six months, but will be determinable at any time by one month's notice on either side.

Applications, giving age, experience and nationality, together with copies of recent testimonials, should be addressed to the undersigned.

R. J. CARLESS,

March 14th 1938.

House Governor.

ANCOATS HOSPITAL, MANCHESTER. 4. RESIDENT SURGICAL OFFICER.

Applications are invited for the above post. The appointment is for twelve months. Salary £200 per annum with board, apartments, laundry, etc. Candidates holding the F.R.C.S. diploma will be preferred.

Applications, stating age, qualifications and experience, with copies of three recent testimonials, to be forwarded to the undersigned on or before March 30th next.

By Order of the Board,

HERBERT J. DAFFORNE,

General Supt. and Secretary.

DONCASTER ROYAL INFIRMARY AND DISPENSARY. (185 Beds.)

HONORARY ORTHOPAEDIC SURGEON.

The Board of Management propose to establish an Orthopaedic Department at the Doncaster Royal Infirmary. Applications are invited from gentlemen with Special Orthopaedic experience to take charge of the Department.

An Honorarium of £250 per annum and upwards will be paid according to the amount of time the surgeon proposes to devote to the work. The successful candidate, will be restricted to the practice of Orthopaedic Surgery, and must hold a higher Surgical or Orthopaedic qualification.

The appointment is subject to confirmation by the annual meeting of Governors. Canvassing, either directly or indirectly, will disqualify.

Sixty copies of the application, together with copies of three recent testimonials, must be furnished, and should be forwarded to the undersigned not later than April 4th, 1938.

R. LANCASTER,

Secretary-Superintendent.

HARLOW WOOD ORTHOPAEDIC HOSPITAL, near Mansfield, Notts. (155 Beds.)

Applications are invited for the post of SURGICAL REGISTRAR.

The appointment is for twelve months in the first instance, and is full-time and non-resident. The salary is at the rate of £450 per annum, and as the duties will include attendance at the affiliated Out-patient Clinics £25 will be allowed for travelling expenses. Applicants should have had experience in Orthopaedic Surgery.

Applications, stating age, qualifications, and date when available to commence duties, should be forwarded, together with copies of testimonials, to the Secretary by April 4th.

HARLOW WOOD ORTHOPAEDIC HOSPITAL, Near Mansfield, Notts. (155 Beds. Two Residents.)

Applications are invited for the post of HOUSE SURGEON (male). Salary is at the rate of £200 per annum with board, residence and laundry. Duties commence on May 1st, the appointment being for six months in the first instance.

Applications, stating age, qualifications and experience, with copies of testimonials, should be received by the Secretary not later than April 4th.

GENERAL INFIRMARY, SALISBURY. (Voluntary Hospital, 200 Beds, now in course of extension to 215.)

HOUSE SURGEON (male) required to commence duty at once.

The appointment is for six months, with the right of applying for reappointment for a further period of six months. Candidates must be unmarried, fully qualified, and registered.

The Hospital is recognised under F.R.C.S. regulations.

Salary £125 per annum, with board-residence.

Applications, with copies of testimonials, to be sent to the House Governor and Secretary from whom a copy of the rules may be obtained.

GLASGOW CORPORATION MENTAL HOSPITALS.

JUNIOR ASSISTANT MEDICAL OFFICER (male) wanted for Lennox Castle Certified Institution, Lennoxtown. Previous experience unnecessary, but preference will be given to one who has engaged in pathological work or who has been House Physician; ample opportunity for research. Salary to commence at £300 per annum, with board, lodging and laundry.

Full particulars on application to the Medical Superintendent, Lennox Castle Institution, Lennoxtown, Stirlingshire.

DERBYSHIRE ROYAL INFIRMARY, Derby. (General Hospital. 362 Beds.)

Applications are invited for the post of HOUSE SURGEON for Ear, Throat and Nose Department, who must be a male of British nationality and unmarried. Candidates must be qualified and registered under the Medical Acts. Salary will be £150 per annum, with apartments, board, etc.

Applications, with copies of testimonials, to be sent to the undersigned. State earliest date duties could be commenced.

ARTHUR TAYLOR,

Superintendent and Secretary.

DISTRICT INFIRMARY, Ashton-under-Lyne. (200 Beds.)

RESIDENT SURGICAL OFFICER required about April 19th. Six months' appointment, with possibility of renewal. Salary at the rate of £230 per annum, with the usual residential emoluments.

Applications, with testimonials, to be sent to

FRANK OLIVER,

General Superintendent and Secretary.

THE GUEST HOSPITAL, DUDLEY. (General Hospital—135 Beds.)

The Resident Staff consists of a Resident Surgical Officer and two House Surgeons.

HOUSE SURGEON (male) required, to commence duty on May 2nd. Salary at the rate of £130-£130 according to experience, with furnished apartments, board and laundry. Candidates must be fully qualified and registered. Applications, stating age, qualifications and experience, accompanied by copies of testimonials, to be sent to the undersigned.

H. RAYMOND HURST,

House Governor and Secretary.

March 18th, 1938.

ROYAL SUSSEX COUNTY HOSPITAL, Brighton. (Beds 272. Six R.M.O.s.)

CASUALTY HOUSE SURGEON (Male) required May 1st, 1938. Salary £120 p.a., with board, residence and laundry.

Candidates must hold Medical and Surgical qualifications of the British Empire, and be duly registered under the Medical Acts. They must be unmarried, and, when elected, under thirty years of age.

Applications, with copies of recent testimonials, to be forwarded to the undersigned.

L. L. W. LANCASTER-GAYE,

Secretary-Superintendent.

BRISTOL EYE HOSPITAL (80 Beds.) (12 Private Patients.) 1937—1,017 In-patients, 17,794 Out-patients.

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary £100 per annum. Senior post available after six months. Vacant April 14th, 1938.

Suitable experience for D.O.M.S.

Applications, stating age and qualifications, etc., with three recent testimonials, to reach the undersigned by April 8th.

D. M. BABER,

Secretary and House Governor.

HOVE GENERAL HOSPITAL, HOVE. (53 Beds.)

Applications are invited for the appointment of JUNIOR RESIDENT MEDICAL OFFICER (male). Salary £120 p.a., with board, apartments and laundry. The successful applicant will, if suitable, be eligible to apply for the senior post which becomes vacant six months later.

Applications, stating age and qualifications, together with three recent testimonials, to be forwarded to the undersigned.

K. C. BOOKER,

Secretary-Superintendent.

NOTTINGHAM GENERAL HOSPITAL. (389 Beds.)

A HOUSE PHYSICIAN (male) is required at the above Institution. The appointment is for six months, with salary at the rate of £150 a year, with board, residence and laundry.

Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to the undersigned at once.

Duties to commence on or about April 1st, 1938.

PETER M. MACCOLL,

House Governor and Secretary.

PRINCESS ELIZABETH ORTHOPAEDIC HOSPITAL, EXETER.

Applications are invited for the post of RESIDENT HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry.

The appointment is for six months commencing May, with the option of extension for a period not exceeding a further six months.

Applications, stating age and experience with copies of three recent testimonials, to be sent to:

P. MELHUISS, Secretary.

REDLANDS HOSPITAL FOR WOMEN, Glasgow.

Applications are invited from qualified Medical Women for the posts of RESIDENT MEDICAL OFFICERS (2) for six months from April 1st (three months medicine and midwifery, three months surgery and gynaecology).

Salaries at the rate of £50 per annum.

Applications, with copies of testimonials, should be sent not later than April 5th to the Medical Secretary, Redlands Hospital, Glasgow, W.2.

WORCESTER ROYAL INFIRMARY. (165 Beds.)

Applications are invited for the post of JUNIOR HOUSE SURGEON. Salary at the rate of £120 per annum, with board, residence and laundry.

Applications, stating full particulars as to whether married or single, qualifications, etc., accompanied by copies of three recent testimonials, should be sent to the undersigned by April 24th 1938.

A. R. WISE,

Superintendent-Secretary.

A LADY DISPENSER BOOKKEEPER supplied immediately on request, qualified with practical experience in private practice and dispensary work, also trained in Bacteriological Laboratories of the LONDON COLLEGE OF PHARMACY FOR WOMEN. Preparation for Examinations—White, wire, or phone (Day-water 0909) Secretary, 7, Westbourne Park Road, W.2.

DOCTORS REQUIRING QUALIFIED Dispensers, Nurse-Dispensers, Secretary-Dispensers or Chauffeur-Dispensers, are invited to write, wire, or phone Temple Bar 5858, The Dispensary's Bureau, 3, Lindsay House, 171, Shaftesbury Avenue, London, W.C.2.

DOCTOR'S DAUGHTER DESIRES POST AS DISPENSER to doctor in or near Cardiff (Hall). Knowledge of book-keeping—Address, No. 4688, B.M.A. House, Tavistock Square, W.C.1.

DISPENSER-SECRETARY (QUALIFIED) Experience minor dressings, book-keeping, etc. seeks POST, preferably near London—Address, No. 4690, B.M.A. House, Tavistock Square, W.C.1.

EXPERIENCED DISPENSER (QUALIFIED) (Apoth. Hall) would like chance. South of England preferred—Address, No. 4624, B.M.A. House, Tavistock Square, W.C.1.

LADY, EXPERIENCED ALL SECRETARIAL duties, desires POST. Good medical, surgical and X-ray knowledge—Miss POWLES, 34, Circus Road, N.W.8.

LADY DISPENSER BOOK-KEEPER (HALL) aged 30, desires post—10 years' experience—Address, No. 4646, B.M.A. House, Tavistock Square, W.C.1.

LADY DESIRES GOOD HOME ON THE South Coast or near, as House-keeper. Willing to cook and do light household duties, aged 41 years—Address, No. 4631, B.M.A. House, Tavistock Square, W.C.1.

RECEPTIONIST WOULD LIKE POST WITH Radiologist or Doctor. Has worked as assistant in a Hospital X-ray department for 15 months—Address, No. 4687, B.M.A. House, Tavistock Square, W.C.1.

SURGICAL CORSETS—JENNER'S PRINCES Street Edinburgh Limited require a fully experienced SURGICAL CORSET FITTER.—Apply in first instance by letter, giving full particulars of experience, qualifications, etc., to Managing Director, JENNER'S, 45, Princes Street, Edinburgh.

THE ROYAL ARMY MEDICAL CORPS ASSOCIATION, 85, Eccleston Square, S.W.1 (Telephone: Victoria 2722), supplies qualified Dispensers, Bookkeepers, Laboratory Assistants, Sanitary Assistants, Male Nurses, Mental and Special Treatment Orderlies, Dental Clerk Orderlies, Porters, Caretakers, etc., without charge to prospective employers.

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F.R.C.S. (Edin.), M.B., B.S. (Lond). Aged 34, with excellent surgical experience, desires PARTNERSHIP, with prospect of useful hospital appointment, anywhere but small industrial town. Address No. 4630, B.M.A. House, Tavistock Square, W.C.1.

BIRMINGHAM—PARTNER REQUIRED in well-established practice. One-third share offered, with early increase. Excellent prospects.—Apply, "Medico," 144, Edmund Street, Birmingham.

ESSEX COAST—FOR SALE, HALF SHARE in practice averaging post three years over £1,600, increasing. Panel 1,000. Premium two years' purchase. Excellent house and garden, for sale or part mortgage. Yachting, golf, etc.—Address, No. 4415, B.M.A. House, Tavistock Square, W.C.1.

GLAMORGAN COAST—HALF-SHARE OLD-ESTABLISHED PRACTICE. Receipts over £3,000 p.a. Large panel. House and grounds. Premium 2 years' purchase.—Apply, PEACOCK AND HADLEY, Ltd., 67-68, Chandos Street, Strand, W.C.2.

HOME COUNTIES, WITHIN 15 MILES—Young, energetic, experienced man as THIRD PARTNER in rapidly increasing, old-established mixed general practice; large panel. Share producing £1,200 to £1,500, increasing later.—Address, No. 4402, B.M.A. House, Tavistock Square, W.C.1.

PARTNER WANTED BY F.R.C.S. ED. large, expanding, mixed, general practice, Natal Coast, South Africa. Wonderful climate. Well equipped hospitals. Several appointments, soon to be increased. Average gross income £3,500 per annum. Must be experienced, with knowledge of Surgery a recommendation. Premium 1½ years' purchase, half or third-share. Full investigation advised.—Address, No. 4218, B.M.A. House, Tavistock Square, W.C.1.

SURREY—TWO OR THREE-TENTH SHARE in practice averaging about £5,000 for suitable man to replace retiring partner. Age under 35. Fellowship essential. Two years' purchase. Suitable house available to rent.—Address, No. 4614, B.M.A. House, Tavistock Square, W.C.1.

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WANTED END OF APRIL UNOPPOSED Country PRACTICE, anywhere South of Leicester. Averaging £1,000 to £1,500. Panel. Good house and garden essential.—Address, No. 4635, B.M.A. House, Tavistock Square, W.C.1.

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WANTED MIXED GENERAL PRACTICE OR PARTNERSHIP, by Scottish Graduate with nine years' Hospital and General Practice experience. Country or provincial town.—Particulars to ADAM THOMSON AND ROSS, Advocates, 6, Ben-Acad Street, Aberdeen.

WANTED—A YOUNG PHYSICIAN OR general practitioner interested in physiotherapy, to succeed to a West End practice averaging over £4,000 per annum. No premium. Qualifications must be derived from Cambridge, Oxford, or Scottish universities. Only condition is the tenure of a consulting room.—Address, No. 4637, B.M.A. House, Tavistock Square, W.C.1.

A NUMBER OF SMALL PRACTICES AT low premiums. Excellent opportunities for practitioners wishing to set a practice with scope.—Apply, PEACOCK AND HADLEY, LTD., 67-68, Chandos Street, Strand, W.C.2.

A COUNTRY PRACTICE—ATTRACTIVE. Worcestershire village, unopposed. Average receipts £500. Premium £1,500. Exceptionally nice house, large garden, for sale. Suitably or semi-retired practitioner.—Address, No. 4422, B.M.A. House, Tavistock Square, W.C.1.

DORSET—DEATH VACANCY—SMALL fashionable South-coast resort. Average annual receipts £1,700; 350 panel patients. Rent £100 per year. 1½ years' purchase.—Address, No. 4619, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, MIDDLE-AND WORKING- class PRACTICE in large Midland city. Receipts 1937, £3,300; panel about 1,700. Excellent freehold corner house for sale, five bedrooms, two reception, separate surgery entrance, garage for two cars; also branch surgery. Suitable for two partners. Prem. two years' purchase.—Address, No. 4622, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, SOUTH COAST, GOOD-CLASS PRACTICE, £1,400 p.a. Surgical appointment probably transferable. Would suit young F.R.C.S. with capital.—Address, No. 4639, B.M.A. House, Tavistock Square, W.C.1.

FOR SALE, SOUTH COAST, PANEL PART OF PRACTICE, together with excellent freehold, pre-war, detached, doctor's RESIDENCE, garage, pretty garden. Ample scope. £2,700.—Address, No. 4644, B.M.A. House, Tavistock Square, W.C.1.

LONDON, S.W.—OLD-ESTABLISHED PRACTICE. Receipts last year nearly £1,500; panel 1,800. Nice house on rental, good lease. Premium 14,000.—Apply, PEACOCK AND HADLEY, LTD., 67-68, Chandos Street, Strand, W.C.2.

FOR SALE (ESSEX, TWELVE MILES London) main road; growing district.—PRACTICE, established two years. Gross takings last year £426; panel 300, increasing. Street-fronted surgery and house, eight rooms, separate dispensary, garage. Practice £600, or near offer. Residence £1,000, mortgage could be arranged. Excellent scope.—Address, No. 4633, B.M.A. House, Tavistock Square, W.C.1.

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MEDICAL—LADY'S PRACTICE IN SOUTH Side of Glasgow for sale, with small house to rent; good prospects, good panel list.—Apply, CRAWFORD, HEIKON AND CAMERON, Solicitors, 257, West George Street, Glasgow, C.2.

MEDICAL—OLD-ESTABLISHED PRACTICE in pleasant country town on the borders of Perthshire, for sale, with good house. Income over £500. For further particulars apply to MESSRS CRAWFORD, HEIKON AND CAMERON, Solicitors, 257, West George Street, Glasgow.

NEWCASTLE-UPON-TYNE, GATESHEAD, or surrounding districts.—Wanted by private advertiser, Panel or Colliery PRACTICE, large or small. Cash available. Confidential.—Address, No. 4618, B.M.A. House, Tavistock Square, W.C.1.

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DOCTOR, WHO OWING TO WAR DISABILITY cannot secure life policy, desires small MORTGAGE (private) for short period on rapidly growing practice. Panel increasing 100 per quarter. Full est. enquiries invited. Write—Address, No. 4636, B.M.A. House, Tavistock Square, W.C.1.

WOULD A DOCTOR IN SCOTLAND, OR North of England, care to accept Gentleman and Companion as PAYING GUESTS? Accommodation required, sitting room, two bedrooms, garage for motor car, and house or room for chauffeur. Golf course within easy reach. Liberal terms.—Replies to JOHN THORNTON, Solicitor, 15, Albert Square, Dundee.

NATIONAL ADOPTION SOCIETY, 4, BAKER STREET, W.1. Telephone, Welbeck 7211. OFFERS ASSISTANCE in the legal adoption of illegitimate and orphan babies into suitable family life. Chairman, THE LADY GWENETH CAVENDISH.

ORIGINAL HOLIDAY (INEXPENSIVE) wanted by M.D. Lond (29), about August 15th-30th. SOME WORK, medical or otherwise, no objection. Own car, go anywhere.—Address, No. 4603, B.M.A. House, Tavistock Square, W.C.1.

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ASSISTANCIES

WANTED IMMEDIATELY (LINCOLN-shire), outdoor ASSISTANT, young, male, unmarried, British nationality, preferably Protestant, with view after six months to suitable man. Salary £400, with £50 car allowance.—Address, No. 4602, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, ASSISTANT FOR Midland practice. Indoor three months, later outdoor. Salary £350 and £450 respectively, with £50 car allowance. Suit married (or to be married). Young, any nationality. Definite partnership within 12 months.—Address, No. 4629, B.M.A. House, Tavistock Square, W.C.1.

WANTED IMMEDIATELY, INDOOR AND outdoor ASSISTANTS for town and country practices, with and without view to partnership. Good salaries offered. State full particulars.—BRITISH MEDICAL BUREAU, 33, Cross Street, Manchester, 2.

WANTED, IMMEDIATELY, OUTDOOR ASSISTANT, Harrow district. Ex-H.S., able to do minor surgery with some experience of general practice preferred. Salary £400. State age, nationality, experience.—Address, No. 4610, B.M.A. House, Tavistock Square, W.C.1.

WANTED, APRIL, MALE ASSISTANT TO live at and manage branch surgery in South Devon seaside resort. Private and panel practice. Salary £500 per year, to include car allowance and tent of unfurnished flat. Consulting room provided. View to partnership later to satisfactory man.—Address, No. 4607, B.M.A. House, Tavistock Square, W.C.1.

WANTED (ABOUT EASTER), INDOOR male ASSISTANT, unmarried: £300, all found. South Wales, mixed practice. Car allowance. Suit newly qualified Scot. Hospital. Dispensers kept. Usual Bond.—Address, No. 4634, B.M.A. House, Tavistock Square, W.C.1.

WANTED AT EARLY DATE, YOUNG single male outdoor ASSISTANT, English or Scottish and recently qualified preferred, for mixed practice in Essex, 30 miles from London. Salary £480, including car allowance. Own car essential. References.—Address, No. 4424, B.M.A. House, Tavistock Square W.C.1.

WANTED, PERMANENT BRITISH ASSIS-TANT, single, experienced, for Glamorgan colliery practice. Good hospital. Dispenser kept. Give full particulars and photo. Salary £450, plus £50 car allowance.—Address, No. 4227, B.M.A. House, Tavistock Square, W.C.1.

WANTED ASSISTANT (INDOOR), WITH early view, about 30. Salary £350 p.a., all found; car allowance. Essex country town, within 30 minutes of London. All branches of general practice. Modern Hospital.—Address, No. 4625, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE OR FEMALE ASSISTANT, general practice, Northern England. Salary £312 p.a., all found, plus £50 car allowance. Half midwifery fees. Increase salary later if suitable.—Address, No. 4613, B.M.A. House, Tavistock Square, W.C.1.

WANTED, INDOOR ASSISTANT, MALE, single. Panel and private practice, University town, near London. Able cycle, or car allowance. Salary £300, plus board and lodging.—Address, No. 4628, B.M.A. House, Tavistock Square, W.C.1.

WANTED, MALE ASSISTANT, FOR PRACTICE, Northern England. Work comparatively light. Own rooms and board provided. Would consider recently qualified man. Salary £300-£350 p.a., according to experience, plus £50 car allowance.—Address, No. 4612, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT, MORNING AND evening surgeries. Four guineas weekly, outdoor 25 minutes Charing Cross. Suitable post-graduate. Must be willing to reside in area. Address, No. 4689, B.M.A. House, Tavistock Square, W.C.1.

WANTED, ASSISTANT FOR BRANCH surgery, near Birmingham. Salary £350. Half midwifery fees, etc. Car allowance. Nice modern house rent and rate free. State age, nationality and experience.—Address, No. 4404, B.M.A. House, Tavistock Square, W.C.1.

WANTED, AN ASSISTANT WITH VIEW for a mixed practice in the Midlands. Hospital experience preferred. Salary £500 with furnished rooms and attendance. Car allowance. Send photo.—Address, No. 4512, B.M.A. House, Tavistock Square, W.C.1.

ASSISTANTSHIPS.—WE HAVE AT ALL times a number of vacancies to fill. Gentlemen with good qualifications and experience are invited to send full particulars.—THE MEDICAL AGENCY, 36-38, Southampton Street, Strand, W.C.2.

PERMANENT ASSISTANT REQUIRED, large town North-East Coast, with or without car. Excellent prospects.—Address, No. 4606, B.M.A. House, Tavistock Square, W.C.1.

PART-TIME ASSISTANT, WANTED IMMEDIATELY for 3 surgeries per week. S.E. district. Suit postgraduate. Easy access London teaching hospitals. Live out.—Address, No. 4638, B.M.A. House, Tavistock Square, W.C.1.

PART-TIME ASSISTANT REQUIRED, 5 sessions approximately. Bedroom and breakfast provided. Scope for good refractologist. 35 mins. Charing Cross.—Address, No. 4685, B.M.A. House, Tavistock Square, W.C.1.

WOMAN ASSISTANT WANTED FOR mixed working-class practice. Pleasant eastern suburb. Work light. No midwifery or dispensing. Outdoor.—Address, No. 4627, B.M.A. House, Tavistock Square, W.C.1.

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A Course of Training in Dispensing and Pharmacy is given at GORDON HALL SCHOOL OF PHARMACY and Secretary-Dispensers can be supplied to Doctors. Sessions: January, April, and September.—Apply: Principals, School of Pharmacy, Drayton House, Gordon Street, W.C.1. Phone: EUSTON 3930.

CAREER FOR DAUGHTERS OF MEDICAL MEN DISPENSING. Full training for APOTHECARIES HALL CERTIFICATE. New Session commencing November.—The Princess CENTRAL SCHOOL OF PHARMACY for Lady DISPENSERS, 23, Moreton Street, London, S.W.1.

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APPOINTMENTS.—Contd.

COUNTY BOROUGH OF ROTHERHAM. MEDICAL SERVICES COMMITTEE. ASSISTANT RESIDENT MEDICAL OFFICER

Applications are invited from fully qualified Medical Practitioners, with the necessary knowledge and experience of hospital work, for the appointment of a full-time Resident Assistant Medical Officer at the Alma Road Hospital, Rotherham, at a salary of £350 per annum, together with the usual emoluments.

Candidates must be medical practitioners of at least one year's standing, and have held a resident appointment in general hospital or municipal hospital for at least six months.

The appointment is subject to the provisions of the Local Government and Other Officers' Superannuation Act, 1922, and the successful candidate will be required to pass a medical examination as to physical fitness.

The appointment will be made for a period not exceeding 12 months.

Forms of application can be obtained from the Medical Officer of Health, Town Hall, Rotherham. Applications, with copies of not more than three recent testimonials endorsed "Assistant Resident Medical Officer," to be sent in to the undersigned not later than April 5th, 1938.

CHAS. L. DES FORGES,

Town Clerk.

Municipal Offices, Rotherham.

March 22nd, 1938

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City Road, E.C.1.

Applications are invited for the post of **OUT-PATIENT OFFICER**, to attend on Wednesdays and Saturdays (mornings) each week. Candidates must be registered medical practitioners.

Salary at the rate of £100 per annum. The Out-Patient Officer will be appointed for a period of one year, and will be eligible for re-appointment. Copies of regulations can be obtained on application.

Applications, with testimonials, stating age and qualifications, together with photograph, must be received by the undersigned not later than April 2nd, 1938.

A. J. M. TARRANT, Secretary.

THE NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, London, N.W.1.

Applications are invited for the following post: **CASUALTY OFFICER (male)**. Salary £120 per annum, board, residence and laundry allowance.

The appointment is for a period of six months as from April 1st. Preference will be given to those who have held resident posts.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, March 28th, addressed to the Secretary.

COUNTY BOROUGH OF WOLVERHAMPTON. NEW CROSS HOSPITAL. (350 Beds.)

ASSISTANT MEDICAL OFFICER (RESIDENT)

Applications are invited for appointment as Assistant Medical Officer at the above hospital, which contains Medical Surgical, Maternity, Children's and Isolation Departments, and is modern and equipped.

Experience in a similar position, a knowledge of Clinical Pathology, and previous hospital experience will be deemed additional assets.

Salary will be at the rate of £204 per annum, with apartments board attendance, etc.

The appointment will be limited to a term not exceeding one year.

Further information as to the duties, etc., may be obtained from the Medical Officer of the Hospital.

Applications, stating age qualifications and suitability, together with copies of recent testimonials, should be addressed to—

Stanford Street, WOLVERHAMPTON, W. G. ALDRIDGE,
Wolverhampton Public Assistance Officer

CITY OF BIRMINGHAM EDUCATION COMMITTEE

APPOINTMENT OF TWO ASSISTANT SCHOOL MEDICAL OFFICERS (Male or Female).

Required to begin duty on September 1st, 1938, two ASSISTANT SCHOOL MEDICAL OFFICERS (male or female). Candidates must have had at least three years' experience in the practice of their profession, or frequent in obtaining a reasonable qualification. Salary according to "A" scale.

Scale (£150 to £170 by annual increments of £20). In future commercial salary previous service in Class II of "A" scale may be taken into account. £10 per annum travelling expenses allowed. Forms of application to be returned by Saturday, April 30th, with further information obtainable from the undersigned on receipt of stamped, addressed envelope. Communications should be endorsed "Assistant School Medical Officer." Canvassing will be disallowed.

P. D. INNES,

Chief Education Officer.

Education Office,
Marquet Street, Birmingham.

March 19th, 1938.

CITY OF LEEDS PUBLIC HEALTH DEPARTMENT.

ST. JAMES'S HOSPITAL. (1330 Beds.)

Required, **HOUSE PHYSICIANS AND HOUSE SURGEONS** (male) for the above Hospital. The appointments are for six months, but may be renewed for a further six months only.

Salary £150 per annum, with board, residence and laundry. Candidates must be qualified, registered and unmarried.

Applications, stating age, qualifications, etc., together with copies of three recent testimonials, to be forwarded to Dr. J. JOHNSTONE HAVIS, Medical Officer of Health, 12, Market Buildings, Vicar Lane, Leeds, 1, not later than 10 a.m. on April 2nd, 1938.

Canvassing in any form, either directly or indirectly, will be a disqualification.

KING EDWARD VII HOSPITAL, WINDSOR. (200 Beds.)

The Board of Management invite applications for the post of **HONORARY SURGEON** in charge of the Ear, Nose and Throat Department. Candidates are required to hold a Fellowship or Mastership in Surgery and to be either resident or prepared to reside in the vicinity of Windsor.

Applications to be sent to the Secretary of the Hospital on or before April 2nd, 1938, stating qualifications and experience.

ROYAL SURREY COUNTY HOSPITAL, GUILDFORD. (216 Beds.)

WANTED MAY 1st, 1938, RESIDENT SURGICAL OFFICER (Male).

Twelve months' appointment, recognized for F.R.C.S. Salary £250 per annum, with board, residence and laundry.

Applications, stating age and essential particulars, with copies of not more than three testimonials, to reach the Secretary-Superintendent not later than April 5th, 1938.

THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, London, E.2.

CASUALTY OFFICER required May 1st, 1938, or earlier. Some Dermatological work additional.

Six months' appointment. Salary at the rate of £100 per year, with board, lodging and laundry.

Applications must be made on forms to be obtained from the undersigned, and must be sent with copies of not more than three testimonials, on or before April 7th, 1938.

CHARLES H. BESSLEY,

Secretary.

THE GENERAL HOSPITAL, BIRMINGHAM

OPEN APPOINTMENT.

Appointments are invited for the post of **HOUSE SURGEON** to the Throat and Ear Department. Salary at the rate of £200 per annum.

Applications, stating full details of qualifications, should reach the undersigned as soon as possible.

A. H. LEANEY,

Home Governor.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, Shooters Hill, London, S.E.13.

General Hospital—112 Beds.

(a) RESIDENT MEDICAL OFFICER. (b) HOUSE SURGEON.

The Board of Management invites applications from suitably qualified male candidates for the following posts—

(a) Resident Medical Officer. This appointment, which will be the second senior of five residents, will be for one year with effect from April 1st, 1938, and renewable for a further twelve months, if approved by the Board of Management. The salary will be £150 per annum, plus board, residence and laundry, and the duties will include (i) Medical Registrar and (ii) Resident Pathologist.

(b) House Surgeon for six months from May 1st, 1938. Remuneration at the rate of £100 per annum, plus board, residence and laundry. In addition to his surgical duties the House Surgeon will have the care of a Maternity Unit of 8 beds.

Short-listed candidates selected for interview will be required to meet the Appointments Committee (at the Hospital) on Thursday, March 31st, 1938, at 4.45 p.m. The closing date for receipt of applications (to be submitted on the prescribed form obtainable from the Secretary) is Monday, March 28th, 1938.

R. S. G. HUTCHINGS,
Secretary.

ROYAL BERNSHIRE HOSPITAL, READING. (335 Beds.)

Applications are invited for the following resident appointments, which fall vacant on May 1st, 1938—

One **HOUSE SURGEON** (male);
One **HOUSE PHYSICIAN** (male);
One **HOUSE SURGEON TO THE SPECIAL DEPARTMENTS** (Eye, Ear, Nose and Throat) (male).

Appointments are for six months, and candidates must be fully qualified and registered.

Remuneration at the rate of £150 per annum, with board, residence and laundry.

Applications, stating age and experience, with copies of testimonials, to be sent to the undersigned on or before April 14th, 1938.

H. E. RYAN,
Secretary and House Governor.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.

Applications are invited for the post of **HOUSE SURGEON** (male) for six months from April 12th (first two months in the Casualty and Out-patient Department). Salary at the rate of £120 per annum, with full board and residence.

Applications, with copies of three recent testimonials, should be sent to the undersigned, from whom particulars can be obtained, immediately.

W. H. SIDNELL,
House Governor.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.1.

Applications are invited for the following post: **HOUSE SURGEON** (male). Salary £100 per annum. Board, residence and laundry allowance.

The appointment is for a period of six months, as from April 1st. Preference will be given to those who have held resident posts.

Candidates must submit applications, stating qualifications, age, etc., with copies of not more than three testimonials, by Monday, 28th inst., addressed to the Secretary.

RADIUM BEAM THERAPY RESEARCH, at the Radium Institute, 1, Ridgway House Street, London, W.1.

ASSISTANT MEDICAL OFFICER, resident, salary £150 per annum. Six months' appointment. Applications, stating age, qualifications and experience, with copies of testimonials, to be sent to the Secretary, Radium Beam Therapy Research.

It is possible for a candidate to hold this post and at the same time to carry on some post-graduate studies, the medicals being free.

STIRLING DISTRICT MENTAL HOSPITAL, LARBERT.

JUNIOR ASSISTANT MEDICAL OFFICER (required male). Salary commencing at £150 per annum with board, food and laundry.

Appointments subject to provisions of Asylum Officers' Superannuation Act. Apply, stating age and experience, with testimonials, to the Medical Superintendent.

THE GENERAL HOSPITAL, BIRMINGHAM

OPEN APPOINTMENT.

Appointments are invited for the post of **HOUSE SURGEON** to the Throat and Ear Department. Salary at the rate of £200 per annum.

Applications, stating full details of qualifications, should reach the undersigned as soon as possible.

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31 LONDON, S.W.18.—Increasing PRACTICE in populous district. Income last year about £325. Panel 450/500. Club worth about £200 p.a. Shop-fronted house to rent on lease. Excellent scope. Reasonable offer for quick sale.

32 S. OF ENGLAND.—First-rate Residential Town.—Good-class non-dispensing PRACTICE about £1,200 p.a. Consultations and visits 10/6, sometimes 7/-. No midwifery. Good house (6 bedrooms), in best part. Price £1,500. Good scope. Premium two years' purchase. Suitable to a physician.

33 SURREY.—PARTNERSHIP in well-established and rapidly growing middle-class Practice, doing about £3,750, in developing residential neighbourhood. Panel 750. Visits 5/- to 10/6. House (3 bedrooms), garage and small garden. Price £1,250. One-fourth share at first at two years' purchase.

34 DEVON AND CORNWALL BORDER.—Very old-established, unopposed and steadily increasing country PRACTICE. £1,325 p.a. Panel 413. Visits 5/- to 15/6, medicine extra. Very nice detached house (6 bedrooms, 2 dressing-rooms, etc.), garages and garden, about one acre, with fine orchard, for sale. Ample scope for increase. Ill-health cause of sale. Reasonable premium accepted for quick sale.

35 S.E. COAST.—PARTNERSHIP in old-established middle and working-class Practice in growing resort. Receipts, 1937, £4,350. Panel about 3,000. House (5 bedrooms), garage, etc., to rent at £120 p.a. Premium one-third share two years' purchase.

36 S. OF ENGLAND.—Steadily increasing middle and working-class PRACTICE in seaport town. Receipts past year, £800 (appointment worth £45, panel 660 and P.M.S. 395). Detached house with garage and garden. Rent £85 p.a. Premium £1,220, to include drugs and fittings.

37 SEASIDE TOWN WITHIN HOUR OF LONDON.—Very old-established PRACTICE, about £625 p.a. Panel about 300. Nice detached house (5 bedrooms), large garage and garden, for sale or rent. Good scope. Premium £1,000.

38 W. OF ENGLAND.—PARTNERSHIP in non-dispensing PRACTICE of £1,800 in first-rate residential town. Panel 2,000. Suitable flat available. Premium four-ninths share two years' purchase.

39 S. OF ENGLAND.—Well-established SANATORIUM for the Open-Air Treatment. Receipts past year, £2,240. Premium £1,000, to include furniture, etc. Further details on application.

40 EAST ANGLIA.—Upper and middle-class PRACTICE in progressive town. Receipts nearly £1,100 p.a. No appointments or panel. Visits 5/- to £1 11s. 6d. Semi-detached house (7 bedrooms, etc.), for sale. Premium one and a-half years' purchase.

41 LONDON, S.W.—PARTNERSHIP in sound old-established and steadily increasing Practice in pleasant out-

lying residential district. Visits 3/6 to £1 1s. Not much midwifery. Suitable house obtainable. Share worth about £1,250 p.a. Premium £2,500.

42 N. MIDLANDS.—PARTNERSHIP in steadily increasing middle-class Practice, averaging £5,500 p.a. in county town. Panel 4,500. House with 5 bedrooms, garage and good garden, to rent. One-fifth or one-fourth share at two years' purchase.

43 LONDON, N.3.—Well-established middle-class PRACTICE, averaging £1,000 p.a. in rapidly developing district. Panel about 317. Modern two-storied house with ample accommodation, garage and nice garden. Price £2,000 freehold. Scope. Premium two years' purchase.

44 EASTERN COUNTIES.—PARTNERSHIP in Practice, over £2,000, in very pleasant agricultural district. Moderate panel. Pleasantly situated house. Rent £100 p.a. on lease. Extra grass land available. Good scope for increase by young energetic man. Premium one-half share two years' purchase.

45 N. WALES.—PARTNERSHIP in mixed Practice, averaging about £2,400 p.a., in industrial district. Panel 1,930. Visits 3/6 to £1 10s., medicine extra. House (5 bedrooms), electric light and gas, garage and garden. Welsh not necessary, but an asset. Premium one-half share, to include remainder of lease, £2,500.

46 KENT.—PARTNERSHIP in middle-class Practice, over £4,000 p.a., in growing residential district. Panel 2,300. Non-basement house (4 bedrooms and dressing-room), garage and garden, to rent. Cottage hospital. One-fourth share at two years' purchase.

47 MIDLANDS.—PRACTICE in good town, easy access to London. Earnings average £2,300. Panel 1,500. Large house with garage and garden. Rent £150 p.a. Vacancy for a physician on staff of local hospital; also scope for surgery and gynaecology. Premium two years' purchase.

48 EAST ANGLIA.—PARTNERSHIP in Practice, over £5,500, in first-rate country town. Panel nearly 1,550. Incoming partner should preferably be graduate of Oxford or Cambridge, and must have had surgical training and ability to do surgical work on county hospital.

49 S.W. ENGLAND.—Ear, Nose and Throat PRACTICE in large town. Cash receipts over £3,000 p.a. Fees £2 2s. 6d. Good house, containing 14 rooms with garage and garden. Price £2,500. Scope. Premium £2,500. Purchaser must be experienced and possess the F.R.C.S. or D.L.O.

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C. LOCUMS required for Doctors taking Post-Graduate Courses in Scotland from June 25th until end of

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E. EASY DISTANCE OF GLASGOW AND EDINBURGH.—PRACTICE, nearly £800 p.a., in small town. House (6 bedrooms), garage and garden. Premium, practice and house, £2,500.

F. EDINBURGH.—Small PRACTICE. Receipts approximately £400. Suitable house to rent. Moderate prem.

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- 4 LONDON, N.W.—PARTNERSHIP in Practice averaging over £5,000 p.a. Panel about 6,000. Flat to rent. One-fifth share at first at two years' purchase. Applicant should be English or Scottish.
- 5 DEATH VACANCY.—S. WALES.—Country PRACTICE averaging about £760 p.a. Panel 360. House (5 bedrooms, etc.), large garage and garden, for sale or rent. Very good prospects of increase.
- 6 SURREY.—PRACTICE in new developing district doing at rate of nearly £700 p.a., appointment, worth £50, and increasing panel 163. Well situated house (3 bedrooms and professional accommodation). Price about £1,650. Ample scope. Premium £400.
- 7 LONDON, N.W.8.—Branch PRACTICE. Receipts about £220. Premises in residential flats. Rent £150 p.a. Scope. Premium £300.
- 8 S. WALES.—SEASIDE RESORT.—PRACTICE averaging £800 p.a. Panel 234. Visits 5/- to 10/6. Corner house on main road, for sale or rent.
- 9 NEW ZEALAND.—AUCKLAND PROVINCE.—PRACTICE of £750 p.a. in dairy farming district. Seven-roomed house with grounds of two acres. Premium, house and practice £1,100.
- 10 HOME COUNTY.—PARTNERSHIP in sound Practice in progressive town. Receipts about £8,300 p.a. Panel 1,650. House (6 bedrooms), garage and nice garden, for sale or rent. Premium one-fourth share £4,500. Smaller share considered.
- 11 MIDLANDS.—Inland Watering Place.—THIRD PARTNER required in middle-class Practice, about £3,800 p.a. Panel about 1,300. Fees 3/6 to 10/6. Premium seven-twenty-fourths share two years' purchase and up to one-third in three years. Short Assistantship.
- 12 SURREY.—Increasing middle and working-class PRACTICE, doing about £1,500, in thickly populated suburban district. Panel about 800. Small house with garage. Price £300, or rent £78 p.a. Scope. Premium £2,500, to include fittings, furniture, drugs, etc.
- 13 MIDLANDS.—Country PRACTICE, averaging £800 p.a., in very beautiful district (Panel and appointments return about £360.) Exceptionally attractive house (5/6 bedrooms), separate surgery accommodation, garage and about two acres of grounds, for sale. Hunting, etc. Premium £1,500.
- 14 SCOTLAND.—FIFESHIRE.—PRACTICE, nearly £800 p.a., in small town. Panel about 800. House (6 bedrooms), garage and good-sized garden. Shooting, fishing, etc., available. Premium, house and practice, £2,500.
- 15 S. COAST.—Ophthalmic PRACTICE. Receipts £900 p.a. House (5 bedrooms), garden, small garage, for

- sale. Possible hospital appointment in near future. Premium £1,350, including full equipment, etc.
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- 17 MIDLANDS.—PARTNERSHIP in Practice, about £2,600 p.a., in small town. Two-fifths share at two years' purchase after short Assistantship.
- 18 LONDON, S.W.8.—Lock-Up PRACTICE doing about £300, all cash. Panel 300. Fees: Surgery, 1/6. Visits 2/6. Rent of consulting-rooms, £50 p.a. Premium £400.
- 19 W. OF ENGLAND.—Old-established middle-class PRACTICE in good town. Receipts, 1937, £1,450. Panel 300. Visits 5/- to £1 1s., plus medicine. Very convenient detached non-basement house (7 bedrooms, etc.), to rent. Premium one and a-half years' purchase, or near offer.
- 20 PRIVATE MENTAL HOME for both Sexes.—Cash receipts average £3,900 p.a. (net profits about £200 p.a.). Premium for licence and goodwill, freehold property and furniture, £7,000.
- 21 S. MIDLANDS.—PARTNERSHIP in Practice, nearly £2,400 p.a., in county town. Panel about 2,000. House could be obtained. Premium two-fifths share one and three-quarter years' purchase, or near offer. (Short Assistantship.)
- 22 SURREY.—PRACTICE doing about £900 in growing neighbourhood. Panel 650, increasing. Detached house (3 bedrooms), nice garden and room for garage. Rent 35/- weekly. Net rent of branch, 12/6. Premium £1,500, or offer.
- 23 LONDON, S.E.—Suburban PRACTICE. Receipts 1937, £780. Panel 350. Detached house (7 bedrooms, etc.), small garden, no garage. Price leasehold £700. Scope. Premium one and a-half years' purchase.
- 24 MIDDLESEX.—Increasing PRACTICE doing at rate of £400 in Harrow. Panel 150. Small modern detached house. Rent £90 p.a. Premium £400.
- 25 LONDON, S.E.—PRACTICE doing at rate of £770 p.a. in thickly populated district. Panel 670. Small house (3 bedrooms). Rent £80 p.a. Branch surgery, £40 p.a. Premium £1,150, to include drugs, etc.
- 26 MIDDLESEX.—PRACTICE doing at rate of about £500 on council estate. Appointment worth £20 p.a. Panel 500. Small house. Rent 24/- weekly. Premium £750.
- 27 S. OF ENGLAND.—Progressive town.—PRACTICE about £1,000. Exclusively physio-therapy. Scope for X-ray work. Prospect of appointment on hospital staff. Premium to include certain equipment, £1,125.
- 28 SUSSEX COAST.—PARTNERSHIP in steadily increasing Practice, doing about £1,500, in beautiful country district. Attractive modern house in own grounds (5 bed and dressing-rooms), for sale. Excellent sailing, etc. Scope. Premium one-half share, £1,000.
- 29 N.E. COAST.—Old-established and easily worked middle and better working-class PRACTICE, over £1,150 p.a., in seaport town. No panel. Private residence for sale. Good scope. Premium £800, to include furnishings and fittings of consulting rooms, etc.
- 30 LONDON, W.9.—PRACTICE doing about £1,600. Panel 1,700 and P.M.S. 40. Semi-detached corner house (4 bedrooms, etc.), no garage or garden, to rent. Premium £3,250.

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1. NORTH WALES—SEASIDE RESORT—PARTNERSHIP—OFFER PRELIMINARY ASSISTANTSHIP—A QUARTER SHARE (with increase up to one-half eventually) is offered in very good-class, non-dependent Practice averaging for past 3 years £1,600 p.a. (last year over £4,000). Panel of 1,050. Premium 2 years' purchase. Sport of all kinds. Incoming partner should be experienced and have held hospital appointments.
2. DEATH VACANCY—COUNTRY DISTRICT ON BORDERS OF CAMBS. AND NORFOLK—Old-established PRACTICE producing £1,250 p.a. Panel about 800. Good house in own grounds (3 reception, 6 bedrooms, professional rooms, etc., electric light, garage). Rent on lease £70 p.a. Offers invited.
3. SURREY—DEVELOPING AREA—Recently established PRACTICE offering considerable scope. Earnings for first 6 months are stated to be approximately £700. Panel of 163. Fees from 2 g. Very good freehold house with 2 reception, 3 bedrooms, etc., garden, garage. For sale or rental. Premium £400.
4. LONDON—N.W.—PARTNERSHIP—A ONE-FIFTH SHARE (with increase later) is offered in well-established good mixed-class Practice producing approximately £5,200 p.a. Panel of about 6,000. Suitable maisonette with 2 reception, 2 bedrooms, etc., small garden, garage. Inclusive rent £50 p.a. Premium 2 years' purchase, payable by arrangement.
5. LONDON—WESTERN DISTRICT—Old-established PRACTICE producing about £1,400 p.a., including Panel of over 500. Fees 5 s. to 21 s. Excellent corner house with large and secluded garden (3 reception, 6 bedrooms, etc.) on rental. Premium £2,400.
6. SOUTH-WEST LONDON—Old-established PRACTICE averaging approximately £520 p.a., but capable of considerable expansion. Panel of 190 (increasing). Suitable house for sale or rental. Practice would be worked as of wish. Reasonable offer accepted.
7. WELSH COAST—Old-established PRACTICE in attractive district producing over £2,000 p.a., including substantial panel. Good house with 2 reception, 7 bedrooms. Garden and garage. Very moderate rental. Premium £3,100. Welsh not necessary.
8. NOTTINGHAM—Old-established PRACTICE producing over £1,500 p.a., including panel of 2,000. Fees from 3 s. Moderate expansion. Suitable house with 2 reception, 6 bedrooms, etc., on rental. Premium 2 years' purchase.
9. NORTH WALES—SEASIDE RESORT—Old-established PRACTICE averaging over £1,200 for many years, including selected panel of 425. Suitable house on rental or purchase. Prem. £1,700 or near offer. Vendor going abroad.
10. LONDON, SOUTH-WEST—RESIDENTIAL DISTRICT—Old-established good middle-class PRACTICE held by vendor many years. Gross cash receipts approximately £1,400 p.a., including panel of 500 and appointment worth about £200 p.a. House with ample accommodation on rental. Premium 2 years' purchase. Good scope for increase by energetic worker.
11. HERTS—LARGE TOWN—Old-established PRACTICE at present producing about £400 p.a. but capable of considerable expansion. Panel of over 500. Semi-detached house with 2 sitting, 4 bedrooms, etc. Good garden. Premium £1,350 for practice and house. Vendor retiring.
12. LANCS—LARGE TOWN—Old-established PRACTICE producing over £600 p.a., including panel of 620. Stated to offer exceptional scope for increase as receipts have declined owing to vendor's ill-health. Freehold house for sale or rental. Premium £2,000.
13. ...ly better including freehold
14. 12 months about £1,400. Panel about 1,300. Appointments worth about £50 p.a. Fees from 2 g. Very low expenses. Small house (1 reception, 4 bedrooms, etc.) on rental. Premium £2,000.
15. HANTS—Old-established good-class PRACTICE producing about £1,200 p.a., including Panel of about 500. Charming house on 2 floors with all modern conveniences. Very nice garden. Price freehold £3,000, half on mortgage. Premium 2 years' purchase.
16. MONMOUTHSHIRE—Chiefly better-class PRACTICE producing approximately £1,500 p.a., including small Panel, which could be increased. Fees 3 s. to 21 s. Well-situated house with 2 reception, 6 bedrooms, etc., on rental. Smaller house if wished. Premium £2,000, payable by instalments, as arranged.
17. LONDON, SOUTH-EAST—Old-established PRACTICE worked as a working producer between £650 and £750 p.a., of which £450 is from Panel and P.M.S. Suitable premises on rental. Large scope for increase by anyone devoting full time to the work.
18. SOUTH WALES—Old-established PRACTICE held by vendor (who is taking up an appointment) 13 years. Gross cash receipts over £1,800 p.a., chiefly derived from Panel and appointments. House has ample accommodation. Reasonable offer for quick sale.
19. HOME COUNTIES—FAVOURITE RESIDENTIAL TOWN WITHIN EASY REACH OF LONDON—A ONE-HALF SHARE, estimated to produce about £1,000 p.a., is offered in increasing good mixed-class Practice having good scope for further development. Selected Panel of 475. Low expenses. Good house with 2 reception, 4 bedrooms, etc., on rental. Premium £1,700. Incoming partner should be about 30-35, married, and preferably
20. ...TICE producing between can be rented at £160 p.a. to vendor's ill-health.
21. ...SOUTH-WEST—Chiefly ... £1,000. Panel of 264. Well-situated house with ample accommodation. Price £1,350. Premium 1½ years' purchase.
22. EASY REACH OF CENTRAL LONDON—Old-established mainly working-class PRACTICE held and worked by vendor and his wife many years. Average gross cash receipts for last 3 years over £1,700 p.a., last year over £1,800. Large panel. Suitable house (2 reception, 4 bedrooms, Pro-
23. ...General rooms on rental. Especially suitable for medical men, who can find a job.
24. SUSSEX—FAVOURITE RESIDENTIAL TOWN—PARTNERSHIP—A ONE-HALF SHARE is offered in good-class Practice in a very attractive district, producing about £350 p.a. Panel of about 1,200. Well-built modern house can be rented at £150 p.a. over 100 patients per week. Incoming partner must be experienced, accustomed to central work, and preferably between 30 and 40.
25. WEST OF ENGLAND—COUNTRY TOWN—PRACTICE—A ONE-HALF SHARE is offered in a very pleasant residential area, producing over £200 p.a. for many years. The house is owned by the vendor's retirement. Gross cash receipts about £150 p.a. Fees 7 g. 10 s. upwards. Suitable house available at £1,000. Premium 2 years' purchase. Successor should hold M.D. or M.R.C.P.
26. INLAND SPA—A ONE-THIRD SHARE is offered in well-established good-class Practice producing approximately £2,700 p.a. Sport of all kinds. Average fees 7 g. Suitable house available on rental. Incoming partner should be about 30, experienced in medicine and surgery to deal with worst accidents. No major surgery. Premium 1½ years' purchase.
27. HOME COUNTIES—COUNTRY PRACTICE WITHIN 50 MILES OF LONDON—Established 40 years and held by vendor who is now retiring. 18 years. Average gross cash receipts approximately £1,000 p.a. of which £533 p.a. is from panel. Scope for increase. Appointments worth about £50 p.a. Very low expenses. Good house in an acre of ground with 2 reception, 6 bedrooms, etc. Freehold for sale or might be rented. Premium 2 years' purchase.
28. WITHIN 150 MILES NORTH OF LONDON—COUNTRY TOWN—Old-established 20-year-old two-panel household PRACTICE averaging over £2,000 p.a. Fees 5 s. to 21 s. Good house with ample accommodation. Premium 2 years' purchase.
29. COUNTY TOWN WITHIN 50 MILES OF LONDON—A ONE-FIFTH SHARE (after short preliminary assistantship) is offered in a well-established PRACTICE producing nearly £300 p.a. with large panel. Suitable house on rental. Premium 2 years' purchase.
30. NORTH LONDON—Well-established PRACTICE producing nearly £2,000 p.a., including panel and appointments. Suitable house for sale or rental.
31. SOUTH DEVON—COAST TOWN—Well-established PRACTICE producing over £1,000 p.a., including panel of about £1,200 p.a. and 100 patients per week. House with 2 reception, 6 bedrooms, etc., 6 cars, 2 miles from town. Premium 2 years' purchase.
32. ...A ONE-HALF SHARE is offered in a well-established Practice producing nearly £7,000 p.a. Incoming partner must be a made a special study of medicine and preferably hold the M.R.C.P. or M.S. held a medical registration. Short preliminary assistantship. Successor should hold M.D. or M.R.C.P.
33. ...A ONE-HALF SHARE is offered in a well-established Practice producing nearly £7,000 p.a. Incoming partner must be a made a special study of medicine and preferably hold the M.R.C.P. or M.S. held a medical registration. Short preliminary assistantship. Successor should hold M.D. or M.R.C.P.
34. PARTNERSHIP—A TWO-FIFTHS SHARE, with increase to one-half later, is offered in old-established good country Practice within about 20 miles of London. Gross cash receipts for past 12 months approximately £2,500 p.a., including large panel. Moderate expenses. Very nice house with ample accommodation and all modern conveniences. Freehold for sale or might be rented. Premium 2 years' purchase.
35. NORTH WALES—SEASIDE RESORT—Old-established mixed-class PRACTICE in very pleasant district averaging for past 3 years approximately £2,000 p.a., of which over £600 p.a. is from panel and 100 patients from appointments and clubs. Very convenient house in excellent repair, with electric light, garage, etc. Price of freehold £12,500. Premium £1,600. Partnership only considered.
36. SURREY—DEVELOPING TOWN—Increasing PRACTICE producing for last year £655 and believed to offer considerable scope. Panel of about 450. Well-built semi-detached freehold house with 6 bedrooms, etc., or 7 if house available if wished. Premium 1½ years' purchase.
37. SOUTH-WEST OF ENGLAND—COUNTRY PRACTICE—A ONE-HALF SHARE is offered in old-established Practice producing over £1,000 p.a. but believed to be capable of considerable increase with the aid of an energetic partner. Panel of about 1,100 patients. Very good house with 2 reception, 4 bedrooms, etc., and all modern conveniences. Garden of about 1½ acres.
38. NORTHERN OUTSKIRTS OF LONDON—PARTNERSHIP—A ONE-HALF SHARE is offered in old-established Practice producing over £1,000 p.a. well-established Practice. Receipts for last year stated to be £1,000 p.a. Suitable house with 2 reception, 3 bedrooms, etc. Premium £1,000.
39. NORTH LONDON—Old-established mixed-class PRACTICE averaging for past 2 years about £2,500 p.a. Panel over 200. Suitable house for sale or rental. Premium 2 years' purchase.
40. SCOTLAND—UNIVERSITY CITY—Old-established PRACTICE producing over £1,000 p.a., including £550 from Panel and 50 patients from appointments. Suitable house, 2 reception, 6 bedrooms, etc. Freehold for sale or might be rented. Premium 1½ years' purchase or near offer.
41. LONDON—Residential district—Long-established good mixed-class PRACTICE producing over £1,000 p.a. with a panel of 200 patients. Good house with ample accommodation, garden and garage. Freehold for sale or might be rented. A good income can be given.
42. SOUTH COAST SEAPORT—Old-established mixed-class PRACTICE producing for past year over £3,000. Panel about 1,000. Various appointments. Well-situated modern house, 3 reception, 6 bedrooms, etc. General surgery rented at £60 p.a. part built by Premium 2 years' purchase.
43. SOUTH COAST—FAVOURITE TOWN—Old-established PRACTICE producing over £1,700 p.a. Panel of about 1,500. Appointments about £100 p.a. Scope for increase. Prospect of hospital appointment. Low expenses. Suitable house with garden and garage on lease. Premium 2 years' purchase, to include book debts and drugs.

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LANCS TOWN.—Sound old-established middle and better working-class PRACTICE. Cash receipts last year £2,620. Panel over 1,700. Good house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance); garage and small garden. Rent £70 p.a. Premium—1½ years' purchase.—No. 1090.

Nr. HUDDERSFIELD.—Well-established mixed-class PRACTICE near large town. Average cash receipts £1,175 p.a. Panel 1,121. Good house, 2 reception, 4 bedrooms, 3 Professional rooms, garage and garden. Rent £65 p.a. Premium—1½ years' purchase, or near offer.—No. 1085.

NORTH-EAST COAST.—Old-established mixed Panel and Private PRACTICE. Cash receipts approximately £2,100 p.a. Panel 2,140. Appointment and Clubs £400 p.a. Good house, 2 reception, 3 bedrooms, 3 Professional rooms, garage and small garden. Price £800. Premium—2 years' purchase.—No. 1094.

MIDLAND CITY.—PARTNERSHIP in very old-established mixed Panel and Private Practice. Cash receipts last year £2,498. Panel 2,688. Scope for great increase. Nice modern house available, 2 reception, 3 bedrooms, garage and garden. Premium—½ share—2 years' purchase.—No. 1077.

NORTH WALES SEASIDE RESORT.—PARTNERSHIP (after preliminary Assistantship) in good-class Practice. Cash receipts last year £4,070. Panel 1,050 and appointments £600 p.a. Incoming man should have good degrees and Hospital experience. Probable appointment to local Hospital. Salary during Assistantship, £400 p.a., plus £50 car allowance and rooms overlooking sea. Premium—½ share—2 years' purchase. Increases to ¾ share later.—No. 1096.

LANCS TOWN.—Old-established mixed Panel and Private PRACTICE. Cash receipts about £1,252 p.a. Panel 736. Good house, 2 reception, 5 bedrooms, garage and garden. To rent. Premium—£1,250.—No. 1010.

MANCHESTER.—Old-established mixed-class PRACTICE. Cash receipts last year £1,222. Panel 800. Scope. Good house, 2 reception, 5 bedrooms. Premium—1½ years' purchase.—No. 1009.

NORTH WALES.—Good-class long-established PRACTICE in attractive and residential seaside resort. Cash receipts last 16 years over £1,200 p.a. Panel 425. Good house, with two small gardens, to rent or purchase, freehold. Socially very pleasant. Premium—£1,700.—Vendor retiring.—No. 929.

LANCS TOWN.—PARTNERSHIP in old-established mixed-class PRACTICE in large town 6 miles from Manchester. Average gross cash receipts nearly £4,000 p.a. Panel 3,600. Good house, 2 reception, 4 bedrooms, garage and small garden. To rent. Premium—2½/5th share (about £1,600 gross)—2 years' purchase, or near offer.—No. 1073.

MANCHESTER.—MEDICAL WOMAN'S PRACTICE; in present hands 9 years. Cash receipts last year £1,021. Panel 370. Good detached house, 2 reception, 3 bedrooms, garage and garden. Price £1,050. Premium—1½ years' purchase.—No. 1072.

SHEFFIELD.—MEDICAL WOMAN'S PRACTICE. Well-established, offering scope. Cash receipts £350 p.a. Panel 200. Commodious house. Rent £52 p.a. Premium—£400.—No. 1071.

MANCHESTER.—Sound old-established mixed Panel and Private PRACTICE in industrial district. Cash receipts last year £2,200. Panel 2,230. Good house, reception room, 4 bedrooms, 2 Professional rooms, small garden. Rent £50 p.a. Premium—best offer.—No. 1084.

MANCHESTER.—Well-established mixed-class PRACTICE. Cash receipts £1,600 p.a. Panel 1,600. Good surgery premises to rent at £52 p.a. Purchaser can choose own residence. Premium—1½ years' purchase. Vendor retiring.—No. 1079.

NEAR BUNTON.—Old-established PRACTICE capable of great increase. Cash receipts last year £740 (increasing). Panel 862. Excellent house, 2 reception, 4 bedrooms, 3 Professional rooms (separate entrance), garage and good garden. Premium—Practice and house, £1,700.—No. 989.

DERBYSHIRE.—Old-established mixed-class PRACTICE, near beautiful country and within easy reach of large town. Average cash receipts £1,100 p.a.

Panel 970 and transferable appointments £200 p.a. Scope. Nice detached house, 2 reception, 6/7 bedrooms, garage and large garden. Freehold.—Premium—1½ years' purchase.—No. 991.

YORKSHIRE (W.R.).—Well-established mixed-class PRACTICE with no resident opposition, in pleasant village near a town. Cash receipts last year £1,225. Panel 1,100. Good house, 2 reception, 4 bedrooms, Professional rooms, electric light, garage and garden. Rent £52 p.a. Premium—1½ years' purchase.—No. 1067.

SOUTH COAST.—Old-established middle-class PRACTICE in first-rate seaside resort. Average cash receipts £1,200 p.a. Panel 640. Good house, 2 reception, 4 bedrooms, maid's room, 3 Professional rooms, garage and garden. To rent. Premium—£2,500.—No. 1058.

YORKSHIRE (W.R.).—Very old-established Mixed Panel and Private PRACTICE. Cash receipts £1,200 p.a. Panel 900. Scope. Good detached house, 2 reception, 4 bedrooms, Professional rooms, garage and garden. Premium—1½ years' purchase.—No. 1060.

MANCHESTER.—Well-established middle-class PRACTICE in pleasant suburb. Cash receipts last year £1,225. Panel 760. Scope. Nice detached house, 5 bedrooms, 3 reception rooms, garage and large garden. Premium—best offer.—No. 968.

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DERBYSHIRE.—PARTNERSHIP (after short preliminary Assistantship) in old-established mixed-class PRACTICE in pleasant district near large town. Scope for great increase owing to building developments. Cash receipts last year £4,138. Panel 3,700. Suitable accommodation available. Premium—2/7th share—2 years' purchase.—No. 1089.

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BEDFORDSHIRE.—Small Country PRACTICE, capable of great increase. Cash receipts £400/£500 p.a. Panel 120. Good house, with ample accommodation. Garage and garden. Rent £56 p.a., or would sell for £800. Prem. £300.—No. 1055.

MIDLAND HEALTH RESORT.—PARTNERSHIP (after preliminary Assistantship) in very old-established mixed-class Practice. Cash receipts last year £3,774. Panel 1,300. Fees 3/6 to 10/6. Incoming partner should be Protestant, and may choose own residence. Possibility of Hospital appointment. Premium—½ share—2 years' purchase. Further share in three years.—No. 1069.

NEAR MANCHESTER.—PARTNERSHIP in very old-established middle-class (non-panel and non-dispensing) PRACTICE in pleasant residential district. Cash receipts about £6,000 p.a. Fees 5/- upwards. Unlimited scope. Expenses low. Suitable house available for incoming partner. Premium—½ share—2 years' purchase.—No. 1062.

SOUTH COAST.—PARTNERSHIP in rapidly increasing Practice. Cash receipts last year £4,600. Preliminary Assistantship essential. Premium—½ share—2 years' purchase.—No. 1026.

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